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# Keeping Disaster Human: Empathy, Systematization, and the Law

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ABSTRACT

*In response to recent disasters, legal scholars and policy-makers have condemned the lack of a universal and systematic characterization of disaster and response. They contend that more formally standardizing disaster definitions and protocols will improve efficiency, clarity, and coordination. Despite some truth to these claims, they fail to consider that increased systematization may result in unintended, deleterious consequences. In particular, it may subvert or distort the empathic decision-making and prosocial motivation essential to effective disaster management. Innovative research in psychology and neuroscience indicates that empathy and prosocial motivation are not automatic responses to the plight of others, but are fragile and easily weakened. Who conceptualizes harm, risk, and disaster, with which tools, and for what purpose—all substantially influence whether affective reactions effectively translate into prosocial behavior. The systematization of disaster, victims, and harm via statistics, quanta, and impersonal procedures may thus compromise the vital human dimensions of disaster response. It can also impair elite decision-making, weaken political will, and decrease donations. As such, failure to take into consideration the broader implications of systematizing reforms risks inadvertently*

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*undermining meaningful improvements in disaster risk management.*

> *One can, in principle, master all things by calculation.*
> *— Max Weber*[1]

> *Statistics are human beings with the tears dried off.*
> *— Paul Slovic*[2]



1. MAX WEBER, *Science as a Vocation* (1919), *in* FROM MAX WEBER: ESSAYS IN SOCIOLOGY 129, 139 (H.H. Gerth & C. Wright Mills eds. & trans., Oxford Univ. Press 1946).

2. Various authors, including Paul Slovic, have employed this aphorism: "how can we put the tears back and thus impart the feelings that are needed for rational action?" Scott Slovic & Paul Slovic, *Numbers and Nerves: Toward an Affective Apprehension of Environmental Risk*, 13 WHOLE TERRAIN, no. 1, 2004–2005, at 13, 16; *see also* PAUL BRODEUR, OUTRAGEOUS MISCONDUCT: THE ASBESTOS INDUSTRY ON TRIAL 355 (1985) ("As someone once said, however, statistics are human beings with the tears wiped off.").

## INTRODUCTION

Hurricanes wreak havoc, wildfires engender panic, and earthquakes bring destruction. In the face of disaster, the ultimate goal is an effective response. However, said response depends on more than legal codes, written procedures, and logistical capability. It depends on equally important yet often overlooked facets such as affective response, empathic feeling, and motivation to help others. Rules, statutes, and policies do not assess harm, seek consensus, or rescue those in need. Human beings do. Indeed, disasters are physical as well as social events that involve subjective interpretations of risk and vulnerability.[3] Disasters reveal ongoing societal and economic complexities—such as the exploitation of natural resources or the alteration of atmospheric or migratory conditions.[4] They expose priorities associated with unsustainable practices such as construction in coastal regions or increases in CO2 emission levels.[5] Disaster risks may arise from seemingly arbitrary incidents that are, in fact, the consequences of specific administrative policies or patterns of behavior.[6] Disasters also differentially impact distinct groups within a population.[7] As

3. The present treatment does not rigidly separate *human-caused* from putatively *physical* disasters. It is generally assumed here that disasters of physical conditions, technology, global warming, and related occurrences can be meaningfully addressed together for purposes of the discussion, as sufficient overlap between the different types of disaster likely mitigates the need to exclude a particular type.

4. *See generally* ULRICH BECK, RISK SOCIETY: TOWARDS A NEW MODERNITY 9–84 (Mark Ritter trans., 1992) (1986) (outlining various facets of the social production of risk and environmental hazards); THE RISK SOCIETY AND BEYOND: CRITICAL ISSUES FOR SOCIAL THEORY (Barbara Adam et al. eds., 2000) (providing critical perspectives on new technologies and practices by analyzing complex social and economic relationships built upon specific conceptions of risk).

5. *See* THE H. JOHN HEINZ III CENTER FOR SCIENCE, ECONOMICS AND THE ENVIRONMENT, HUMAN LINKS TO COASTAL DISASTERS 29–56, 84–87 (2002) [hereinafter HUMAN LINKS TO COASTAL DISASTERS].

6. *See* Michele L. Landis, *"Let Me Next Time Be 'Tried By Fire'": Disaster Relief and the Origins of the American Welfare State 1789–1874*, 92 NW. U. L. REV. 967, 970–73 (1998).

7. *See* Alice Fothergill, *Gender, Risk, and Disaster*, 14 INT'L J. MASS EMERGENCIES & DISASTERS 33, 48–49 (1996); Laura Pulido, *Rethinking*

the events of September 11th and Hurricane Katrina attest, disasters permeate identity and collective memory.[8] They test and thus reveal weaknesses in material infrastructure as well as political commitment.[9]

The human complexities of disaster make investigating and responding to its threats formidable.[10] Yet, a wide-ranging, interdisciplinary body of disaster-related research is growing,[11] with some scholars likening its development to that of environmental law and research in the 1960's and 1970's.[12] Within this body of research, there are increasing calls for a more universal, systematic approach to disaster.[13] Specifically, numerous researchers, policy-makers, and academics advocate developing a more "analytically rigorous basis for modeling and evaluating" disasters,[14] with greater mathematical and quantitative rigor.[15] Others have followed suit, condemning inadequate responses to Hurricane Katrina and other calamities as evidence that "the law is woefully unprepared to handle disasters."[16]

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*Environmental Racism: White Privilege and Urban Development in Southern California*, 90 ANNALS ASS'N AM. GEOGRAPHERS 12 (2000).

8. *See* Jim Chen, *Law Among the Ruins*, *in* LAW AND RECOVERY FROM DISASTER: HURRICANE KATRINA 1, 1 (Robin Paul Malloy ed., 2009); Helen H. Fung & Laura L. Carstensen, *Goals Change When Life's Fragility is Primed: Lessons Learned from Older Adults, the September 11th Attacks and SARS*, 24 SOC. COGNITION 248, 253–54 (2006).

9. *See* HUMAN LINKS TO COASTAL DISASTERS, *supra* note 5, at 78–91.

10. *See, e.g.*, *id.* at 29–56, 84–87.

11. *See* Chen, *supra* note 8, at 2–3; ROBERT R. M. VERCHICK, FACING CATASTROPHE: ENVIRONMENTAL ACTION FOR A POST-KATRINA WORLD 5–6, 254 (2010).

12. Daniel Farber, *Symposium Introduction: Navigating the Intersection of Environmental Law and Disaster Law*, 2011 BYU L. REV. 1783, 1786–87, 1815–20 (2011).

13. *See, e.g.*, RICHARD A. POSNER, CATASTROPHE: RISK AND RESPONSE 14, 93 (2004) (decrying the limited systematic analysis of catastrophic risks, and advocating increased use of cost-benefit analysis of responses to the risks); RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS 185, 191, 195–96 (2008); Farber, *supra* note 12, at 1786; E.L. (Henry) Quarantelli, *A Social Science Research Agenda for the Disasters of the 21st Century*, *in* WHAT IS A DISASTER? NEW ANSWERS TO OLD QUESTIONS 325, 329, 338, 341–46 (Ronald W. Perry & E.L. Quarantelli eds., 2005).

14. Jim Chen, *Modern Disaster Theory: Evaluating Disaster Law as a Portfolio of Legal Rules*, 25 EMORY INT'L L. REV. 1121, 1121 (2011).

15. *Id.* at 1121, 1143; POSNER, *supra* note 13.

16. Farber, *supra* note 12, at 1786; *accord* Chen, *supra* note 8.

Although many of the advocated reforms would likely bring key improvements to disaster risk management, failure to adequately consider potential adverse effects would be shortsighted. Because disasters are not just physical events isolated in moments of time, the ways governments and citizens conceptualize and frame disasters inevitably influence those groups' responses to disasters.[17] Far from constituting an exercise in merely responding to objective facts, defining and mitigating disaster are social, political, and ethical negotiations.[18] Indeed, "[a]lthough the category 'disaster' at first may seem unproblematic . . . we should see its definition and boundaries as precisely what is at stake in many contests over the allocation of federal resources."[19] Systematizing the benchmarks, standards, and significance of disaster not only influences risk management, it distributes cultural and material resources, institutes conceptions of justice or equality, and alters existing social landscapes.[20]

This article provides overdue scrutiny of calls for enhanced systematization, and proceeds as follows: Section I outlines key ways in which international, federal, and state authorities characterize disaster. It explains that both legal and theoretical frameworks involve basic definitions as well as shared protocols, quantified formulas, and statistics. Amidst variation, reformers advocate greater systematization of disaster and response given the potential benefits. However, Section II describes the broader contours of reform, and delineates the ways in which systematization fails to provide a universal remedy for disaster. In particular, the Section describes the elusive character of objective assessments and policies. Behind objectivity, facts and universal descriptions lay not only considerable value judgments but also various means of politicizing and distorting law and policy.

In addition to harms associated with the *manner* in which systematization is wielded, Section III analyzes deeper concerns endemic to the *character* of systematization itself. Namely, it evaluates the latter's potential for significantly

17. *See* HUMAN LINKS TO COASTAL DISASTERS, *supra* note 5, at 34–39.

18. *See id.* at ix–x, 108–11.

19. Landis, *supra* note 6, at 971.

20. *See* Ben Wisner, *Capitalism and the Shifting Spatial and Social Distribution of Hazard and Vulnerability*, AUSTL. J. EMERGENCY MGMT., Winter 2001, at 44, 44–50.

distorting or undermining key human, affective, and motivational facets of effective disaster response. Exclusively employing or focusing on quantitative assessments and standardized procedures risks overlooking the substantial role that affect plays in disaster decision-making. A more accurate, capacious approach recognizes affective input as essential to good judgment on behalf of others in crisis, particularly in relation to empathy and prosocial motivation. Yet, the character of empathy and its contribution to disaster decision-making are complex. Groundbreaking psychological and neuroscientific research can help here by elucidating key features of empathic and prosocial motivation, particularly as they relate to aspects of systematization. Section IV then describes the evidence linking empathy and prosocial helping, but also addresses potential criticisms of empathy and its role in policy.

Finally, Section V applies the foregoing analysis of systematization, empathy, and prosocial motivation to specific disaster laws, actors, and decision-makers. In particular, the Section clarifies the ways in which systematization efforts may unwittingly diminish the public's motivation to volunteer, to donate resources on behalf of those in need, and to demand robust government responses to crises. Systematization may also distort experts' and authorities' judgments, and render them less responsive to the needs of communities. Furthermore, the methods by which disaster is framed in physical, sociological, and social-constructivist terms also have relevance to potential reforms. On balance, then, while systematizing efforts may yield clearer, more coherent laws and procedures, those efforts may also distort, undermine, or neglect equally essential human factors of disaster decision-making and motivation.

## I. LAW AND DEFINITIONS OF DISASTER

### A. INTERNATIONAL, FEDERAL, AND STATE LAWS CHARACTERIZING DISASTER

Disasters challenge not just the safety of human beings and habitats; they rupture patterns of daily living and

undermine our sense of control over resources and habitats.[21] Societies understandably seek in response to reassert control over not only a particular disaster, but also disasters at a general, systematic level.[22] Although both types of reassertion are important, the latter has received particular attention recently. Policy analysts, academics, and lawmakers have increasingly called for more coherent, systematic disaster frameworks.[23] For example, various authorities have defined "disasters" as specific kinds of physical events.[24] Others have equated disasters with assessments of physical impact.[25] Still others have defined them as social constructions of reality,[26] or political responses to crises.[27] Some have gone so far as to

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21. *See* HUMAN LINKS TO COASTAL DISASTERS, *supra* note 5, at 63–77 (discussing mental health impacts on disaster victims and community response to disasters).

22. In the United States, for example, Congress has a long history from as early as 1790 of appropriating funds for "the relief of fires, floods, earthquakes," and other disasters. Michele Landis Dauber, *The Sympathetic State*, 23 LAW & HIST. REV. 387, 391 (2005).

23. *See* S. COMM. ON HOMELAND SEC. & GOV'T AFFAIRS, HURRICANE KATRINA: A NATION STILL UNPREPARED, S. REP. NO. 109-322, at 440–41, 586–87 (2d Sess. 2006) [hereinafter, SENATE COMM. ON HOMELAND SEC.]; Chen, *supra* note 14; Yuka Karatani & Haruo Hayashi, *Quantitative Evaluation of Recovery Process in Disaster-Stricken Areas Using Statistical Data*, 2 J. DISASTER RES. 453, 454 (2007); POSNER, *supra* note 13; THALER & SUNSTEIN, *supra* note 13.

24. *See* RUSSELL R. DYNES & E.L. QUARANTELLI, ORGANIZATIONAL RESPONSES TO MAJOR COMMUNITY CRISES 114–18 (Final Report 15, 1975) (contrasting natural disasters with civil disturbances based on origin of their "disaster agent," by classifying natural disasters as events that originate "from non-social forces which are external to the community system," in contrast to civil disturbances as events that originate "from social sources internal to the system").

25. *See* MICHAEL BARKUN, DISASTER AND THE MILLENNIUM 72 (1974).

26. *See* E.L. Quarantelli, *What Is a Disaster? An Agent Specific or an All Disaster Spectrum Approach to Socio-Behavioral Aspects of Earthquakes?*, *in* THE SOCIAL AND ECONOMIC ASPECTS OF EARTHQUAKES AND PLANNING TO MITIGATE THEIR IMPACTS 453, 461–62 (Barclay G. Jones & Miha Tomazevic eds., 1982) (noting the possibility of disconnect between the magnitude of physical impact and social disruption, and discussing an example in which actual damage and loss of life were largely disproportionate to the social response); *see, e.g.*, JAMES PENICK, JR., THE NEW MADRID EARTHQUAKES OF 1811–1812, at 105–29 (1976) (compiling responses to the earthquakes that ranged from substantial increases in church congregation sizes to an escalation of tensions between Native Americans and the U.S. army).

27. WOLF R. DOMBROWSKY, ANOTHER STEP TOWARD A SOCIAL THEORY OF DISASTER 1–2, 6–7 (1981), http://udspace.udel.edu/bitstream /handle/19716/442/PP70.pdf (characterizing the very concept of disaster as

depict disasters and response in terms of statistical imbalances in demand-capability ratios or financial portfolios.[28] In related manner, others disagree over how to characterize risk and harm.[29] In these circumstances, scholars and leaders have criticized the current lack of integration and systematization as impeding coordinated responses, generating indecisiveness, and eroding preparedness.[30]

Such concerns are not merely academic or restricted to a few localities.[31] For instance, in the Hyogo Framework for Action 2005–2015, United Nations member states have stipulated that "efforts to reduce disaster risks must be systematically integrated into policies, plans and programmes . . . supported through bilateral, regional and international . . . partnerships."[32] In response, some agencies, such as the United Nations International Strategy for Disaster Reduction, have sought to systematize their disaster protocols by focusing on loss and the incapacity to respond.[33] They have established a common framework that characterizes "disaster" as "[a] serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own

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unscientific and only marshaled to foster a politically useful demarcation between planned for and unplanned for events).

28. *See, e.g.*, Chen, *supra* note 14, at 1121, 1124–25 (characterizing disaster response as a portfolio of rules that creates an efficient governance response, analogous to the corporate finance portfolio theory of diversified investing).

29. *See* Paul Slovic et al., *Risk as Analysis and Risk as Feelings* (2004), *in* THE FEELING OF RISK: NEW PERSPECTIVES ON RISK PERCEPTION 21, 21–36 (Paul Slovic ed., 2010); Jeanne X. Kasperson, Roger E. Kasperson, Nick Pidgeon & Paul Slovic, *The Social Amplification of Risk: Assessing Fifteen Years of Research and Theory* (2003), *in* THE FEELING OF RISK: NEW PERSPECTIVES ON RISK PERCEPTION, *supra*, at 317, 317–44; *see, e.g.*, Dan M. Kahan et al., *Cultural Cognition of the Risks and Benefits of Nanotechnology*, 4 NATURE NANOTECHNOLOGY 87, 87–90 (2009).

30. SENATE COMM. ON HOMELAND SEC., *supra* note 23; Chen, *supra* note 8; Farber, *supra* note 12, at 1786.

31. *See* Chen, *supra* note 8, at 1.

32. World Conference on Disaster Reduction, *Report of the World Conference on Disaster Reduction*, *Resolution 2 Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters*, 7, U.N. Doc. A/CONF.206/6 (Mar. 16, 2005).

33. *Terminology*, U.N. OFFICE FOR DISASTER RISK REDUCTION (Aug. 30, 2007), http://www.unisdr.org/we/inform/terminology.

resources."[34] Nonetheless, international disparity and lack of coherence persist. In New Zealand, authorities have framed disaster in terms of injury, illness, and distress.[35] Australian law-makers, on the other hand, have chosen to define disaster and response primarily in terms of subjective coping capacity: "disaster" is a "serious disruption to community life . . . which is beyond the day-to-day capacity of the prescribed statutory authorities and which requires special mobilization and organization of resources other than those normally available to those authorities."[36]

Such disparity entails more than mere semantic variation or differing emphases.[37] Vocabularies and concepts that define hazard and risk can profoundly alter the ways in which authorities construct or disregard vulnerability.[38] They can also be used to govern spaces shared by human inhabitants, technologies, and biohazards.[39] For example, different countries take distinct approaches to defining environmental harm based on standards that focus on *appropriate distances* as opposed to *consequence-based* assessments.[40] As German and Swedish authorities employ the appropriate distances standard, they require that limited zones pose virtually no risk to human beings or the environment.[41] Conversely, their Belgian and French counterparts use a consequence-based standard less sensitive to human exposure to hazards.[42] Semantic differences thus embody not only standardization, but also alternative preferences for risk that influence what constitutes harm and

34. *Id.*

35. Civil Defense Emergency Management Act 2002, s 4, subss 69–70 (N.Z.); *see also* Local Government Act 2002 (N.Z.); Building Act 2004 (N.Z.); and Resource Management Act 1991 (N.Z.).

36. EMERGENCY MGMT. AUSTL., AUSTRALIAN EMERGENCY MANAGEMENT GLOSSARY, pt. 1, manual 3, at 32–33 (1998).

37. *See* Michalis D. Christou et al., *The Control of Major Accident Hazards: The Land-Use Planning Issue*, 65 J. HAZARDOUS MATERIALS 151, 156–58 (1999).

38. HUMAN LINKS TO COASTAL DISASTERS, *supra* note 5, at 29–39.

39. *Id.*

40. Christou et al., *supra* note 37 (noting different approaches among European Union countries using aspects of consequence-based risk assessments and/or generic distance categorization for making land-use planning decisions).

41. *Id.* at 158–60.

42. *Id.* at 158, 160–63.

what course of action may be required in case of specific threats.[43]

Conceptual and definitional variability may be particularly evident in the United States. In general, responsibility for defining as well as coordinating and implementing responses rests with local and state authorities.[44] Said authorities may request federal involvement, but are to do so only in extreme circumstances where local capacity is overwhelmed.[45] The decentralized character of response protocols stems primarily from the constitutional emphasis on avoiding concentrated "emergency powers."[46] Nonetheless, those areas governed by federal law are subject to the Stafford Disaster Relief Act (Stafford Act).[47] In addition to stipulating specific relief provisions and conditional response triggers, the Stafford Act defines "major disaster" as:

> Any natural catastrophe (including any hurricane, tornado, storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.[48]

The Stafford Act emphasizes presidential power and prerogative.[49] Although the definition enumerates a list of concrete events that fall under the rubric of disaster, the power of the definition lies in the subjective declaration of a top official.[50]

Apart from basic federal guidelines, various states employ disparate definitions and response protocols. Some states

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43. T. Joseph Scanlon, *Forward* to WHAT IS A DISASTER? NEW ANSWERS TO OLD QUESTIONS, *supra* note 13, at 13, 14–16.

44. *See* DANIEL A. FARBER ET AL., DISASTER LAW AND POLICY 76, 90, 161–67 (2d ed. 2010).

45. *See id.* at 76, 90–92.

46. Youngstown Sheet & Tube Co. v. Sawyer, 343 U.S. 579, 650 (1952) (Jackson, J., concurring).

47. *See* Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§ 5121–5207 (2007).

48. *Id.* at § 5122(2).

49. *Id.* at §§ 5121–5207.

50. *Id.* at §§ 5122, 5131.

delineate the specific events that constitute disaster.[51] Others use generic phrasing without reference to any specific natural or man-made occurrences.[52] Even among the states that enumerate events, there is variation in those that qualify as disaster.[53] Perhaps nowhere is state-to-state variability more clearly manifest than in the amount of license authorities have to declare whether a particular event qualifies as a disaster. At one end of the spectrum, state laws provide highly subjective definitions that give substantial discretion to authorities. Nevada state regulation, for instance, defines "disaster" as an "occurrence or threatened occurrence for which, in the determination of the Governor, the assistance of the Federal Government is needed."[54] Other states such as Connecticut allow either the Governor or the U.S. President to ascertain whether "a civil preparedness emergency" is of "sufficient severity and magnitude to warrant major disaster assistance."[55]

Some states narrow the subjective determination and supply more restricted meaning to disaster qualifications.[56] New Jersey statutes, for instance, define "disaster" as an "unusual incident . . . which endangers . . . health, safety or resources . . . , and which is or may become too large in scope or unusual in type to be handled . . . by regular municipal operating services."[57] In like manner, Tennessee codes frame disaster as an event "that will likely exceed local capabilities and require a broad range of state and federal assistance."[58] Strictly speaking, these definitions are less subjective than

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51. The state codes of Connecticut, Idaho, New York, and Texas, for instance, enumerate specific types of natural and man-made disasters. *See* CONN. GEN. STAT. ANN. § 28-1(2) (West 2010); IDAHO CODE ANN. § 46-1002(3) (West 2010); N.Y. EXEC. LAW § 20, 2(a) (McKinney 2004); TEX GOV'T CODE ANN. § 418.004 (West 2012).

52. New Jersey, North Carolina, and Tennessee, for instance, do not enumerate specific natural or man-made events that can trigger a disaster response. *See* N.J. STAT. ANN. § App. A:9-33.1 (West 2006); N.C. GEN. STAT. ANN. § 166A-19.3 (West 2013); TENN. CODE ANN. § 58-2-101(4) (2013).

53. For instance, N.Y. EXEC. LAW §20 (McKinney 2004) excludes some events that TEX GOV'T CODE ANN. § 418.004 (West 2012) includes, and vice versa.

54. NEV. REV. STAT. § 414.0335 (2015).

55. CONN. GEN. STAT. § 28-1 (West 2010).

56. *See* N.J. STAT. ANN. § App. A:9-33.1 (West 2006); OR. REV. STAT. § 401.025 (2012); TENN. CODE ANN. § 58-2-101 (2013).

57. N.J. STAT. ANN. § App. A:9-33.1 (West 2006).

58. TENN. CODE ANN. § 58-2-101 (2013).

those that define disaster as simply what an executive officer deems it to be. However, there is still substantial room in defining an event or situation that is *beyond normal capacity*. More concrete are those definitions that frame disasters as particularly grievous instances of specific occurrences.[59] Yet, even under the seemingly more objective standards, there remains substantial variability in how states characterize disasters and coordinate responses to them.

### B. POTENTIAL BENEFITS OF GREATER SYSTEMATIZATION

Amidst such lack of theoretical cohesion, clarity, and coordination, more fully systematizing disaster and risk management could generate benefits.[60] First, systematization could yield a more universal, shared understanding of disaster that helps to eliminate unnecessary theoretical confusion. Some researchers claim that there is a "massive disagreement among [scholars] about what" disaster means, with scholars "struggling to define a seemingly commonplace" occurrence.[61] Experts have expressed frustration at the lack of coordination between research on risk, hazard, and disaster.[62] They have also condemned the frequent tendency to speak "past one another" on "the characteristics of the phenomena, the conditions that lead to them, and the consequences that result."[63] The different vocabularies, academic norms, and empirical tools that sociologists, economists, engineers, and

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59. *See* IDAHO CODE ANN. § 46-1002(3) (West 2014); KAN. STAT. ANN. § 48-904(d) (1983); N.Y. EXEC. LAW § 20 (McKinney 2004); N.C. GEN. STAT. § 166A-19.3 (2013); TEX GOV'T CODE ANN. § 418.004 (West 2012).

60. Many have called for more rational, instrumental, and deliberative approaches to disaster as a means of overcoming the costs of calamity. *See, e.g.*, POSNER, *supra* note 13, at 14, 139–40 (calling for increased use of cost-benefit analysis to craft responses to "catastrophic risks"); Cass R. Sunstein, *Cognition and Cost-Benefit Analysis*, 29 J. LEGAL STUD. 1059, 1063 (2000) (arguing that cost-benefit analysis of government responses to risk should be insulated from the non-technical opinions of the public and interest groups that otherwise dilute government regulations with inefficient preferences that waste resources).

61. Scanlon, *supra* note 43, at 16.

62. *See* Susan L. Cutter, *Are We Asking the Right Question?*, *in* WHAT IS A DISASTER? NEW ANSWERS TO OLD QUESTIONS, *supra* note 13, at 39, 40.

63. E.L. Quarantelli, *Introduction: The Basic Question, Its Importance, and How It Is Addressed in This Volume*, *in* WHAT IS A DISASTER? PERSPECTIVES ON THE QUESTION 1, 4 (E.L. Quarantelli ed., 1998).

lawyers employ increase the potential for misunderstanding.[64] Thus, greater systematization could enable theorists and policy-makers to clarify goals and employ a standardized vocabulary.[65]

Second, efforts to better systematize disaster may also better coordinate communication procedures and guidelines,[66] distinguish different groups' functions,[67] and foster improved performance-based standards.[68] Some have decried the "fail[ure] to articulate clearly which specific actions should be taken and what components should be utilized."[69] Similarly, some have criticized specific procedures employed in the United States as "fail[ing] to define Federal responsibility for . . . catastrophic events . . . . [Or to provide] comprehensive goals along with an integrated means to measure their progress . . . ."[70] As implementing relief plans requires clearly delegated rules and responsibilities for separate agencies or organizations, systematization could more fully clarify operating procedures and delineate disaster duties.

Third, more systematic disaster mechanisms and procedures might offer more coordinated implementation better able to anticipate new emergencies.[71] As global problems grow more complex, including biogenetic engineering threats, large-scale food contamination, network technology failures, and increased viral and bacterial resistance to medical treatment, greater coordination could better enable disparate communities from across the globe to tackle these challenges collectively.[72] Systematic protocols and operating procedures could also enable practitioners to manage more adeptly complex decisions

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64. *See* Howard Kunreuther & Paul Slovic, *Preface*, 545 ANNALS AM. ACAD. POL. & SOC. SCI. 8, 8–11 (1996).

65. *See* Gilbert F. White, *Paths to Risk Analysis*, 8 RISK ANALYSIS 171, 171–74 (1988).

66. THE WHITE HOUSE, THE FEDERAL RESPONSE TO HURRICANE KATRINA: LESSONS LEARNED 97 (2006).

67. *Id.* at 102.

68. *Id.* at 117.

69. *Id.* at 15.

70. *Id.* at 66.

71. *See id.* at 51.

72. *See generally* ALAN MCHUGHEN, PANDORA'S PICNIC BASKET: THE POTENTIAL AND HAZARDS OF GENETICALLY MODIFIED FOODS (2000); BRUCE SCHNEIER, SECRETS AND LIES: DIGITAL SECURITY IN A NETWORKED WORLD (2000); Michael Balter, *On the Trail of Ebola and Marburg Viruses*, 290 SCIENCE 923, 923, 925 (2000).

when they arise. Evidence suggests that responses to such catastrophes as Hurricane Katrina were plagued by "failures in coordinated command and communications" between government, responders, and experts.[73] Other examples indicate that assessing which circumstances trigger which type of response is crucial. Specifically, the United States National Response Plan (NRP) has been faulted for failing to "define the circumstances under which . . . [disaster] resources" would be delivered.[74] Defining the qualifying conditions of disaster and the rules that govern disaster response could thus enhance execution, provide legal and analytic consistency, and strengthen the collective ability to respond to unanticipated future harm.[75]

Fourth, greater systematization potentially provides more quantitative, tractable disaster models and plans.[76] Such techniques may enable researchers and scholars to "gauge their distinct contributions to expanding legal and social capacity and to lowering environmental hazard and social vulnerability."[77] Advocates contend that more objective protocols could enable experts and authorities to bring to bear more rigorous formulas and statistics that "infuse . . . mathematical" sophistication into disaster prevention and relief.[78] Such tools, formulas, and "portfolios of legal rules"[79] could provide better grounds for ascertaining proper risk assessments, acceptable levels of vulnerability, and adequate disaster recovery resource allocation.[80] Taken together, these considerations have motivated practitioners, scholars, and authorities to advocate or develop systematic disaster management reforms.[81]

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73. Erin Ryan, *Federalism and the Tug of War Within: Seeking Checks and Balances in the Interjurisdictional Gray Area*, 66 MD. L. REV. 503, 522–23 (2007).

74. THE WHITE HOUSE, *supra* note 66, at 54.

75. *See id.* at 151.

76. *See* Chen, *supra* note 14, at 1123–24.

77. *Id.* at 1130.

78. *Id.* at 1123–24.

79. *Id.*

80. Daniel A. Farber, *Probabilities Behaving Badly: Complexity Theory and Environmental Uncertainty*, 37 U.C. DAVIS L. REV. 145, 148–55 (2003).

81. *E.g.*, Farber, *supra* note 12, at 1786–87 ("This emerging legal academic field encompasses a wide-ranging, interdisciplinary body of research that seeks to inform and improve disaster-related decision-making, as

## II. A BROADER VIEW OF SYSTEMATIZATION

### A. THE NUANCE AND MULTIPLICITY OF SYSTEMATIZING DISASTER

Before wholeheartedly embracing the various calls for systematization and related reforms, such prospects merit further scrutiny. In particular, scholars and policy-makers owe more capacious assessments of both potential systematization benefits *and costs*. However, to carefully evaluate the effects of a potentially vague concept, it will be useful to clarify terms. "Systematization" refers to a complex set of tools, procedures, and goals that aim to rationalize, centralize, or bureaucratize previously interpersonal or spontaneous human patterns of action.[82] Systematization is related to, but not coterminous with, preparedness, law, and planning generally.[83] In the context of disaster, the term is also to be distinguished from mere improvements in efficiency, such as deliberating about and executing the most effective methods of delivering resources, enlisting volunteers, and dispersing blood donations to needy hospitals.[84]

Instead, in the context of disaster, systematization comprises the specific 1) *formalistic*, 2) *theoretical*, or 3) *substantive* mechanisms or methods by which experts, leaders, or related personnel plan, codify, and implement disaster

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evidenced by recent books and a rapidly expanding number of law review articles." (footnotes omitted)).

82. *See* MAX WEBER, THE PROTESTANT ETHIC AND THE SPIRIT OF CAPITALISM 25–27 (Talcott Parsons trans., George Allen & Unwin Ltd. 1930) (1905) [hereinafter WEBER, PROTESTANT] (describing rationalization within western society as occurring with particular values and towards specific ends rather than any *a priori* process); MAX WEBER, ECONOMY AND SOCIETY 33–36 (Guenther Roth & Claus Wittich eds., Ephraim Fischoff et al. trans., Univ. of Cal. Press 1968) (1921) [hereinafter WEBER, ECONOMY] (describing types of legitimated order and processes whereby order is established through social conventions); MAX WEBER, *The Profession and Vocation of Politics* (1919), *in* WEBER: POLITICAL WRITINGS 309, 328–31 (Peter Lassman & Ronald Speirs eds. & trans., Cambridge Univ. Press 1994) [hereinafter WEBER, POLITICAL WRITINGS] (describing the historical emergence of administrative officials and professional politicians and describing the characteristics of rationality their power relies upon).

83. *See* Stephen Kalberg, *Weber's Types of Rationality: Cornerstones for the Analysis of Rationalization Processes in History*, 85 AM. J. SOC. 1145, 1177 (1980).

84. *See* MAX WEBER, *The Social Psychology of World Religion* (1922–1923), *in* FROM MAX WEBER: ESSAYS IN SOCIOLOGY, *supra* note 1, at 267, 293 (describing rationality in the social system context as different from efficiency, and instead as a particular orientation towards a valued end).

prevention and response.[85] First, systematization in terms of *formalism* involves implementing decisions that are "arrived at 'without regard to persons,'"[86] or focus on unambiguous general characteristics of a case in a "purely processual" manner.[87] Examples of formalistic systematization include reforms aiming to establish a legislative drafting process regarding disasters,[88] formal policy mechanisms to review disaster risk management systems,[89] or comprehensive plans at local, state, national, and international levels.[90] They may also involve altering land ownership or use by eliminating or repossessing citizens' real or personal property as part of disaster risk management.[91] In addition, public officials may exercise significant discretion in decisions to ostensibly *upgrade* urban settlements under the auspices of formalized methods of disaster prevention and mitigation.

Although said formalism can be employed to, among other things, reduce cronyism or bias, within formalized systematization efforts, who defines disaster and in what context, which methodologies are employed, and what tradeoffs are deemed necessary, all heavily influence disaster outcomes, and in potentially detrimental ways. Similarly, the criteria that experts select, and the plans that specific events activate will govern vulnerability as well as resources.[92] What is more, the

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85. These distinctions are adapted from various scholars' analysis of Weber's extensive work on processes of rationalization, and applied to the context of disaster. They should not be understood here as historical developments, or specific aspects of distinct political, economic, or social realms *per se*, but merely as useful heuristics for practical and conceptual clarity. *See* WEBER, PROTESTANT, *supra* note 82, at 74–77, 293; WEBER, ECONOMY, *supra* note 82, at 998; Kalberg, *supra* note 83.

86. Kalberg, *supra* note 83, at 1158.

87. WEBER, ECONOMY, *supra* note 82, at 656–57.

88. INT'L FED'N OF RED CROSS & RED CRESCENT SOCIETIES & UNITED NATIONS DEV. PROGRAMME, EFFECTIVE LAW AND REGULATION FOR DISASTER RISK REDUCTION: A MULTI-COUNTRY REPORT 16 (2014) [hereinafter IFRC & UNDP].

89. *Id.* at 17.

90. *Id.* at xi–xiii.

91. *Id.* at 81–82.

92. *See, e.g.*, MIKE DAVIS, ECOLOGY OF FEAR: LOS ANGELES AND THE IMAGINATION OF DISASTER 5–39, 61–91 (1998) (juxtaposing a history of rampant development and irregular hazard planning in the Los Angeles metropolitan area with the regularity of acute and destructive natural disasters); Fothergill, *supra* note 7 (discussing the impact of gender in disaster research and the framing of risk); Landis, *supra* note 6, at 971–72 (discussing dynamics between perceptions of human agency in disasters and decisions to

formalized practices of systematization can take on a life of their own, potentially decoupling disaster practices from basic ethical commitments.[93]

Second, systematization can occur at the *theoretical* level, wherein individuals employ procedures to impose, wittingly or not, conceptual meaning on the conditions or significance of disaster.[94] Disasters often constitute unique temporal conditions that bring chaos and uncertainty into domains usually governed by protocol and regularized meaning.[95] Social and natural scientists can respond to disasters by developing holistic explanations or models to impose coherence and predictability on ostensibly unrelated phenomena.[96] Although generally conveyed in abstract form,[97] theoretical systematization relates directly to disaster in concrete ways. For instance, legal scholars, economists, and scientists have advocated or developed more theoretically coherent models of disaster and risk management.[98] Karatani and Hayashi urge greater statistical efficiency via recovery indices involving "statistical database[s] for calculation of data" and better "quantitative" analysis of recovery.[99] They maintain that policy-makers can more adequately "understand local society and economy in a region" by using "corrected macroscopic statistical data."[100] From their perspective, data that is "standardized" to "comprehend all aspects of life" can simplify the complexity of different cultures, economies, and geographic

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allocate resources); Pulido, *supra* note 7 (establishing the lens of environmental racism for deconstructing decisions around zoning, development, and resource allocation).

93. *See* Frank Ackerman & Lisa Heinzerling, *Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection*, 150 U. PA. L. REV. 1553, 1564–70 (2002).

94. WEBER, *supra* note 84.

95. Chen, *supra* note 14, at 1121–22.

96. *See* WEBER, *supra* note 84, at 279–81; WEBER, ECONOMY, *supra* note 82.

97. *See generally* WEBER, ECONOMY, *supra* note 82, at 432–33 (discussing the rationalization of norms from abstract religious concepts).

98. Chen, *supra* note 14, at 1143; Karatani & Hayashi, *supra* note 23; Howard C. Kunreuther & Erwann O. Michel-Kerjan, *Climate Change, Insurability of Large-Scale Disasters, and the Emerging Liability Challenge,* 155 U. PA. L. REV. 1795, 1813 (2007).

99. Karatani & Hayashi, *supra* note 23.

100. *Id.*

regions, thereby enabling "comparison . . . across fields [and] target setting[s]."[101]

Another theoretical approach recommends a catastrophe model that is said to capture the hazard, vulnerability, and loss endemic to a disaster.[102] The model enables technicians to measure risk using probability projections, and to calculate the costs of physical impact, repairs, and business interruptions.[103] By so doing, experts can produce an exceedance probability curve that ascertains the probability that a certain level of losses, measurable "in dollars of damage, fatalities, illness, or some other unit of analysis," will be exceeded in a specific location over a period of time.[104] Government agencies then use these figures to "estimate the likelihood that losses to specific communities or regions from natural disasters will exceed certain levels," and to plan or respond accordingly.[105]

An alternative tactic advises characterizing disaster and response in terms of specific formulas and financial portfolios of legal rules.[106] Drawing upon the International Federation of Red Cross and Red Crescent Societies' approach, the scheme suggests that disaster is best defined as "*(Hazard + Vulnerability) / Capacity*."[107] The purpose of disaster law from this perspective is to increase preparedness, expressed as "*1 / Disaster*" or "*Capacity* / (*Hazard* + *Vulnerability*)."[108] In other words, preparedness can be calculated by dividing the numerator "performance of legal institutions and rules" by the denominator "risk as posed by environmental hazard and social vulnerability."[109] This approach suggests that parties impacted by and deliberating about disaster behave as rational actors much like financial investors,[110] and thus this approach enables policy-makers and the body politic to evaluate disaster policy in the same way that financial risk managers evaluate "the performance of financial portfolios."[111] Equations and

101. *Id.*
102. Kunreuther & Michel-Kerjan, *supra* note 98, at 1814 fig.3.
103. *Id.* at 1814–16.
104. *Id.* at 1814.
105. *Id.* at 1815.
106. Chen, *supra* note 14, at 1121–22.
107. *Id.* at 1122.
108. *Id.* at 1123–24.
109. *Id.* at 1124.
110. *See id.* at 1125, 1143.
111. *Id.* at 1143.

portfolios of legal asset rules are thus said to provide simplified, "theoretically coherent exercise[s] in societal risk management"[112] that effectively translate the complex dimensions of disaster into "mathematically rigorous terms."[113]

Third, systematizing disaster at a *substantive* level may hinder effective disaster management by imposing standardized canons against which "empirical events may be selected, measured and judged."[114] Systematization can impose normative significance on disaster by establishing norms of exclusion,[115] and implicit or explicit preferences and values may legitimate patterns of action or legal structure.[116] For example, individuals can wield asset rules and statistics,[117] exceedance probability curves,[118] or standardized scales that "comprehend all aspects of life"[119] not just as descriptions of events but also as normative prescriptions or requirements. In this sense, models or definitions can become the accepted, governing frames that *necessitate* particular policies, laws, or resource distribution schemes.[120] Where such demands are not met or canons not recognized, alternatives may be branded as "flawed, biased, and misleading,"[121] and deviations may be formally or informally disciplined.[122]

A prominent example of substantive systematization occurs in some welfare-maximizing paradigms that serve as

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112. *Id.* at 1121.

113. *Id.* at 1128.

114. Kalberg, *supra* note 83, at 1155.

115. *See* WEBER, *supra* note 84, at 294–95.

116. *See* WEBER, POLITICAL WRITINGS, *supra* note 82, at 312, 355–59 (observing that a form of rationalization in political power exists "by virtue of 'legality,' by virtue of belief in the validity of legal statute . . . founded on rationally devised rules," but then discussing significant disconnects among the political class between espoused ends and legitimating means on the one hand, and ethics on the other).

117. Chen, *supra* note 14, at 1125–27.

118. Kunreuther & Michel-Kerjan, *supra* note 98, at 1814.

119. Karatani & Hayashi, *supra* note 23.

120. DOUGLAS A. KYSAR, REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY 71 (2010).

121. *Id.* at 208 (quoting Robert N. Stavins, Comment Letter on Proposed CWA NPDES Regulations for Cooling Water Intake Structures at Phase II Existing Facilities, at 3 (July 19, 2002)) (criticizing the cost-benefit analysis performed by the U.S. Environmental Protection Agency).

122. *Id.* at 209–13 (resulting in this case with the agency significantly diluting the regulatory standard to appease critics).

means of measuring or invalidating regulations or duties.[123] As a seemingly objective method for evaluating proposed disaster policies or risk assessments,[124] cost-benefit analysis is often justified as neutral to any particular conception of value or judgment.[125] However, at best, such *neutrality* is an ideal rather than basic fact about reality. Authorities and experts can rationalize their particular approaches by applying, for example, numeric weights to time horizons, or establishing discount rates that validate specific policies.[126] In this manner, seemingly perfunctory or *neutral* standardizations can be used to exclude policy alternatives, promote political projects, or construct quantitative frameworks that immunize certain policies from further scrutiny.[127]

### B. THE USES AND ABUSES OF SYSTEMATIZATION

Although as a set of tools, procedures, and goals, systematization can promote various formal, theoretical, and substantive aims, it is still no guarantee of optimal results. First, various past disaster failures have occurred with more formalized regulatory language, universalized codes, and centralized authority already in place.[128] In fact, some of the supposed benefits of systematization appear to have hindered previous disaster responses.[129] A common allegation concerning Katrina held that top government officials argued over *too*

123. Some employ rationalizing procedures that include normative elements that dismiss alternative approaches of rationalization as poor, erroneous, or emotionally distorting. *See* Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation*, 51 STAN. L. REV. 683, 753 (1999).

124. *See* RICHARD L. REVESZ & MICHAEL A. LIVERMORE, RETAKING RATIONALITY: HOW COST-BENEFIT ANALYSIS CAN BETTER PROTECT THE ENVIRONMENT AND OUR HEALTH 10 (2008).

125. Sunstein, *supra* note 60.

126. Ackerman & Heinzerling, *supra* note 93, at 1563–64.

127. In disaster law and policy literature, such procedures may, but do not necessarily, include crafting specific social discount rates, willingness-to-pay calculations, and value-of-statistical-life-years paradigms. *See* FRANK ACKERMAN & LISA HEINZERLING, PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING 148–49 (2004); Ackerman & Heinzerling, *supra* note 93, at 1563–65; Lisa Heinzerling, *The Rights of Statistical People*, 24 HARV. ENVTL. L. REV. 189, 194–95 (2000); Quarantelli, *supra* note 13, at 377; W. Kip Viscusi, *Risk Equity*, 29 J. LEGAL STUD. 843, 853 (2000).

128. *See* SENATE COMM. ON HOMELAND SEC., *supra* note 23, at 163; THE WHITE HOUSE, *supra* note 66, at 14.

129. SENATE COMM. ON HOMELAND SEC., *supra* note 23, at 164.

*much* legal coda and minutiae.[130] First-person accounts report that excessive procedural language and rules left top policy-makers wrangling over proper authority and delegation,[131] thereby hindering a more effective response.

In addition, greater systematization risks undermining flexibility in times of crisis, inasmuch as "attempts to define and to delineate 'disaster' in precise ways are bound to be incomplete and even misleading."[132] The NRP, for instance, was faulted for not being adequately "designed to address specific scenarios," and not sufficiently "contemplat[ing] an event on the massive scale of Katrina."[133] It is reasonable to question, however, whether *any* predetermined set of rules could function in such a way, as even ardent proponents of systematization admit that "most disasters follow lopsidedly non-Gaussian distributions."[134] The complexities of overwhelming crises inevitably constrain the extent to which comprehensive models and protocols can be constructed precisely *a priori*.[135]

Past evidence also suggests that flexibility, autonomy, and absence of comprehensive systematization can actually enhance the delivery of services and improve disaster response.[136] For example,

> [t]he ability of on-site officials to make quick judgments, informed by firsthand observations not available to faraway supervisors, might have greater potential to effect good outcomes in emergencies than the designation of a federal coordinating officer under the Stafford Act or the designation of a principal federal official under the [National Response Framework].[137]

By extension, many autonomous organizations not fully integrated into centralized, rigid decision-making apparatuses have proven highly effective in response to some disasters.[138]

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130. *See* Ryan, *supra* note 73, at 522–27.

131. *See id.* at 525–27.

132. Philip Buckle, *Disaster: Mandated Definitions, Local Knowledge and Complexity*, *in* WHAT IS A DISASTER? NEW ANSWERS TO OLD QUESTIONS, *supra* note 13, at 173, 193.

133. SENATE COMM. ON HOMELAND SEC., *supra* note 23, at 554.

134. Chen, *supra* note 14, at 1124; Farber, *supra* note 80, at 148–55.

135. Chen, *supra* note 14, at 1121–22.

136. FARBER ET AL., *supra* note 44, at 154.

137. *Id.*

138. *See, e.g.*, KEVIN R. KOSAR, CONG. RESEARCH SERV., RL 33314, THE CONGRESSIONAL CHARTER OF THE AMERICAN NATIONAL RED CROSS: OVERVIEW, HISTORY, AND ANALYSIS 19 (2006).

First-hand witnesses and research documents reveal that non-integrated relief agencies have often demonstrated flexible, efficient deployment of resources in times of disaster.[139] Others have documented numerous organizations that have contributed effectively to disaster management even without centralized bureaucracies or highly technical protocols.[140]

During Katrina various observers recognized the capacity of private and non-governmental agencies to "get . . . assistance to the disaster areas almost immediately after the [crisis] had passed, in comparison to the days—in some cases weeks—that residents waited for government agencies to provide relief."[141] The highly effective record of private utility companies restoring services within days of a disaster illustrates this point.[142] Moreover, during the crisis many private organizations and hospitals not only provided superior care services, but even rescued many critically ill patients then located in government-run hospitals.[143] More extensive bureaucracies or systematized regulations and protocols are obviously no full-proof panacea, and in some instances may actually yield suboptimal results.

On a more theoretical level, a structural problem inherent in systematizing efforts centers on the contrived objectivity that manifestly subjective and normative determinations are expected to furnish. One such case involves the most expensive natural disaster to date—the Tohoku Earthquake and Tsunami—in which a nuclear reactor in Fukushima, Japan released substantial amounts of radioactive material,[144] caused

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139. *See* Steven Horwitz, *Making Hurricane Response More Effective: Lessons from the Private Sector and the Coast Guard During Katrina*, MERCATUS POL'Y SERIES, no. 17, March 2008, at 1, 1–3.

140. *See, e.g.*, *id.*; KOSAR, *supra* note 138.

141. Horwitz, *supra* note 139, at 3.

142. *See Transmission and Distribution, Southern Company CEO Shares Details of Successful Hurricane Katrina Response with Senate Committee*, PR NEWSWIRE (Nov. 16, 2005), http://www.prnewswire.com/news-releases/southern-company-ceo-shares-details-of-successful-hurricane-katrina-response-with-senate-committee-55644032.html.

143. *See HCA Completes Airlift Evacuation at Tulane University Hospitals and Clinic; Assists Nearby Hospitals*, PR NEWSWIRE (Sept. 2, 2005), http://phx.corporate-ir.net/phoenix.zhtml?c=63489&p=irol-newsArticle&ID=752385.

144. This was the largest earthquake ever recorded in Japan, and the fourth largest worldwide since 1900. *See Fukushima Accident*, WORLD NUCLEAR ASS'N, http://www.world-nuclear.org/info/Safety-and-Security/Safety-of-Plants/Fukushima-Accident/ (last modified Sept. 2015); *see*

considerable human suffering, and made extensive amounts of land uninhabitable.[145] Critics have subsequently asked whether the disaster could have been averted, including whether there was an "objective" height at which the seawater pumps at Fukushima should have been built.[146] As a preliminary answer, Fukushima's own design-based simulation estimated a tsunami of a maximum 3.1 meters above sea level, comfortably below the four-meter height at which the station was located at the time of the tsunami.[147] In 2002, experts employed an updated methodology that estimated a safe maximum of 5.7 meters.[148] When the tsunami struck, however, it exceeded 17 meters (~55 feet) in height at the reactor site, and 39 meters (~128 feet) elsewhere on Japan's coastline, far surpassing most recent expert predictions.[149] Indeed, when the earthquake actually struck, "its magnitude caught seismologists by surprise . . . . This significant underestimation, in spite of Japan's considerable investments in seismology, is a sobering warning against overconfidence in hazard prediction."[150]

From the vantage point of pre-2011 estimates, the Fukushima measurements and wall itself would have appeared rational, efficient, and quantitatively sound given the relevant constraints. At the least, citizens and farmers who protested excessive radioactive exposure or tsunami vulnerability could

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*also Largest Earthquakes in the World Since 1900,* U.S. GEOLOGICAL SURVEY (Apr. 11, 2012), http://earthquake.usgs.gov/earthquakes/world/10_largest_world.php.

145. The costs of the effects of the Fukushima Earthquake and Tsunami are estimated at more than $300 billion. *See Earthquake Summary*, *Magnitude 9.0 – Near the East Coast of Honshu, Japan*, U.S. GEOLOGICAL SURVEY, http://earthquake.usgs.gov/earthquakes/eqinthenews/2011/usc0001xgp/#summary (last modified Mar. 23, 2015).

146. *See* JAMES M. ACTON & MARK HIBBS, CARNEGIE ENDOWMENT FOR INT'L PEACE, WHY FUKUSHIMA WAS PREVENTABLE 11–15 (2012).

147. *See* Int'l Atomic Energy Agency [IAEA], *IAEA International Fact Finding Expert Mission of the Fukushima Daiichi NPP Accident Following the Great East Japan Earthquake and Tsunami*, at 74 (June 16, 2011).

148. *See* ACTON & HIBBS, *supra* note 147, at 9–10.

149. *See* TOKYO ELECTRIC POWER CO., REPORT ON INVESTIGATION RESULTS REGARDING TSUNAMI GENERATED BY THE TOHOKU-TAIHEIYOU-OKI EARTHQUAKE IN FUKUSHIMA DAI-ICHI AND DAINI NUCLEAR POWER STATIONS (July 8, 2011), http://www.tepco.co.jp/en/press/corp-com/release/betu11_e/images/110708e18.pdf; Becky Oskin, *Japan Earthquake & Tsunami of 2011: Facts and Information*, LIVE SCIENCE (May 7, 2015, 4:52 PM), http://www.livescience.com/39110-japan-2011-earthquake-tsunami-facts.html.

150. ACTON & HIBBS, *supra* note 147, at 11.

have been disregarded as potential alarmists who suffered cognitive bias.[151] Yet, the legal question remains whether substantive, theoretical, and formalist mechanisms and efforts unduly exposed citizens to harm and created a false procedural or mathematical assurance that misled authorities and citizens alike. Similar questions have been posed after design bases of nuclear plants in France, India, the United States, and elsewhere failed to manage earthquake and flood damage.[152] Even more troublesome, in determining liability, on what basis might authorities determine legal responsibility outside or beyond the very numbers, measurements, and tools at issue in the first place? Such questions are not mere academic exercises; since the 2006 L'Aquila earthquake hit Italy, for example, judges have had to determine whether scientists and authorities were criminally responsible for failing to adequately assess L'Aquila's risks and for providing false assurances.[153]

Beyond the basic tenuousness of putative objective assessments, systematizing frameworks often conceal value judgments and preferences.[154] Because "numerical estimates of risks, costs, and benefits are [rarely] impartial reflections of factual reality,"[155] at numerous junctures of decision-making, simply employing "alternative assumptions, valuation techniques, discount rates, and other seemingly technical trappings" can dramatically alter normative assessments.[156] The same considerations apply to evaluations of risk since "[h]uman beings have invented the concept of 'risk' to help them understand and cope with the dangers and uncertainties

151. For instance, in the earlier L'Aquila earthquake of Italy in 2006, the Italian Director of Civil Defense denounced those who feared an imminent earthquake in the region as "alarmist" and "causing fear." *See* Aidan Lewis, *Row over Italian Quake 'Forecast'*, BBC NEWS ONLINE (Apr. 6, 2009, 6:31 PM), http://news.bbc.co.uk/2/hi/europe/7986585.stm; Marta Falconi, *Strong Quake in Italy Kills Over 150, Wounds 1,500*, THE GUARDIAN, Apr. 7, 2009.

152. *See* ACTON & HIBBS, *supra* note 147. Nor is Japan an anomaly: the design bases of nuclear plants to handle earthquakes and floods have been exceeded in France, India, Japan, and the United States.

153. *See* Nicola Nosengo, *Italian Court Finds Seismologists Guilty of Manslaughter*, NATURE NEWS (Oct. 23, 2012), http://www.nature.com/news/italian-court-finds-seismologists-guilty-of-manslaughter-1.11640.

154. Lisa Heinzerling, *Regulatory Costs of Mythic Proportions*, 107 YALE L.J. 1981, 2064–68 (1998).

155. *Id.* at 2068.

156. Douglas A. Kysar, *Politics by Other Meanings: A Comment on "*Retaking Rationality *Two Years Later"*, 48 HOUS. L. REV. 43, 47 (2011).

of life. Although these dangers are real, there is no such thing as 'real risk' or 'objective risk.'"[157]

Scholars, leaders, and policy-makers do not formulate models or regulations *ex nihilo*. Identity and the perspectives employed in disaster decision-making impact the dynamics within which tools, measurements, and statistical benchmarks are developed to respond to or mitigate disaster.[158] Because different specialists import distinct sets of assumptions and tools for problem solving, who dominates the committees or decision-making apparatuses can significantly influence outcomes. If economists are in charge of crafting procedures or models of disaster, they are unlikely to treat the same set of facts as sociologists, engineers, or lawyers would. Similarly, decision-making controlled disproportionately by religious, ethnic, racial or socio-economic groups can bias outcomes.[159] Although some may downplay such concerns since quantifying risk and value is "agnostic on the deep issues,"[160] these influences can nonetheless transform the distribution of resources and the urgency of response.[161] Even the choice of a technical phrase or method of measurement can determine which risks are acceptable, and which communities receive aid.[162]

Normative frameworks that give the appearance of objectivity may not only conceal implicit preferences, but also provide cover for political and personal agendas. A potential result of "increased reliance on quantification in setting regulatory policy will be that the side that best obscures the

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157. DANIEL KAHNEMAN, THINKING, FAST AND SLOW 141 (2011) (quoting PAUL SLOVIC, *Trust, Emotion, Sex, Politics and Science: Surveying the Risk-Assessment Battlefield*, *in* THE PERCEPTION OF RISK 390, 392 (2000)).

158. *See* Veronique Bruggeman, *Capital Market Instruments for Natural Catastrophe and Terrorism Risks: A Bright Future?*, 40 ENVTL. L. REP. 10136 (2010); Susan L. Cutter, Bryan J. Boruff & W. Lynn Shirley, *Social Vulnerability to Environmental Hazards*, 84 SOC. SCI. Q. 242 (2003); Christopher M. Lewis & Peter O. Davis, *Capital Market Instruments for Financing Catastrophe Risk: New Directions?*, 17 J. INS. REG. 110 (1998).

159. *See* DYNES & QUARANTELLI, *supra* note 24, at 12–19 (noting disparate responses in defining and responding to civil disturbances in communities based on racial and economic factors).

160. Sunstein, *supra* note 60, at 1077.

161. *See* Landis, *supra* note 6, at 971.

162. *See generally* MARVIN OLASKY, THE POLITICS OF DISASTER: KATRINA, BIG GOVERNMENT, AND A NEW STRATEGY FOR FUTURE CRISES 9–48 (2006); Buckle, *supra* note 132, at 177.

value choices implicit in its numbers will prevail."[163] Moreover, when subjective value judgments are couched in objective language, assessments, or measurements, authorities and elites often enjoy greater liberty to bypass deliberative, democratic processes. Some authorities may even see their top-down decision-making as insulating government from the public's "misinformed judgments"[164] that should be "resist[ed]" in the name of democracy.[165]

As a general rule, employing *substantive* canons in order to invalidate or dismiss alternative perspectives or methods is rarely necessary or helpful.[166] Nonetheless, *formalistic* systematization that strengthens decision-making made without regard to persons in a purely procedural manner might avoid partiality. In federal disaster relief allocations, for instance, U.S. states with congressional representation in Federal Emergency Management Agency (FEMA) oversight committees tend to receive higher levels of disaster relief.[167] Moreover, as shown in Figure 1, presidential declarations of disaster increase substantially during election years, controlling for the number and severity of actual disasters.[168] Even politically competitive election battleground states have higher rates of disaster declarations.[169] For example, during election years, those battleground states with twenty electoral votes or more are twice as likely to receive presidential disaster relief as states with only three electoral votes.[170] To many observers, formalistic measures might attenuate this unprincipled, albeit legal, behavior.

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163. Heinzerling, *supra* note 155, at 2068.

164. Sunstein, *supra* note 60, at 1063–66.

165. *Id.* at 1074.

166. RONALD BENTON BROWN & SHARON JACOBS BROWN, STATUTORY INTERPRETATION 77–79 (2d ed. 2011) (describing substantive canons as offering only a rebuttable presumption of meaning).

167. Thomas A. Garrett & Russell S. Sobel, *The Political Economy of FEMA Disaster Payments*, 41 ECON. INQUIRY 496, 498–99 (2003).

168. Howard Kunreuther et al., *Overcoming Decision Biases to Reduce Losses from Natural Catastrophes*, *in* THE BEHAVIORAL FOUNDATIONS OF PUBLIC POLICY. 398, 407–08 (Eldar Shafir ed., 2013).

169. Garrett & Sobel, *supra* note 168, at 504.

170. Andrew Reeves, *Plucking Votes from Disasters*, L.A. TIMES, May 12, 2004, at B13.

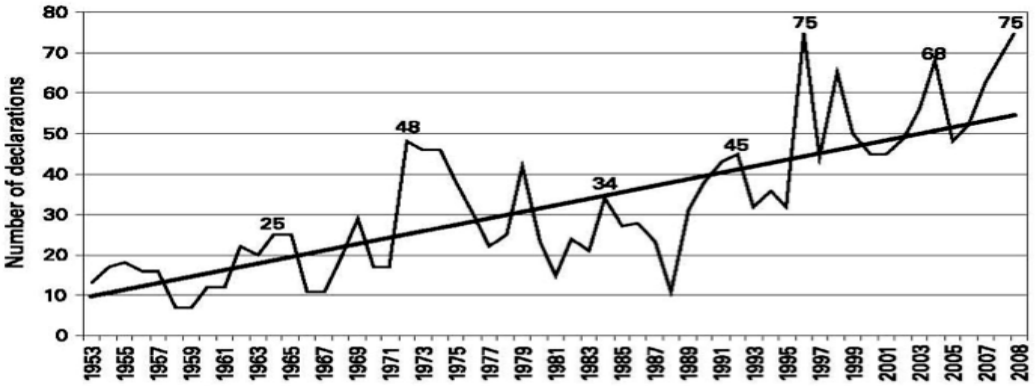


Figure 1.[171] Number of presidential declarations of disaster by year. Overall, not only have the number of declarations increased since the mid-1950s, but also many "peak" numbers of declarations have coincided with presidential election years.

In reality, however, ensuring that authorities actually pursue impartial, benevolent policies is fraught with challenge. In fact, government officials may actually manipulate disaster declarations or protocols in order to promote personal or political strategies. Some leaders have refused to declare disasters in order to further their own agenda despite the protests of international observers.[172] Other leaders have used disaster declarations to prevent foreign involvement in domestic affairs, or to distribute resources to citizens complaining of corruption or poor economic policies largely unrelated to any disaster *per se*.[173] More alarming, some political and military authorities have used declarations of

171. Figure from Kunreuther et al., *supra* note 169, at 407, data originally from Erwann O. Michel-Kerjan, *Toward a New Risk Architecture: The Question of Catastrophe Risk Calculus*, 75 SOC. RES. 819, 824 (2008). The number of federally declared disasters tends to spike on Presidential election years.

172. *See* Ellen Freudenheim, *Politics in International Disasters: Fact, Not Fiction*, *in* DISASTER ASSISTANCE: APPRAISAL, REFORM AND NEW APPROACHES 225, 226 (Lynn H. Stephens & Stephen J. Green eds., 1979).

173. *See id.*

disaster to seize political power.[174] On balance, then, greater substantive systematization may promote formalistic neutrality, but also indirectly foster personal and political legerdemain. When overt attempts at political maneuvering are too apparent, "objective" assessments and measurements can be exceptionally useful.[175]

## III. THE ROLE OF AFFECT AND EMPATHY: PSYCHOLOGICAL AND NEUROSCIENTIFIC EVIDENCE

In addition to harms associated with the *manner* in which systematization is wielded, there are additional, deeper concerns regarding the *character* of systematization itself. Namely, systematization risks ignoring or undermining key human, affective, and motivational dimensions essential to effective disaster response. A more capacious approach will recognize affective input and empathy as essential to good decision-making and policy. However, empathy and its contribution to disaster decision-making involve complex processes. Groundbreaking psychological and neuroscientific research is thus useful because it elucidates key empathic and prosocial processes, and concretely explains related determinants of empathy.

### A. THE INDISPENSABLE ROLE OF AFFECT IN DECISION-MAKING AND DISASTER RESPONSE

Affect plays an essential but underappreciated role in human judgment and risk perceptions.[176] Historically much

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174. *See, e.g.*, Laurie Wiseberg, *An International Perspective on the African Famines*, *in* THE POLITICS OF NATURAL DISASTER: THE CASE OF THE SAHEL DROUGHT 101, 102, 107–11 (Michael H. Glantz ed., 1976) (alleging that elites within the Ethiopian government and those in locally powerful economic positions used the "disaster situation for reasons of self-enrichment or political gain").

175. One cannot, without more, presume that greater systematization or numeracy will necessarily enable irreproachable experts or regulatory agents to bypass political machinations. Indeed, one of the central purposes of imposing statistical, economic or other systematic analyses upon law and policy is to guarantee political control and "ensure that elected officials maintain power over agency regulation." *See* Eric Posner, *Controlling Agencies with Cost-Benefit Analysis: A Positive Political Theory Perspective*, 68 U. CHI. L. REV. 1137, 1141 (2001).

176. *See* Gisela Bohm & Wibecke Brun, *Intuition and Affect in Risk Perception and Decision Making*, 3 JUDGMENT & DECISION MAKING 1, 1 (2008) (explaining that "[i]ntuition and affect have been neglected topics in the

analysis of human judgment has ignored or denigrated the role of emotion in decision-making as deleterious or distorting.[177] Scholars and decision-makers in the past have suggested that deliberative and calculating aspects "obtain[ed] the best results, [while] emotions must be kept out."[178] In other words, emotions are irrational and unhelpful to accurate judgment.[179] Fortunately, various scientists and researchers have begun to adopt a more expansive view of decision-making.[180] A growing literature indicates that affect influences the anticipation of future consequences.[181] Affect appears to guide decision-making through presently-experienced emotions, and individuals often make evaluative decisions by asking themselves how they feel about particular circumstances or conditions.[182] Such influences may even alter cognition and behavior outside of direct awareness.[183] Research on affective forecasting even indicates that emotion influences behavior in

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literature on human judgment and decision making for a long time"); *see also* Dan M. Kahan, *Two Conceptions of Emotion in Risk Regulation*, 156 U. PA. L. REV. 741, 766 (2008) (claiming that "[i]t is settled at this point that emotions play a critical role in the cognition of risk"); George F. Loewenstein et al., *Risk as Feelings*, 127 PSYCHOL. BULL. 267, 267-86 (2001).

177. *See* Robert C. Solomon, *The Philosophy of Emotions*, *in* HANDBOOK OF EMOTIONS 3, 3–8 (Michael Lewis & Jeanette M. Havilland eds., 1993). *See generally* James G. March, *Bounded Rationality, Ambiguity and the Engineering Of Choice*, 9 BELL J. ECON. 587 (1978).

178. ANTONIO R. DAMASIO, DESCARTES' ERROR: EMOTION, REASON, AND THE HUMAN BRAIN 171 (1994).

179. *See id.*

180. *See* Kahan, *supra* note 177; Paul Slovic & Ellen Peters, *Risk Perception and Affect*, 15 CURRENT DIRECTIONS PSYCHOL. SCI. 322, 322 (2006). *See generally* Antoine Bechara et al., *Deciding Advantageously Before Knowing the Advantageous Strategy*, 275 SCIENCE 1293 (1997); David E. Bell, *Regret in Decision-Making Under Uncertainty*, 30 OPERATIONS RES. 961 (1982); Norbert Schwarz & Gerald L. Clore, *Feelings and Phenomenal Experiences*, *in* SOCIAL PSYCHOLOGY: HANDBOOK OF BASIC PRINCIPLES 385 (Arie W. Kruglanski & E. Tory Higgins eds., 2d ed. 2007).

181. Bell, *supra* note 181, at 961; Andrew Caplin & John Leahy, *Psychological Expected Utility Theory and Anticipatory Feelings*, 116 Q.J. ECON. 55, 73–74 (2001); Graham Loomes & Robert Sugden, *Disappointment and Dynamic Consistency in Choice Under Uncertainty*, 53 REV. ECON. STUD. 271, 275 (1986).

182. *See* Norbert Schwarz & Gerald L. Clore, *How Do I Feel About It? The Informative Function of Affective States*, *in* AFFECT, COGNITION AND SOCIAL BEHAVIOR 44, 44–62 (Klaus Fiedler & Joseph Forgas eds., 1988).

183. *See* Rajagopal Raghunathan & Michel Tuan Pham, *All Negative Moods Are Not Equal: Motivational Influences of Anxiety and Sadness on Decision Making*, 79 ORG. BEHAV. & HUM. DECISION PROCESSES 56, 57–58 (1999).

the present differently than it does behavior in the future, with important consequences for decision-making.[184]

Among the more prominent conceptions of decision-making today are those positing two parallel systems—one "cold" and "deliberative," the other "hot" and "affective."[185] As the deliberative system decides analytically and rationally, the affective system does so intuitively and automatically.[186] A key dimension of the affective system is the "affect heuristic" or perceptions of "risk as feelings."[187] Research on the affect heuristic shows that emotional reactions to high-risk situations frequently diverge from those elicited by similar situations presented (or cognitively processed) in cold, deliberative terms.[188] Use of affect tends to be swifter and more expedient in navigating dangerous situations or those involving uncertainty.[189] Compared with colder calculations, affective responses are connected to the vividness of experience, temporal proximity, and additional variables not limited solely to rational deliberation.[190]

Affect imbues decisions about risks and benefits associated with particular behaviors or technologies. In one study, researchers found that the perceived risks correlated with the

184. *See* George F. Loewenstein, *A Visceral Account of Addiction*, *in* GETTING HOOKED 235, 238–42 (Jon Elster & Ole-Jorgen Skog eds., 1999).

185. *See* GEORGE LOEWENSTEIN & TED O'DONOGHUE, ANIMAL SPIRITS: AFFECTIVE AND DELIBERATIVE PROCESSES IN ECONOMIC BEHAVIOR 18–21 (May 2005) (unpublished manuscript), https://odonoghue.economics.cornell.edu/will.pdf (indicating that this dual view is widely accepted by both cognitive and social psychologists).

186. *See* Seymour Epstein, *Integration of the Cognitive and the Psychodynamic Unconscious*, 49 AM. PSYCHOLOGIST 709, 711 (1994).

187. Melissa L. Finucane et al., *The Affect Heuristic in Judgments of Risks and Benefits*, 13 J. BEHAV. DECISION MAKING 1, 3 (2000); Loewenstein, *supra* note 177.

188. *See generally* JAAK PANKSEPP, AFFECTIVE NEUROSCIENCE (1998); Ellen Peters & Paul Slovic, *The Role of Affect and Worldview as Orienting Dispositions in the Perception and Acceptance of Nuclear Power*, 26 J. APPLIED SOC. PSYCHOL. 1427 (1996).

189. *See* Slovic & Peters, *supra* note 181, at 322.

190. *See* Loewenstein et al., *supra* note 177, at 280. However, caution is in order. Any rigid bifurcations of "cold"–"hot" and rational–emotional decision-making contradict significant research demonstrating overlapping, spectral, and symbiotic relations between the putative binaries. *See generally* Jay D. Aronson, *The Law's Use of Brain Evidence*, 6 ANN. REV. L. & SOC. SCI. 93, 100 (2010).

magnitude of positive or negative ratings of the activity.[191] As such, feelings as much as cognitive evaluations inform risk assessments. Moreover, affect may partially govern deliberate *cognitive assessments*. For example, researchers conducted experiments in which individuals were informed of new benefits of a particular technology that poses risks to society.[192] As individuals identified greater benefits to the technology, they experienced more positive affect about it, and later rated its risks as lower, even though said benefits were irrelevant to the risks.[193]

Not only is affect a constituent dimension of risk perception and decision-making, it is also essential for *good* judgment.[194] Many *affective skeptics,* although admitting that affect plays a role in decision-making, have suggested that it does so in a largely biasing way, and may require correction by those in authority.[195] Affective skepticism has been communicated in terms of "irrational weigher," "biased decision-maker," and "libertarian paternalist" models.[196] From

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191. *See* Ali S. Alhakami & Paul Slovic, *A Psychological Study of the Inverse Relationship Between Perceived Risk and Perceived Benefit*, 14 RISK ANALYSIS 1085 (1994).

192. *See id.*; *see also* Finucane et al., *supra* note 188, at 4.

193. *See* Alhakami & Slovic, *supra* note 192; *see also* Finucane et al., *supra* note 188, at 4.

194. Affect does not, however, always yield improvements in decision-making. For instance, affect may encourage individuals to underestimate the chance of future hazards, thereby leading to underinvestment in adequate precaution. S*ee, e.g.*, DOUGLAS BRINKLEY, THE GREAT DELUGE: HURRICANE KATRINA, NEW ORLEANS, AND THE MISSISSIPPI GULF COAST 3–70 (2006).

195. *See, e.g.*, CASS R. SUNSTEIN, FREE MARKETS AND SOCIAL JUSTICE 17–31 (1997) (describing individual preference formation and decision-making but justifying the collective controls of personal preference in the public sphere); RICHARD H. THALER, QUASI RATIONAL ECONOMICS 70 (1994) (dismissing the effect of "negative affect" or "positive mood" on decision-making as an alternative explanation for observed behaviors around risk); THALER & SUNSTEIN, *supra* note 13, at 195–96.

196. SUNSTEIN, *supra* note 196, at 261–65 (discussing people who irrationally weigh the value of goods when making decisions on comparably diverse goods under different conditions and contexts); THALER, *supra* note 196 at 274 (discussing how investors may react irrationally to financial news with excessive optimism or pessimism, thereby causing stock prices to "temporarily depart from their underlying fundamental values"); THALER & SUNSTEIN, *supra* note 13, at 4–6, 72–73 (introducing the concept "libertarian paternalism"). *See generally* Dan M. Kahan & Martha C. Nussbaum, *Two Conceptions of Emotion in Criminal Law*, 96 COLUM. L. REV. 269 (1996); Daniel Kahneman, *Maps of Bounded Rationality: Psychology for Behavioral Economics*, 93 AM. ECON. REV. 1449 (2003).

these perspectives, emotion distorts judgment and impedes the proper use of probabilities, statistics, and other calculations.[197]

In contrast to the skeptics, a number of psychology, law, and social science experts hold that affect plays a central, salutary role in decision-making.[198] These *affective inclusivists* acknowledge that judgments of value draw upon emotional inputs and shared cultural worldviews.[199] For them, rather than distort judgment and behavior, affective input constitutes an essential element of cognition, awareness, and reliable judgment.[200] By extension, an essential goal of risk management involves addressing and working within the value-based frameworks of local populations and not dismissing their views and perceptions as defects in human reasoning or irrational cognitive blunders.[201]

Amidst these disagreements, interlocutors often tacitly posit a dichotomy opposing impartial calculations or frameworks against sentiment and its potential for error and excess.[202] Inherent within said judgments is an overly simplistic distinction between cognition and affect in decision-making. A more accurate view considers cognitive appraisal as guiding emotion and modifying information regarding the situations and factors that elicit affective responses.[203] Moreover, affective input thoroughly imbues choice and

197. *See* CASS R. SUNSTEIN, LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE 64–88 (2005).

198. *See* Alhakami & Slovic, *supra* note 192; Kahan, *supra* note 177, at 741 (explaining that emotion is a perceptive faculty well-suited to forming adequate evaluations of risk for decision-making); Loewenstein et al., *supra* note 177, at 280; Slovic & Peters, *supra* note 181, at 324–25.

199. *See* Dan M. Kahan et al., *Fear of Democracy: A Cultural Evaluation of Sunstein on Risk*, 119 HARV. L. REV. 1071, 1072, 1087–88 (2006) (reviewing SUNSTEIN, *supra* note 198). *See generally* MARTHA C. NUSSBAUM, UPHEAVALS OF THOUGHT: THE INTELLIGENCE OF EMOTIONS (2001).

200. *See* Donald Braman et al., *Modeling Facts, Culture, and Cognition in the Gun Debate*, 18 SOC. JUST. RES. 283, 285 (2005).

201. *See* Kahan et al., *supra* note 200, at 1104–06.

202. *See* Walter Isaacson, *Sometimes, Right Makes Might*, TIME, Dec. 21, 1992, at 1; Paul Bloom, *The Baby in the Well*, NEW YORKER, May 20, 2013, at 118.

203. *See* Phoebe C. Ellsworth & Klaus R. Scherer, *Appraisal Processes in Emotion*, *in* HANDBOOK OF AFFECTIVE SCIENCES 572, 573 (Richard J. Davidson et al. eds., 2003); Ira J. Roseman & Craig A. Smith, *Appraisal Theory: Overview, Assumptions, Varieties, Controversies*, *in* APPRAISAL PROCESSES IN EMOTION: THEORY, METHODS, RESEARCH 3, 15 (Klaus R. Scherer et al. eds., 2001).

decision-making.[204] Neuroscientists have demonstrated that optimal choices actually rely on nonconscious affective input to guide deliberative forms of cognition.[205] They observed patients who had suffered damage to areas of the brain directly involved in affective, emotional input to decision-making, namely, the ventromedial prefrontal cortex (VMPFC).[206] Subjects performed a gambling task in which they could earn or lose money by turning over cards that indicated gain or loss.[207] Different decks contained different probabilities of success.[208] As subjects played, researchers found that both those with and without VMPFC damage avoided high-paying decks immediately after encountering penalty cards.[209] However, compared with controls, those with VMPFC damage returned to the high-paying decks more quickly after suffering a loss, resulting in more frequent bankruptcy despite a rational understanding of the rules of the game.[210] In other words, lack of affective input hindered their decision-making ability, and led to poorer choices.

Affect is also necessary for good decision-making *on behalf of others*. Researchers examined individual decisions regarding risk when the decision-makers themselves, close consociates, or abstract others would be impacted by the decisions.[211] Whereas affect guided participants in making risk-averse decisions on behalf of themselves and close consociates, it did not appear to do so on behalf of abstract others.[212] The researchers concluded that when people make decisions involving risk, they tend to determine their own affective reaction and then apply that to others' decision-making.[213] Conversely, affective projection is more difficult for decisions made on behalf of strangers or abstractions, and decision-makers tend to be less careful or

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204. *See* DAMASIO, *supra* note 179; Dacher Keltner & Jonathan Haidt, *Social Functions of Emotions*, *in* EMOTIONS: CURRENT ISSUES AND FUTURE DIRECTIONS 192 (Tracy J. Mayne & George A. Bonanno eds., 2001).

205. Bechara et al., *supra* note 181, at 1294.

206. *Id.* at 1293.

207. *Id.*

208. *Id.*

209. *Id.* at 1293–94.

210. *Id.*

211. Cristopher K. Hsee & Elke U. Weber, *A Fundamental Prediction Error: Self-Others Discrepancies in Risk Preference*, 126 J. EXPERIMENTAL PSYCHOL. 45, 50–53 (1997).

212. *Id.*

213. *Id.*

concerned about these decisions. Additional studies confirm that people rely on their own emotional response to a given situation in order to understand the needs or perspectives of others.[214] In other words, failure to share others' perspectives or affective feelings hinders the ability to optimally decide on their behalf.

Affect is particularly important to decision-making regarding disasters,[215] and is essential to understanding "large, complex problems . . . that we cannot apprehend through quantitative information alone."[216] At a basic level, research indicates that individuals draw upon affect elicited by thinking about disasters to infer risk, harm, and other elements of a calamitous situation.[217] Affect influences disaster decision-making directly by motivating behavior,[218] and indirectly by making salient important considerations regarding mortality, social relations, and ethical duties.[219] Affective input is particularly beneficial for navigating the complexities, uncertainties, and high-pressure demands of crises when prolonged deliberation is impracticable.[220] Furthermore, decision-makers often face copious information, conflicting signals, high stakes, and numerous environmental constraints.[221] In these conditions, crisis decision-making "characterized by formal rules and procedures [may need to give] way to informal processes . . . [that] may not take place

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214. *See* Yoshiya Moriguchi et al., *Empathy and Judging Others' Pain: An fMRI Study of Alexithymia,* 17 CEREBRAL CORTEX 2223, 2232 (2007).

215. *See* Daniel Vastfjall et al., *The Affect Heurstic, Mortality Salience, and Risk: Domain-Specific Effects of a Natural Disaster on Risk-Benefit Perception*, 55 SCANDINAVIAN J. PSYCHOL. 527, 530 (2014).

216. Slovic & Slovic, *supra* note 2, at 18.

217. *See* Vastfjall et al., *supra* note 216.

218. *See* Hasida Ben-Zur & Moshe Zeidner, *Threat to Life and Risk-Taking Behaviors: A Review of Findings and Explanatory Models*, 13 PERSONALITY & SOC. PSYCHOL. REV. 109, 113 (2009); Alice M. Isen, *Positive Affect and Decision Making*, *in* RESEARCH ON JUDGMENT AND DECISION MAKING: CURRENTS, CONNECTIONS, AND CONTROVERSIES 509, 519–21 (William M. Goldstein & Robin M. Hogarth eds., 1997).

219. *See* Fung & Carstensen, *supra* note 8, at 274; Daniel Vastfjall et al., *Affect, Risk Perception and Future Optimism After the Tsunami Disaster*, 3 JUDGMENT & DECISION MAKING 64, 64 (2008).

220. *See* Lisa Sayegh et al., *Managerial Decision-Making Under Crisis: The Role of Emotion in an Intuitive Decision Process*, 14 HUM. RESOURCE MGMT. REV. 179, 180, 196 (2004).

221. *See* Uriel Rosenthal & Paul 't Hart, *Experts and Decision Makers in Crisis Situations*, 12 KNOWLEDGE 350, 354 (1991).

according to previously arranged standard operating procedures."[222] Admittedly, unguided or extreme affective reactions can distort proper decision-making, and few recommend that emotional reactions predominate entirely untethered from constructive deliberation and pragmatic reasoning.[223] Nonetheless, during and subsequent to crisis, insightful, adaptive judgment will depend, at least in part, on emotional intelligence and affective competence.

### B. COGNITIVE, PSYCHOLOGICAL, AND NEUROLOGICAL DIMENSIONS OF EMPATHY

Decisions regarding disaster almost invariably require judgments made on behalf of others: what other individuals need, what risks they confront, and what methods will best mitigate the threats or harms facing them. As such, decision-makers' capacity to understand and incorporate the perspective of actual or potential victims into their efforts amidst uncertainty and limited resources is essential. Moreover, individuals' proficiency in acting with concern regarding others' harm and distress is vital as well. In other words, empathy figures prominently among the various ways in which affect influences decision-making and engagement prior to, during, and after disaster. In its most basic form, empathy is an affective reaction that emanates from the awareness of another's emotional state or condition, and mirrors what the other person is actually feeling or is perceived to feel.[224] Generally, individuals who empathize will identify or commiserate with others, ponder what they are thinking and feeling, and in some form engage with the adversity of others.[225] Empathy is an essential motivator and proximate

222. *Id*. at 346.

223. Slovic & Peters, *supra* note 181, at 325 (indicating that although affect is a sophisticated mechanism enabling people to respond to situations, it can sometimes lead people to judge probabilities and consequences inaccurately).

224. *See* Nancy Eisenberg, Richard A. Fabes & Tracy L. Spinrad, *Prosocial Development*, *in* 3 HANDBOOK OF CHILD PSYCHOLOGY 646, 647 (William Damon et al. eds., 6th ed. 2006).

225. *See* Craig A. Anderson et al., *Violent Video Game Effects on Aggression, Empathy, and Prosocial Behavior in Eastern and Western Countries: A Meta-Analytic Review*, 136 PSYCHOL. BULL. 151, 157 (2010); Frans B.M. de Waal, *Putting the Altruism Back into Altruism: The Evolution of Empathy*, 59 ANN. REV. PSYCHOL. 279, 281 (2008); Stephanie D. Preston & Frans B.M. de Waal, *Empathy: Its Ultimate and Proximate Bases*, 25 BEHAV.

mechanism of altruistic behavior,[226] as feelings of empathy tend to motivate individuals to reduce the suffering of others, even when costly.[227] Even though paid personnel play a primary role in disaster prevention and relief, empathy, political support, and community involvement remain vital.[228] Whether those with resources and power respond with concern towards the plight of others, give generously, demand political action, and take the needs of victims seriously will significantly impact the well-being of entire communities.

Despite its importance in disaster, empathy is a complex set of social, psychological, and physiological processes involving various mediating factors, sentiments, and social capacities.[229] On one hand, said complexity constitutes a challenge to intellectually clarifying empathy's character, elucidating the relationship of constituent parts and distinguishing it from related psychological constructs.[230] On

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& BRAIN SCI. 1, 2 (2002). *See generally* MARTIN L. HOFFMAN, EMPATHY AND MORAL DEVELOPMENT: IMPLICATIONS FOR CARING AND JUSTICE (2000).

226. *See* Eric L. Stocks et al., *Altruism or Psychological Escape: Why Does Empathy Promote Prosocial Behavior?*, 39 EUR. J. SOC. PSYCHOL. 649, 649–50 (2009); Deborah A. Small & Nicole M. Verrochi, *The Face Of Need: Facial Emotion Expression on Charity Advertisements*, 46 J. MARKETING RES. 777, 778 (2009); Bernard Weiner, *A Cognitive (Attribution)-Emotion-Action Model of Motivated Behavior: An Analysis of Judgments of Help-Giving*, 39 J. PERSONALITY & SOC. PSYCHOL. 186, 198 (1980). *See generally* C. DANIEL BATSON, THE ALTRUISM QUESTION: TOWARD A SOCIAL-PSYCHOLOGICAL ANSWER (1991). The term "prosocial helping" is generally employed in this article to mean voluntary behavior that benefits another or improves her welfare, well-being, or happiness, often in situations of need or vulnerability. The term is used here interchangeably with "altruism." *See* Nancy Eisenberg & Paul A. Miller, *The Relation of Empathy to Prosocial and Related Behaviors*, 101 PSYCHOL. BULL. 91, 91 (1987). *See generally* BIBB LATANE & JOHN M. DARLEY, THE UNRESPONSIVE BYSTANDER: WHY DOESN'T HE HELP? (1970).

227. *See* Preston & de Waal, *supra* note 226.

228. *See* FED. EMERGENCY MGMT. AGENCY, A CITIZEN'S GUIDE TO DISASTER ASSISTANCE 5-1 (2003), http://training.fema.gov /EMIWeb/downloads/IS7complete.pdf.

229. *See* Amy Coplan, *Understanding Empathy: Its Features and Effects*, *in* EMPATHY: PHILOSOPHICAL AND PSYCHOLOGICAL PERSPECTIVES 3 (Amy Coplan & Peter Goldie eds., 2011); Paul D. Hastings et al., *We Are, By Nature, Moral Creatures: Biological Bases of Concern for Others*, *in* HANDBOOK OF MORAL DEVELOPMENT 483, 484 (Melanie Killen & Judith G. Smetana eds., 2006); Preston & de Waal, *supra* note 226.

230. *See, e.g.*, C. Daniel Batson, *These Things Called Empathy: Eight Related but Distinct Phenomena*, *in* THE SOCIAL NEUROSCIENCE OF EMPATHY 3 (Jean Decety & William Ickes eds., 2009); Jean Decety & Jason M. Cowell, *Friends or Foes: Is Empathy Necessary for Moral Behavior*, 9 PERSP. ON PSYCHOL. SCI. 525, 526 (2014).

the other hand, interpersonal engagement, social decision-making, and prosocial attitudes are essential to disaster and response, thus making a proper understanding of said complexities and how they relate to law and policy imperative. Acknowledging both the challenges and importance of understanding empathy, from a law and policy perspective it is perhaps most useful to conceive of empathy as a constellation of aims or goals that rely on emotive responses and social skills.[231] Said constellation can include imagining another's inner feelings, taking another's perspective, and experiencing concern commensurate with another's emotions and needs.[232]

Although automatic reactions may be involved, cognitive appraisal and mental or emotional effort are usually required for accurate, meaningful empathizing.[233] Specifically, because empathy involves a complex set of dynamics,[234] engendering genuine, motivating empathy entails specific factors.[235] First, individuals adversely affected by disaster will often evince vocal concern, emotional distress, and indications of need associated with their condition, which can trigger or provide a basis for another's empathic reaction.[236] In most cases, victims and witnesses indeed feel significantly threatened by disaster and exhibit high levels of distress.[237] Those experiencing a

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231. *See* Claus Lamm et al., *The Neural Substrate of Human Empathy: Effects of Perspective-Taking And Cognitive Appraisal*, 19 J. COGNITIVE NEUROSCIENCE 42, 43 (2007); Bill Underwood & Bert Moore, *Perspective-Taking and Altruism*, 91 PSYCHOL. BULL. 143, 144–45 (1982).

232. *See* BATSON, *supra* note 227; Stephen Darwall, *Empathy, Sympathy, Care*, 89 PHIL. STUD. 261, 264 (1998); Adam D. Galinsky & Gordon B. Moskowitz, *Perspective-Taking: Decreasing Stereotype Expression, Stereotype Accessibility, and In-Group Favoritism*, 78 J. PERSONALITY & SOC. PSYCHOL. 708, 708 (2000).

233. *See* Andrew E. Taslitz, *Why Did Tinkerbell Get Off So Easy?: The Roles of Imagination and Social Norms in Excusing Human Weakness*, 42 TEX. TECH L. REV. 419, 428 (2009) (characterizing empathy as requiring effort and education).

234. *See* Batson, *supra* note 231, at 3–9.

235. *See* Lian T. Rameson & Matthew D. Lieberman, *Empathy: A Social Cognitive Neuroscience Approach*, 3 SOC. & PERSONALITY PSYCHOL. COMPASS 94, 94–96 (2009); *see also* Batson, *supra* note 231.

236. *See* Rameson & Lieberman, *supra* note 236, at 102–05.

237. *See* Joseph T.F. Lau et al., *Impacts of Media Coverage on the Community Stress Level in Hong Kong After the Tsunami on 26 December 2004*, 60 J. EPIDEMIOLOGY & COMMUNITY HEALTH 675, 675, 680–82 (2006); Sigridur B. Thormar et al., *The Mental Health Impact of Volunteering in A Disaster Setting: A Review*, 198 J. NERVOUS & MENTAL DISEASE 529, 529 (2010).

disaster even increase risk of deterioration in mental and physical health,[238] particularly acute stress, psychological trauma, and post-traumatic stress disorder.[239] Addressing psychological and emotional elements of disaster is important in its own right, but is also noteworthy in terms of identifying disaster's social meaning.

An additional factor involves compassionately reacting to the concern of others.[240] In relation to potential impediments, empathizing will depend on successfully sharing corresponding feelings, appropriating another's distress, or vicariously experiencing another's plight.[241] In psychological terms, this may comprise sharing another's perspective or affective experience as the other person feels or as one would feel in her place.[242] Physiological components are involved too: empathizers often experience an increase in skin conductance responses (SCRs) while observing the distress of others—a sign of distress similar to that elicited by personal suffering.[243] The measured level of SCRs correlates with later willingness to help the victim.[244] Empathizers and those they observe in distress also show synchronized salivary cortisol levels—a key indicator of stress.[245] Empathizers have also been found to respond to facial expressions of pain with comparable expressive behavior.[246] Using electromyograph (EMG)

238. *See* Lau et al., *supra* note 238, at 676; Thormar et al., *supra* note 238, at 529.

239. *See* Fran H. Norris et al., *60,000 Disaster Victims Speak; An Empirical Review of the Empirical Literature, 1981-2001*, 65 PSYCHIATRY 207, 211 (2002).

240. *See* Ralph Adolphs, *Social Cognition and the Human Brain*, 3 TRENDS COGNITIVE SCI. 469, 476 (1999); Decety & Cowell, *supra* note 231, at 529.

241. *See* Decety & Cowell, *supra* note 231, at 529 (claiming that empathy entails becoming "affectively aroused by others' emotions (at least in valence, tone, or relative intensity)"); *see also* BATSON, *supra* note 227; Adolphs, *supra* note 241, at 476; Batson, *supra* note 231, at 4–8.

242. *See* Adolphs, *supra* note 241, at 477; Preston & de Waal, *supra* note 226, at 2.

243. *See* Grit Hein et al., *Skin Conductance Response to the Pain of Others Predicts Later Costly Helping*, 6 PLOS ONE 1, 3–5 (2011).

244. *See id.*

245. *See* Tony W. Buchanan et al., *The Empathic, Physiological Resonance of Stress*, 7 SOC. NEUROSCIENCE 191, 191 (2012).

246. *See* Katherine Burns Vaughan & John T. Lanzetta, *Vicarious Instigation and Conditioning of Facial Expressive and Autonomic Responses to a Model's Expressive Display of Pain*, 38 J. PERSONALITY & SOC. PSYCHOL. 909, 909 (1980).

recordings from three facial muscle sites, researchers found that observer facial muscle patterns mimicked those of the person experiencing pain,[247] suggesting a transfer of affective experience from the latter to the former.

Neuroscientific research corroborates psychological data on empathy.[248] Overlapping neural correlates appear to mediate both sharing others' distress and experiencing one's own distress.[249] In fact, functional magnetic resonance imaging (fMRI) studies indicate[250] a physical overlap between perceiving pain in another and experiencing it oneself.[251] A recent meta-analysis of thirty-two studies indicated that a core network consisting of the anterior insula, anterior cingulate cortex, and medial prefrontal cortex (MPFC) encodes the emotional dimensions of empathy and perceptions of pain or distress in others.[252] Figure 2 includes a graphic representation from these studies, representing the aggregated effects of 168 contrast images. Areas marked in red indicate the location of increased activity in response to the suffering of others, while areas in green are those involved in personal suffering and pain, indicating significant overlap.[253]

247. *See id.*

248. *See* William W. Seeley et al., *Dissociable Intrinsic Connectivity Networks for Salience Processing and Executive Control*, 27 J. NEUROSCIENCE 2349, 2353–55 (2007). *See generally* JAAK PANKSEPP, AFFECTIVE NEUROSCIENCE (1998).

249. *See* Jamil Zaki et al., *Different Circuits for Different Pain: Patterns of Functional Connectivity Reveal Distinct Networks for Processing Pain in Self and Others*, 2 SOC. NEUROSCIENCE 276, 276 (2007).

250. Admittedly, neuroimaging provides correlative, not necessarily causal, data. Future research employing lesion or other direct interventions that clearly modify or prevent empathy-related behaviors may further corroborate these conclusions. *See* Deena Skonick Weisberg et al., *The Seductive Allure of Neuroscience Explanations*, 20 J. COGNITIVE NEUROSCIENCE 470 (2008).

251. *See* Philip L. Jackson et al., *How Do We Perceive the Pain of Others? A Window Into the Neural Processes Involved in Empathy*, 24 NEUROIMAGE 771, 771 (2005).

252. *See* Claus Lamm et al., *Meta-Analytic Evidence for Common and Distinct Neural Networks Associated with Directly Experienced Pain and Empathy for Pain*, 54 NEUROIMAGE 2492, 2492 (2011).

253. *Id.* at 2496, 2498 fig.5.

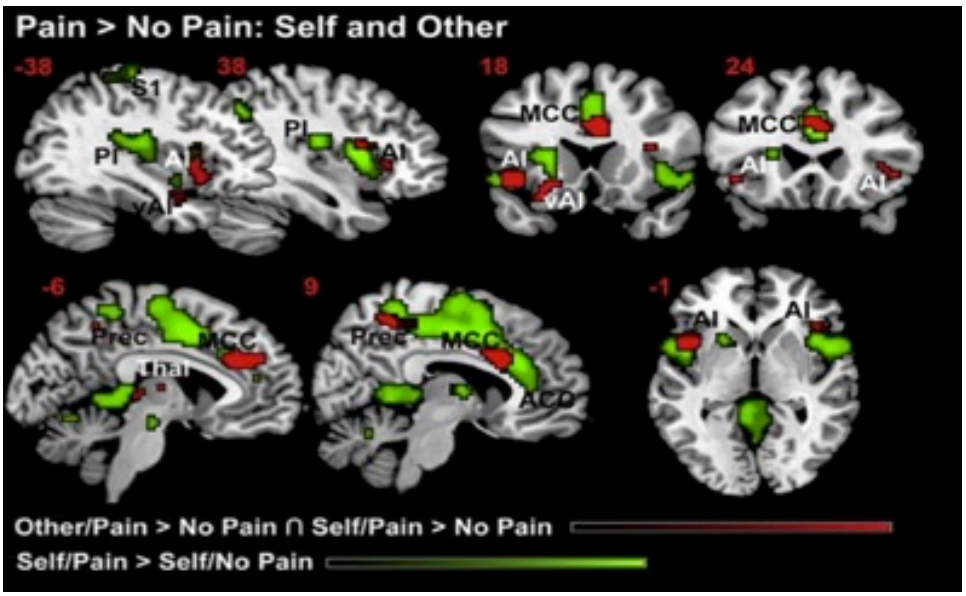


Figure 2.[254] Neural regions implicated in experiencing pain to self and contemplating pain felt by another. These images represent common and distinct activations for empathy (in red) and personally-felt pain (in green). Areas of common activation include the anterior insula, medial and anterior cingulate cortex, precuneus, and thalamus. Distinct activations for self-related and empathic responses are observed in fewer regions, namely the primary somatosensory cortex and posterior insula.

Other data indicate that observers of distress who empathize with others do so on the basis of their own affective experience,[255] consistent with the results of Bechara et al. above.[256] Individuals' expression of emotion frequently elicits vicarious emotions such as sadness in observers.[257] The process is not a purely deliberative form of calculation, but rather some level of affective synchrony between "victim and observer is critical for the [empathic] process to unfold."[258] One study had

254. Image from *id.* at 2498 fig.5.

255. *See* Massimiliano Valeriani et al., *Seeing the Pain of Others While Being in Pain: A Laser-Evoked Potentials Study*, 40 NEUROIMAGE 1419, 1419 (2008).

256. *See* Bechara et al., *supra* note 181.

257. Small & Verrochi, *supra* note 227, at 778.

258. *Id.* at 779.

participants observe painful stimulation of another person while suffering pain themselves.[259] Results showed that the relevant brain activity during distress corresponded proportionally to the reported rating of one's own pain and to that of another person.[260] In fact, empathizers appeared to rely on the vicarious intensity of "shared" distress or emotional pain to judge others' suffering.[261] Moreover, various studies have shown that those who have greater difficulty identifying personal feelings and sensations—a condition known as alexithymia—have reduced empathy.[262] One study demonstrated that as participants watched others in distress, those with alexithymia showed less activity in brain areas consistently implicated in pain and empathy.[263] They also showed reduced scores on empathy questionnaires compared with control groups.[264]

However, empathy involves more than simply congruent emotions and shared distress.[265] It is a goal-directed process whereby a witness seeks to reduce the distress of others.[266] Recognizing this dimension of empathy is essential because cognitive appraisal heavily influences empathy[267] and is

259. *See* Valeriani et al., *supra* note 256.

260. *See id.* at 1425–27.

261. *See id.*

262. *See* Herta Guttman & Lise Laporte, *Alexithymia, Empathy, and Psychological Symptoms in a Family Context*, 43 COMPREHENSIVE PSYCHIATRY 448 (2002); Moriguchi et al., *supra* note 215, at 2223; M. Rastam et al., *Alexithymia in Anorexia Nervosa: A Controlled Study Using the 20-Item Toronto Alexithymia Scale*, 95 ACTA PSYCHIATRICA SCANDINAVICA 385 (1997).

263. *See* Moriguchi et al., *supra* note 215.

264. *See id.* at 2228.

265. *See generally* Jean Decety & Margarita Svetlova, *Putting Together Phylogenetic and Ontogenetic Perspectives on Empathy*, 2 DEVELOPMENTAL COGNITIVE NEUROSCIENCE 1 (2012) (stating that "empathy in humans is assisted by other abstract and domain-general high-level cognitive abilities such as executive functions, mentalizing and language, as well as the ability to differentiate another's mental states from one's own, which expand the range of behaviors that can be driven by empathy").

266. Batson, *supra* note 231, at 4–12; Martin L. Hoffman, *The Development of Empathy*, *in* ALTRUISM AND HELPING BEHAVIOR: SOCIAL, PERSONALITY, AND DEVELOPMENTAL PERSPECTIVES 41, 41–42 (J. Philippe Rushton & Richard M. Sorrentino eds., 1981).

267. Lamm et al., *supra* note 232, at 42 (indicating that accurately assessing the reactions and circumstances of others in distress involves cognition beyond merely feeling personal distress).

essential to accurate empathic engagement.[268] Striving to accurately imagine how one would feel in another's place and correctly identifying another's internal thoughts and feelings are critical to genuine, helpful other-concern, particularly in disaster response and management. A myopic or misplaced "empathy" that hastily imposes false characterizations on what victims think or feel, or that distributes heavy wool coats to victims of disaster in Sudan and pork meals in Indonesia would hardly be an empathy worth having.

At the same time, cognitive reappraisals may distort or discount an initial empathic reaction, thereby reducing altruistic feeling and motivation.[269] Those who would otherwise experience empathy might attempt to reduce their initial, vicarious distress or other-feeling by simply discounting or ignoring these reactions.[270] They may also judge others as members of an undeserving out-group,[271] or reinterpret others' distress as resulting from their own poor choices.[272] In neuroscientific research, individuals show diminished neural activity related to the suffering of another when the other displays anti-social or unpleasant traits such as unfairness.[273] In other words, imaging data show that cognitive judgments of others' behavior influence the affective input that contributes to empathic feeling.

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268. Tania Singer, *The Neuronal Basis and Ontogeny of Empathy and Mind Reading: Review of Literature and Implications for Future Research*, 30 NEUROSCIENCE & BIOBEHAVIORAL REV. 855, 860 (2006).

269. Batson, *supra* note 231, at 9–11.

270. *Id.*

271. *See* John F. Dovidio et al., *Extending the Benefits of Recategorization: Evaluations, Self-Disclosure and Helping*, 33 J. EXPERIMENTAL SOC. PSYCHOL. 401, 401–02 (1997). For instance, research indicates that when a stranger is about to receive an electric shock, individuals led to believe that they themselves are similar to the shock recipient report stronger physiological stress responses than to the suffering of those recipients portrayed as dissimilar. *See* Dennis Krebs, *Empathy and Altruism*, 32 J. PERSONALITY & SOC. PSYCHOL. 1134, 1134 (1975).

272. *See* Christian S. Crandall & Rebecca Martinez, *Culture, Ideology, and Anti-Fat Attitudes*, 22 PERSONALITY & SOC. PSYCHOL. BULL. 1165 (1996); Wolfgang Stroebe & Margaret Stroebe, *The Social Psychology of Social Support*, *in* SOCIAL PSYCHOLOGY: HANDBOOK OF BASIC PRINCIPLES 597 (E. Tory Higgins & Arie W. Kruglanski eds., 1st ed. 1996).

273. *See* Tania Singer et al., *Empathic Neural Responses are Modulated by the Perceived Fairness of Others*, 439 NATURE 466, 466 (2006).

## IV. THE RELATION BETWEEN EMPATHY AND PROSOCIAL MOTIVATION

### A. EMPATHY MEDIATES PROSOCIAL HELPING

Empathy would be of limited relevance to disaster research if it did not influence prosocial behavior or decision-making. As research indicates, empathy is a key source of prosocial motivation aimed at improving the welfare or situation of another in distressing circumstances.[274] Although empathy is not the sole potential contributor to altruistic behaviors,[275] psychological evidence indicates that one's level of empathy often predicts one's subsequent willingness to help others in need, even when costly or painful.[276] The level of shared emotion felt while observing others in distress is empirically linked to the subsequent level of willingness to help,[277] and the two correlate proportionally so that the greater the level of felt empathy, the greater the amount of aid given.[278] Experimental evidence also indicates that shared emotional expression increases empathy that, in turn, causes people to give more to charity.[279]

Even physiological markers corroborate the link between empathy and subsequent prosocial helping.[280] Various researchers have found that the level of brain activity specific to empathy corresponds to subsequent willingness to provide

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274. *See* C. Daniel Batson, *The Empathy-Altruism Hypothesis: Issues and Implications*, *in* EMPATHY: FROM BENCH TO BEDSIDE 41, 50–51 (Jean Decety ed., 2012); Preston & de Waal, *supra* note 226.

275. Paul A. M. Van Lange, *Does Empathy Trigger Only Altruistic Motivation: How About Selflessness and Justice?*, 8 EMOTION 766, 766 (2008).

276. *See* Decety & Cowell, *supra* note 231, at 529 (asserting that "emotional sharing [i.e.] empathic arousal or emotional contagion . . . plays a fundamental role in generating the motivation to care and help another individual in distress"); *see also* Stocks et al., *supra* note 227; Weiner, *supra* note 227.

277. *See* C. Daniel Batson, *How Social an Animal? The Human Capacity for Caring*, 45 AM. PSYCHOLOGIST 336, 339 (1990); Tehila Kogut & Ilana Ritov, *The "Identified Victim" Effect: An Identified Group or Just a Single Individual?*, 18 J. BEHAV. DECISION MAKING 157, 157 (2005).

278. *See* Batson, *supra* note 231.

279. *See* Small & Verrochi, *supra* note 227, at 777–78.

280. *See* Grit Hein et al., *Neural Responses to Ingroup and Outgroup Members' Suffering Predict Individual Differences in Costly Helping*, 68 NEURON 149, 149 (2010).

aid or assistance.[281] In one study, individuals were scanned while observing the suffering of others,[282] and neural activity in key regions predicted both greater subsequent empathy for those suffering, and greater altruistic behavior.[283] Another study found that whether an individual would help someone was predicated on the level of anterior insula activity recorded while the observer witnessed that person experiencing harm.[284] Additional neurological findings suggest that affect mediates the connection between identifying individuals in need and demonstrating willingness to help them.[285] Specifically, only increased activity in brain regions linked to affect and motivation statistically account for increased donations later.[286]

These and other studies[287] provide tangible evidence that empathy is a neurobiologically-mediated class of emotion associated with shared distress that correlates with subsequent prosocial helping. Thus, altering the amount of empathy one feels subsequently changes one's willingness to help. But just as empathy is influenced by cognitive appraisals and is susceptible to callousness and indifference, so too is prosocial helping.[288] In fact, recent psychological and neurological studies indicate that exceptional displays of altruism lie on a spectrum opposite extreme apathy to the needs and feelings of others—as characterized by psychopathy and related mental disorders.[289] Anatomical differences in neural activity and

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281. *See id.*; Carrie L. Masten et al., *An fMRI Investigation of Empathy For 'Social Pain' and Subsequent Prosocial Behavior*, 55 NEUROIMAGE 381, 381 (2011); Andreas Olsson & Kevin N. Ochsner, *The Role of Social Cognition in Emotion*, 12 TRENDS COGNITIVE SCI. 65, 65 (2008).

282. *See* Vani A. Mathur et al., *Neural Basis of Extraordinary Empathy and Altruistic Motivation*, 51 NEUROIMAGE 1468, 1469–70 (2010).

283. *See id.* at 1470–72.

284. *See* Hein et al., *supra* note 281.

285. *See* Alexander Genevsky et al., *Neural Underpinnings of the Identifiable Victim Effect: Affect Shifts Preferences for Giving*, 33 J. NEUROSCIENCE 17188, 17194–95 (2013).

286. *See id.*

287. *See, e.g.*, Jorge A. Barraza & Paul J. Zak, *Values, Empathy and Fairness Across Social Barriers*, 1167 ANNALS N.Y. ACAD. SCI. 182 (2009).

288. *See* Simon Baron-Cohen & Sally Wheelwright, *The Empathy Quotient: An Investigation of Adults with Asperger Syndrome or High Functioning Autism, and Normal Sex Differences*, 34 J. AUTISM DEVELOPMENTAL DISORDERS 163 (2004).

289. *See* Dustin A. Pardini et al., *Lower Amygdala Volume in Men is Associated with Childhood Aggression, Early Psychopathic Traits, and Future Violence*, 75 BIOLOGICAL PSYCHIATRY 73, 73 (2014); Jennifer L. Skeem et al.,

volume of the amygdala—a brain region consistently linked to processing emotion and social awareness—appear to largely mediate the differences in extreme calloused, as opposed to altruistic, behavior.[290]

In addition, generally the more one identifies with a specific person and her suffering, the greater one's subsequent empathy and altruistic motivation.[291] More fully including another person in one's own self-conception or more favorably evaluating another correlates with increased prosocial giving.[292] To illustrate, neuroscientists used fMRI scans to observe individuals' reactions to the distress of others.[293] They found that an area consistently linked to empathy—the MPFC—showed activity related to subsequent willingness to help the victims.[294] Such information is important because other studies connect the MPFC to cognitive appraisal of others' identity, social proximity, and personal characteristics.[295] Therefore, potential empathic responses and prosocial behavior appear to be influenced by cognitive assessments of situational and identity-based characteristics.

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*Psychopathic Personality: Bridging the Gap Between Scientific Evidence and Public Policy*, 12 PSYCHOL. SCI. PUB. INT. 95, 95–96 (2011); Yaling Yang et al., *Localization of Deformations Within the Amygdala in Individuals with Psychopathy*, 66 ARCHIVES GEN. PSYCHIATRY 986, 986 (2009).

290. *See* Abigail A. Marsh et al., *Neural and Cognitive Characteristics of Extraordinary Altruists*, 111 PROC. NAT'L ACAD. SCI. 15036, 15036 (2014); Yang et al., *supra* note 290.

291. *See generally* Arthur Aron et al., *Self-Expansion Model of Motivation and Cognition in Close Relationships*, *in* THE OXFORD HANDBOOK OF CLOSE RELATIONSHIPS 91, 91–111 (Jeffry Simpson and Lorne Campbell eds., 2013).

292. *See* C. Daniel Batson et al., *An Additional Antecedent of Empathic Concern: Valuing the Welfare of the Person in Need*, 93 J. PERSONALITY & SOC. PSYCHOL. 65, 65 (2007).

293. *See* Mathur et al., *supra* note 283.

294. *See id.*

295. *See* Claus Lamm et al., *What are You Feeling? Using Functional Magnetic Resonance Imaging to Assess the Modulation of Sensory and Affective Responses During Empathy for Pain*, 2 PLOS ONE, Dec. 2007 (e1292), at 1, 10–12; Steven M. Platek & Shelly M. Kemp, *Is Family Special to the Brain? An Event-Related fMRI Study of Familiar, Familial, and Self-Face Recognition*, 47 NEUROPSYCHOLOGIA 849 (2009); Kai Vogeley & Gerion R. Fink, *Neural Correlates of the First-Person-Perspective*, 7 TRENDS COGNITIVE SCI. 38 (2003).

### B. INDIFFERENCE, DISTORTION, AND THE FRAGILE LINK BETWEEN EMPATHY AND PROSOCIAL MOTIVATION

Empathy and altruistic motivation are vulnerable to potentially enervating influences.[296] Empathy and prosocial motivation are thus patterns to foster rather than merely take for granted.[297] Witnessing or hearing about flooding, injury, and destruction will not necessarily elicit a robust empathic response among observers, leaders, or the general public.[298] Perceptions of need and identification with victims significantly impact empathic responses to the plight or potential harm faced by others.[299] These factors thereby impact the extent to which individuals are willing to take action to prevent disaster susceptibilities or to ameliorate the destruction once disasters occur.[300] More specifically, key determinants and potentially distorting influences promote or subvert genuine empathic and prosocial responses. Ensuring optimal disaster outcomes will

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296. *See* Decety & Cowell, *supra* note 231, at 529 (asserting that "human research shows that many variables affect its induction in an observer"); *see also* Stephan Dickert & Paul Slovic, *Attentional Mechanisms in the Generation of Sympathy*, 4 JUDGMENT & DECISION MAKING 297, 297 (2009); Preston & de Waal, *supra* note 226, at 1.

297. In so doing, one must nonetheless recognize limits in such malleability, as some of the individual differences in altruistic dispositions appear to be genetically-based. *See* J. Philippe Rushton et al., *Altruism and Aggression: The Heritability of Individual Differences*, 50 J. PERSONALITY & SOC. PSYCHOL. 1192, 1192 (1986); Graham J. Thompson et al., *Genes Underlying Altruism*, 9 BIOLOGICAL LETTERS 1, 1–6 (2013).

298. *See* FED. EMERGENCY MGMT. AGENCY, BEHAVIOR AND ATTITUDES UNDER CRISIS CONDITIONS: SELECTED ISSUES AND FINDINGS 77–92, 127–80 (1984) (identifying how the public responds to potential crises asymmetrically, depending on familiarity with the type of crises); Michael J. Hogan et al., *Campaign Contributions, Lobbying, and Post-Katrina Contracts*, 34 DISASTERS 593 (2010) (documenting the relationship between campaign contributions to politicians and decisions responding to potential disaster events); Michele Landis Dauber, *The Real Third Rail of American Politics*, *in* CATASTROPHE: LAW, POLITICS, AND THE HUMANITARIAN IMPULSE 60, 64–77 (Austin Sarat & Javier Lezaun eds., 2009) (characterizing motivation for disaster response as a product of framing rather than of total need); Susan M. Sterett, *Need and Citizenship After Disaster*, 13 NAT. HAZARDS REV. 233 (2012) (discussing concepts of citizenship, migration, and refugee status among people displaced by Hurricane Katrina and humanitarian responses based on these concepts).

299. *See* MICHAEL DAWSON ET AL., UNIV. OF CHI., CTR. FOR THE STUDY OF RACE POLITICS AND CULTURE, 2005 RACIAL ATTITUDES AND THE KATRINA DISASTER STUDY 5 (2006).

300. *See generally* OLASKY, *supra* note 163.

require recognizing these factors in broader assessments of disaster and response.

First, the intensity of experienced emotion influences the level of empathic response.[301] Research suggests that individuals feel greater empathy for sudden, intense pain rather than chronic pain.[302] Moreover, focusing on the tragic or painful aspects of another's situation strengthens shared feeling.[303] When the pain of others is made salient, neural activation associated with distress and empathy increases.[304] Conversely, when factors distract an observer from the intensity of suffering, poignancy, or initial shock of an event, the observer is less likely to share the distress of the sufferer.[305] As such, in communicating or framing disasters, efforts that minimize the sense of *immediate* impact or dilute the urgency or shock of a situation may diminish empathic responses.

A second factor includes the empathy targets and their features. Negative perceptions of others can affect empathic reactions.[306] For instance, individuals show diminished neural activity in regions mediating empathy when they observe people suffering whom they deem to be immoral or unfair.[307] Similarly, observers exhibit far less empathy when viewing those suffer who appear to have willfully brought the conditions of suffering upon themselves.[308] Neuroscientific findings authenticate these conclusions: observers show greater neural activation in brain areas associated with distress when

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301. *See* Karen Gasper & Gerald L. Clore, *The Persistent Use of Negative Affect by Anxious Individuals to Estimate Risk*, 74 J. PERSONALITY & SOC. PSYCHOL. 1350, 1350 (1998).

302. *See* Alexander Otti, *I Know the Pain You Feel—How the Human Brain's Default Mode Predicts Our Resonance to Another's Suffering*, 169 NEUROSCIENCE 143, 145–46 (2010); Milamaaria Saarela, *The Compassionate Brain: Humans Detect Intensity of Pain from Another's Face*, 17 CEREBRAL CORTEX 230, 230 (2007).

303. *See* Chantal Villemure & M. Catherine Bushnell, *Cognitive Modulation of Pain: How Do Attention and Emotion Influence Pain Processing?*, 95 PAIN 195, 195 (2002).

304. *See* Xiaosi Gu & Shihui Han, *Attention and Reality Constraints on the Neural Processes of Empathy for Pain*, 36 NEUROIMAGE 256, 258 (2007).

305. *See* Dickert & Slovic, *supra* note 297, at 302–03.

306. *See* Singer et al., *supra* note 274.

307. *See id.*

308. *See* Crandall & Martinez, *supra* note 273, at 1169–74.

viewing individuals suffer who were deemed not responsible for their circumstance.[309]

Third, empathic responses are highly sensitive to appraisals of context. Experiencing or even interpreting a physical event as regular, systemic, and normal as opposed to random and overwhelming can reduce affective, empathic feeling.[310] Individuals become easily desensitized when viewing events as routine,[311] potentially weakening the link between shared distress and prosocial response.[312] By extension, characterizing disasters less as acts of God that are unforeseeable, and more as systemic events that reveal societal preferences may imply regularity, thereby diminishing the distressing dimensions of disaster. Thus, attempts to systematize disaster framing in a way that emphasizes the futility, randomness, and senselessness of the disaster could actually heighten empathy towards victims, whereas conceptualizations of disasters as normal are likely to undermine it.

Fourth, perceived closeness or identification with a victim increases empathy and prosocial helping, while social distance undermines them. Watching pictures of actual people as opposed to images of cartoons being harmed induces greater neural distress activity in observers.[313] Additionally, behavioral and neural measures demonstrate that perspective-taking can alter individuals' empathic response.[314] In one set of tests, researchers asked subjects to contemplate either the victim's situation or feelings.[315] These activities served to increase the

309. *See* Jean Decety et al., *The Blame Game: The Effect of Responsibility and Social Stigma on Empathy for Pain,* 22 J. COGNITIVE NEUROSCIENCE 985, 985 (2010).

310. *See* Paul M. Robins et al., *The Experience of Secondary Traumatic Stress Upon Care Providers Working Within a Children's Hospital*, 24 J. PEDIATRIC NURSING 270, 270 (2009).

311. *See* Kelly R. Chrestman, *Secondary Exposure to Trauma and Self Reported Distress Among Therapists*, *in* SECONDARY TRAUMATIC STRESS: SELF-CARE ISSUES FOR CLINICIANS, RESEARCHERS, AND EDUCATORS 29, 29–35 (B. Hudnall Stamm ed., 1995); Charles R. Figley, *Compassion Fatigue as Secondary Traumatic Stress Disorder: An Overview*, *in* COMPASSION FATIGUE: COPING WITH SECONDARY TRAUMATIC STRESS DISORDER 1, 1–12 (Charles R. Figley ed., 1995).

312. *See* Valeriani et al., *supra* note 256.

313. *See* Gu & Han, *supra* note 305, at 265.

314. *See* Lamm et al., *supra* note 232.

315. Gu & Han, *supra* note 305, at 258.

empathic responses as reflected in subsequent behavior as well as neural activity.[316] By extension, data shows that observers are more likely to feel empathy when they are able to imagine the victim,[317] and perceive the suffering of a few rather than many.[318] Identifying a particular individual who suffers, for example, elicits stronger affective reactions than statistics about them tend to do.[319] Conversely, when numerical data serve to increase temporal and spatial distance between empathizer and victim,[320] generalized empathy diminishes.[321] Individuals also tend to help identifiable victims more frequently and with greater urgency than statistical victims.[322] Therefore, while expanding models of vulnerability in terms of statistics rather than persons or experiences may more easily facilitate calculation and decision-making in the abstract, such representations run the risk of dissipating the key emotive elements of disaster need and risk.[323]

### C. POTENTIAL CONCERNS

The present case assumes that empathy is a noble ideal and essential for prosocial decision-making and other-concern. Although most take such a view as given,[324] a few critics have been less sympathetic. For instance, some have claimed that empathy is overly sentimental and is an impediment to effective policy.[325] In other words, compassion and empathy

316. *Id.*

317. *See generally* MARK H. DAVIS, EMPATHY: A SOCIAL PSYCHOLOGICAL APPROACH (1994) (discussing the history of various theories of empathy).

318. *See* Karen E. Jenni & George F. Loewenstein, *Explaining the 'Identifiable Victim Effect'*, 14 J. RISK & UNCERTAINTY 235, 236 (1997); George F. Loewenstein & Deborah A. Small, *The Scarecrow and the Tin Man: The Vicissitudes of Human Sympathy and Caring*, 11 REV. GEN. PSYCHOL. 112, 118 (2007).

319. *See* Loewenstein & Small, *supra* note 319, at 118.

320. See *id.* at 116.

321. *See id.*

322. *See* Deborah A. Small & George F. Loewenstein, *Helping the Victim or Helping a Victim: Altruism and Identifiability*, 26 J. RISK & UNCERTAINTY 5, 5–14 (2003).

323. *See* Chen, *supra* note 14, at 1143 (acknowledging the difficulty in reconciling a "highly rational and formal analogy," in this case financial portfolio theory, "with the asymmetrical, horribly inelegant distribution of risk" in disasters).

324. Bloom, *supra* note 203 (explaining that the view that empathy is a cure for humanity's ills "befits the spirit of the times").

325. *Id.*; Isaacson, *supra* note 203.

"provoked by compelling pictures may be a suitable basis for Christmas charity drives," but are poor bases for humanitarian policy.[326] Others have suggested that empathy is biased and burdensome,[327] perhaps to the point of pathology.[328] They are wont to point to the considerable efforts to help during 9/11 and the Sandy Hook massacre as compared to the inadequate efforts made for equally tragic but less sensational disasters such as heat waves.[329]

Although the consequences of these criticisms are serious, the broader arguments they invoke appear misplaced or exaggerated. First, as defined above, empathy occurs when one successfully understands the thoughts and feelings of others, shares emotions such as distress, and identifies with another's plight or condition.[330] Amidst the obstructive thoughts and emotions that can trump effective empathic response, empathy is more a constellation of effortful aims that rely on perspective-sharing, social competence, and executive control[331] than a guaranteed response to suffering. In other words, it is only when individuals at least partially come to identify with and feel for those who suffer that we consider empathy to have taken place.[332] As such, criticisms involving humanitarian shortcomings or in-group biases are less instances of empathy's failure, and more instances of failures to empathize.

Nor do concerns about empathic excess or thoughtlessness appear entirely warranted. First, the notion that any virtue can be taken to extremes is nothing new. For millennia, philosophers, theologians, and others have warned of the

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326. Isaacson, *supra* note 203.

327. Bloom, *supra* note 203.

328. Antonia J.Z. Henderson et al., *The Living Anonymous Kidney Donor: Lunatic or Saint?*, 3 AM. J. TRANSPLANTATION 203, 208 (2003).

329. I am grateful to Daniel Farber for this point. *See also* Bloom, *supra* note 203; James G. Hodge, Jr. et al., *The Legal Framework for Meeting Surge Capacity Through the Use of Volunteer Health Professionals During Public Health Emergencies and Other Disasters*, 22 J. CONTEMP. HEALTH L. & POL'Y 5, 9 & n.21 (2005) (citing Judith Faust, Address before the Emergency System for Advance Registration of Volunteer Health Professionals Focus Group Meeting: Volunteer Surge During 9/11 in New York (August 11, 2005)).

330. *See* Aron et al., *supra* note 292 (arguing that the more one identifies with another individual, the more he or she possesses empathy).

331. *See* Lamm et al., *supra* note 232; Underwood & Moore, *supra* note 232.

332. *See* BATSON, *supra* note 227, at 31; de Waal, *supra* note 226; HOFFMAN, *supra* note 226, at 29; Preston & de Waal, *supra* note 226.

potential excesses of even the most virtuous behaviors.[333] Just as it would be unfair to denounce courage *tout court* for instances of brazen recklessness, so too would it be unfair to censure empathy itself for instances of misguided or thoughtless liberality. Extreme empathic and altruistic behavior exists along a distributed spectrum opposite extreme callousness, and a few outlying instances of the former should not mar the status of the emotion or virtue generally.[334] Second, excessive empathy and giving are simply not top concerns shared by actual disaster organizations and victims around the world. Indeed, as global aid institutions can attest, the central challenge in most disasters is not too much munificence or empathic concern.[335] Not only are voluntary and non-governmental resources essential in many disasters,[336] but according to the International Federation of the Red Cross, in countless disaster settings "the primary problem with international relief is not that there is too much of it for domestic regulatory systems to handle, but rather that there is too little."[337]

On balance, then, acknowledging potential flaws or limitations of even the more noble ideals such as empathic feeling and accuracy is fruitful for critical discussion and policy-making.[338] However, disparaging them altogether or suggesting that they are irrelevant to disaster efforts and policies appears misguided. Empathy is more than random bursts of compassion; it is a foundational set of skills and social behaviors for acting on behalf of others.[339] Some critical

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333. *See* 2 THOMAS AQUINAS, SUMMA THEOLOGICA pt I-II, q. 64 art. 1–4 (Fathers of the English Dominican Province trans., Christian Classic 1981) (c. 1274); ARISTOTLE, NICOMACHEAN ETHICS bk. II at 29–30 (Leslie Brown ed., David Ross trans., Oxford Univ. Press 2009) (c. 384 B.C.E.); Theresa Derlan Yeh, *The Way to Peace: A Buddhist Perspective*, 11 INT'L J. PEACE STUD. 91, 96–97 (2006).

334. *See* Marsh et al., *supra* note 291, at 15036.

335. *See* INT'L FED'N OF RED CROSS & RED CRESCENT SOCIETIES, LAW AND LEGAL ISSUES IN INTERNATIONAL DISASTER RESPONSE: A DESK STUDY-SUMMARY VERSION 16 (2007) [hereinafter, RED CROSS, LEGAL ISSUES].

336. *See* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-06-712, HURRICANES KATRINA AND RITA: COORDINATION BETWEEN FEMA AND THE RED CROSS SHOULD BE IMPROVED FOR THE 2006 HURRICANE SEASON 17 (2006) [hereinafter GAO, HURRICANES] (noting that both government agencies and private organizations were overwhelmed after Hurricane Katrina).

337. RED CROSS, LEGAL ISSUES, *supra* note 336, at 16.

338. *See* Bloom, *supra*, note 203.

339. *See* Batson, *supra* note 231; Decety & Cowell, *supra* note 231, at 529.

analyses may thus suffer an availability bias by focusing inordinately on extreme and highly-publicized instances of empathy instead of the less sensational but far more common daily examples of sacrifice extended at local blood banks, hospitals, or disaster relief centers in times of disasters large and small.[340] As such, deprecating the significance and usefulness of empathy gives short shrift to a central dimension of prosocial behavior and disaster relief.[341] Moreover, because empathy and prosocial behavior generally are susceptible to cognitive appraisal and judgment, tarnishing or disregarding empathy and prosocial action may encourage academics, policy-makers, and citizens to disregard an essential motivator and facilitator of effective disaster management.

## V. SCIENTIFIC RESEARCH APPLIED TO PRACTICE

Scientific research on empathy and prosocial behavior, and its relationship to systematization, applies directly to specific concerns involving disaster planning and response. Specifically, systematizing disaster may distort experts' and authorities' decision-making, and render it less responsive to the needs of communities and individuals.[342] It may also diminish the public's political willingness to demand adequate government responses to crises, to volunteer, or to donate public resources on behalf of victims.[343] Finally, the methods used to frame disaster may distort behavior in response to human calamity.[344]

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340. *See* Danshera Cords, *Charitable Contributions for Disaster Relief: Rationalizing Tax Consequences and Victim Benefits*, 57 CATH. U. L. REV. 427, 432 (2008); Adam F. Simon, *Television News and International Earthquake Relief*, J. COMM., Sept. 1997, at 82, 91.

341. *See* GAO, HURRICANES, *supra* note 337, at 17 (indicating the extent to which government agencies and private organizations are often overwhelmed after major disasters); C. Daniel Batson et al., *Information Function of Empathic Emotion: Learning That We Value the Other's Welfare*, 68 J. PERSONALITY & SOC. PSYCHOL. 300, 312 (1995) (explaining that a lack of empathy can lead to devaluing of other individuals); *see also* Cords, *supra* note 341, at 428–29.

342. Lisa Grow Sun, *Disaster Mythology and the Law*, 96 CORNELL L. REV. 1131, 1173 (2011).

343. Amy J.C. Cuddy et al., *Aid in the Aftermath of Hurricane Katrina: Inferences of Secondary Emotions and Intergroup Helping*, 10 GROUP PROCESSES & INTERGROUP REL. 107, 107–08 (2007).

344. *See generally* DAWSON ET AL., *supra* note 300 (discussing the media's attempts to frame Hurricane Katrina).

### A. DONATIONS AND POLITICAL WILL

Adequate resources and political involvement are essential to disaster prevention, compensation, and response. Donors at international, national, state, and local levels play a foundational role furnishing monetary and other resources to directly assist victims, and provide food, shelter, and medical supplies. Citizens and voters also play a crucial role ensuring that adequate government disaster responses are forthcoming. Where these individuals are unwilling to place political pressure on leaders, victims of disaster are more likely to suffer. Moreover, insufficient humanitarian resources and aid workers are frequently cited as prime concerns.[345] In fact, a central challenge in many disasters is inadequate contributions and material resources.[346]

Despite the importance of public donations and political will, the motivations underlying these forces may vacillate. Consistent with the research above, when media or scholars portray victims of disaster as lawless or antisocial, would-be-donors and otherwise sympathetic citizens are less likely to donate or place pressure on elected officials to act on behalf of victims.[347] With regard to Katrina, many observers of state and federal action considered the general response tepid at various levels.[348] Lack of strong political will and fear of crime and lawlessness in the area "hampered response efforts . . . resulting in delays in search and rescue, provision of medical care, restoration of critical infrastructure, and delivery of desperately needed food, water, and sanitary supplies."[349]

More consequential still, cognitive deliberations and framing disaster in numerical or abstract terms may easily distort or weaken individuals' willingness to help. Generosity to those in need is reduced when information is introduced in the

345. IFRC & UNDP, *supra* note 88, at 36.

346. *Id.* at 57.

347. Amidst reports of violence and looting among victims of Katrina, many citizens took up arms to protect themselves against these victims. *See* John Burnett, *Evacuees Were Turned Away at Gretna, L.A.*, NPR MORNING EDITION (Sept. 20, 2005), http://www.npr.org/templates /story/story.php?storyId=4855611; *see also* Singer et al., *supra* note 274, at 466 (reporting research that indicates empathy in males is modulated by the perceived fairness of the other person's behavior).

348. *See* SENATE COMM. ON HOMELAND SEC., *supra* note 23, at 4.

349. Sun, *supra* note 343.

form of statistics.[350] When researchers require potential donors to rationally consider statistical rather than poignant information regarding need, donors' prosocial motivation tends to decline.[351] In one study, donors actually gave less to identified victims after interventions that required considering statistical information and yet gave no more to statistical victims.[352] In other words, these interventions rendered donors more "informed" but far less generous.

These effects are connected to research indicating that when individuals begin to conceive of loss and harm in terms of large numbers or quantified data, they experience a "psychophysical numbing" of sorts.[353] For instance, individuals appear to show less affective empathy for many victims as opposed to a few or one.[354] When individuals imagine a single person, they tend to impute greater agency and personhood to her than when they consider her *en masse* or as a statistic; they also tend to value her life more than when aggregated in masses.[355] At the same time, people are far more generous to identifiable victims than to those depicted abstractly, even if the need of those abstractly represented is far greater.[356] In addition, donations to an actual person tend to be higher than those made on behalf of groups or statistical victims.[357] Conversely, experiments that encourage donors to process

350. *See* Deborah A. Small et al., *Sympathy and Callousness: The Impact of Deliberative Thought on Donations to Identifiable and Statistical Victims*, 102 ORG. BEHAV. & HUM. DECISION PROCESSES 143, 146 (2007).

351. *See* Fritz Strack & Roland Deutsch, *Reflective and Impulsive Determinants of Social Behavior*, 8 PERSONALITY & SOC. PSYCHOL. REV. 220, 223 (2004).

352. *See* Small et al., *supra* note 351, at 150.

353. David Featherstonhaugh et al., *Insensitivity to the Value of Human Life: A Study of Psychophysical Numbing*, 14 J. RISK & UNCERTAINTY 282, 284 (1997).

354. Daniel Vastfjall et al., *Compassion Fade: Affect and Charity Are Greatest for a Single Child in Need*, 9 PLOS ONE, June 2014 (e100115), at 1, 2.

355. *See* James Friedrich et al., *Psychophysical Numbing: When Lives Are Valued Less as the Lives at Risk Increase*, 8 J. CONSUMER PSYCHOL. 277, 278 (1999).

356. *See* Gary Charness & Uri Gneezy, *What's in a Name? Anonymity and Social Distance in Dictator and Ultimatum Games*, 68 J. ECON. BEHAV. & ORG. 29, 33 (2008); Kogut & Ritov, *supra* note 278, at 158.

357. Kogut & Ritov, *supra* note 278, at 164.

information emotively augment both affective responses and donation amounts.[358]

An underlying element in these findings is the role of maintaining emotionally-salient connections to isolated or abstract persons and conditions.[359] Specifically,

> [i]n order to mentally transform the suffering of others into a coherent and meaningful representation, it is often necessary to focus on the specific features of those in need. In situations where selective attention to these features is reduced or not possible, mental images do not generate emotions that motivate helping.[360]

Inasmuch as systematization involves aggregating loss, death, or harm in the form of group statistics or mass figures, the devastation is less likely to elicit empathy, giving, and political will to help,[361] with obvious ramifications for efforts to manage and respond to disaster.

Finally, given the influence of interpretations of moral character and culpability on empathic and altruistic behavior, efforts to curb disaster aid corruption may also be particularly consequential. Violations of trust, misuse of others' funds, and corruption evoke a wide range of negative emotions that significantly diminish individuals' concern for would-be aid recipients.[362] Individuals consistently reduce their generosity

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358. *See* Small et al., *supra* note 351, at 150.

359. *See* Paul Slovic & Daniel Vastfjall, *Affect, Moral Intuition, and Risk*, 21 PSYCHOL. INQUIRY 387, 395 (2010) (stating that one way to increase empathy towards large groups of people is to make them "real" through the use of personal narratives or an image of a face).

360. Stephen Dickert et al., *Valuations of Human Lives: Normative Expectations and Psychological Mechanisms of (Ir)rationality*, 189 SYNTHESE (SUPP. 1) 95, 101 (2012).

361. Although important differences exist between explicitly man-made disasters, such as war, and other "natural" disasters, historical evidence indicates that the power of feeling another's tragedy in single, visceral portrayals can significantly inform public opinion. In either case, emotive images have often been found to have a more visceral effect on public opinion than statistical depictions of comparable harm. *See* JONATHAN GLOVER, HUMANITY: A MORAL HISTORY OF THE 20TH CENTURY 165–76 (2000) (comparing divergent narratives and realities in the experience and news coverage of wars).

362. *See* SAMIA COSTA TAVARES, ROCHESTER INST. OF TECH., DO MORE CORRUPT COUNTRIES RECEIVE LESS DISASTER RELIEF? (2008) (concluding that U.S. disaster aid response and amount may be affected by perceived corruption of the country needing aid); Paul Slovic, *Perceived Risk, Trust, and Democracy*, 13 RISK ANALYSIS 675 (1993); Wolfgang Steinel & Carsten K. W. De Dreu, *Social Motives and Strategic Misrepresentation in Social Decision Making*, 86 J. PERSONALITY & SOC. PSYCHOL. 419, 431 (2004); Karen W. Arenson, *Ex-United Way Leader Gets 7 Years for Embezzlement*, N.Y. TIMES,

after their trust is violated.[363] As such, attempts to legally target humanitarian aid corruption may bolster empathy by ensuring effective delivery of aid without exploiting donors' good will. Prosecuting corrupt government officials, aid workers, and related personnel for intentional misappropriation, willful neglect, or abuse of authority may diminish violations of trust and prevent reductions in giving.[364] In this way, lawmakers in the United States and abroad can incorporate an understanding of the relationship between ethical behavior, empathy, and generosity into practical legal reform.

### B. COMMUNITY VOLUNTEERS

Empathy is equally crucial for basic motivations to serve one's community in times of crisis. The tragic effects of hurricanes, floods, heat waves, and wildfires require substantial labor to save lives and property. Damaged infrastructure, broken levies, ruptured pipelines, and breached reactor containers often overwhelm responder capacity.[365] More immediately, vital public services may have been compromised. People may be trapped under collapsed roads, bridges, or buildings, left homeless, or in need of food, water, and medical care. Where local capacity is overwhelmed, organizations and emergency response teams may require thousands of volunteers, physicians, medical technicians, engineers, and psychologists.[366] Although professional rescue teams fulfill

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June 23, 1995, at A14; Mark Tran & Liz Ford, *UK Suspends Aid to Uganda as Concern Grows over Misuse of Funds*, THE GUARDIAN, Nov. 16, 2012; Peter Whoriskey & Jacqueline L. Salmon, *Charity Concealed Pilfering: Auditors Had Flagged United Way Executive*, FORT WAYNE J. GAZETTE (Ind.), Aug. 17, 2003, at 7A.

363. *See* Terry L. Boles et al., *Deception and Retribution in Repeated Ultimatum Bargaining*, 83 ORG. BEHAV. & HUM. DECISION PROCESSES 235, 253 (2000); Slovic, *supra* note 363.

364. *See* TAVARES, *supra* note 363.

365. *See* VERCHICK, *supra* note 11, at 131–35.

366. *See* Christopher T. Born & William G. DeLong, Jr., *Organizing the Orthopaedic Trauma Association Mass Casualty Response Team*, 422 CLINICAL ORTHOPAEDICS & RELATED RES. 114, 114 (2004); James G. Hodge, Jr. et al., *Volunteer Health Professionals and Emergencies: Assessing and Transforming the Legal Environment*, 3 BIOSECURITY & BIOTERRORISM 216, 217 (2005).

significant response duties, philanthropic efforts and volunteer work remain indispensable.[367]

Yet, motivation and willingness to perform these vital functions is never guaranteed. As one set of observers noted, "perhaps the most shocking development in the aftermath of the Hurricane Katrina disaster was the sluggish and inadequate response to victims who were clearly in dire need of assistance."[368] Specifically, in the aftermath of Katrina, researchers investigated the influence of feeling empathy and identifying the emotions of others on individuals' willingness to help victims.[369] They discovered that when members of one racial group inferred significantly lower secondary emotions to other racial groups, their willingness to help them after a disaster plummeted.[370] According to the researchers, by attributing fewer secondary emotions to out-groups, the observers effectively denied others a "human essence, which they reserve for the in-group," thereby subverting their willingness to help.[371] Conversely, having individuals take the perspective of out-group members has been shown to diminish negative judgments or stereotypes.[372]

A particularly salient area in which empathy plays a vital role in volunteering is helping individuals to cope with trauma related to disaster. Disasters are often highly disturbing events that can induce anxiety and depression in victims and observers. Such groups are more vulnerable to mental disorder.[373] Volunteers can offer psychological comfort,[374] help

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367. *See* Fang Tian et al., *Psychological and Behavioural Impacts of the 2008 China Earthquake on Blood Donors*, 99 VOX SANGUINIS 142, 147 (2010) (reporting increased voluntary blood donation after a Chinese earthquake, and assessing stated motivations).

368. Cuddy et al., *supra* note 344.

369. *Id.* at 110.

370. *Id.* at 113.

371. According to the study, "Black/Latino participants inferred lower secondary emotions about the White victim than about the Black victim [while] White participants' inferences of secondary emotions about Black and White victims differed in the predicted direction but this difference was not significant." Cuddy et al., *supra* note 344, at 110–12.

372. *See* Galinsky & Moskowitz, *supra* note 233.

373. *See* Ben-Zur & Zeidner, *supra* note 219; David Vlahov et al., *Sustained Increased Consumption of Cigarettes, Alcohol, and Marijuana Among Manhattan Residents After September 11, 2001*, 94 AM. J. PUB. HEALTH 253, 253 (2004) (discussing increased drug usage in post-9/11 Manhattan); David Vlahov et al., *Increased Use of Cigarettes, Alcohol, and Marijuana Among*

individuals regain mental functioning, and mitigate the onset of psychiatric illness.[375] They may also provide compassion and emotional support, or teach resilience[376] through personal conversation or public discussion.[377]

Discrediting empathy as a valid response to disaster, or creating legal-based norms that encourage citizens to treat disaster relief as a government, not personal, task may also diminish vital informal disaster efforts. Indeed, informal social capital and interpersonal empathy can save lives. For instance, during one particularly dangerous heat wave in Chicago that killed hundreds,[378] groups deemed to have stronger intra-community ties experienced lower death rates.[379] Disaster mortality rates diverged noticeably even among groups that shared comparable levels of poverty.[380] In particular, although Latinos' "overall level of poverty placed them at a heightened risk of mortality," they "experienced a surprisingly low death rate,"[381] a fact subsequently attributed to favorable social network norms.[382] In developing plans and disaster responses, addressing these types of personal dynamics is paramount.

From a less sanguine perspective, volunteers too are amenable to psychophysical numbing and other factors, such as perceptions of need, identification with disaster victims, and determinations of the in-group or out-group status of victims.[383] Various types of systematization are likely to play out where dehumanizing portrayals are made of disaster conditions or victims: when the pain of others is made particularly salient to

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*Manhattan, New York Residents After the September 11th Terrorist Attacks*, 155 AM. J. EPIDEMIOLOGY 988, 988 (2002).

374. *See* Gilbert Reyes & Jon D. Elhai, *Psychosocial Interventions in the Early Phases of Disasters*, 41 PSYCHOTHERAPY 399, 408 (2004).

375. *See generally* Jodi Halpern, *What is Clinical Empathy?*, 18 J. GEN. INTERNAL MED. 670 (2003) (explaining the use of empathy by physicians to lower patient anxiety and provide more effective care).

376. *See* Reyes & Elhai, *supra* note 375, at 410.

377. *See* Gary A. Kreps, *Sociological Inquiry and Disaster Research*, 10 ANN. REV. SOC. 309, 318 (1984).

378. ERIC KLINENBERG, HEAT WAVE 9 (2002).

379. *See id.* at 105–28.

380. *Id.* at 19.

381. *Id.*

382. *Id.* at 35.

383. *See generally* DAWSON ET AL., *supra* note 300 (discussing the racial gap, media framing, and Katrina victims' opinions on the cause of the hurricane).

the public, empathy and eagerness to help tend to increase.[384] Conversely, when portrayals—whether in media, public disseminations, broadcasts, or community dialogue—distract an observer or neglect to communicate the intensity of suffering, emotional significance, or initial shock of an event, citizens are less likely to share or 'appropriate' the distress of the sufferer.[385]

Perhaps more injurious to the willingness to help is the prospect of potential penalties for volunteering. Today, volunteers can in some cases be held criminally or civilly liable for actions taken in an emergency situation.[386] For instance, medical volunteers can be held liable for medical procedures performed without informed consent, or for negligent infliction of emotional distress if their actions caused substantial emotional suffering and the victim's reaction was foreseeable.[387] Fear of serious legal repercussions for unintended consequences could easily diminish potential volunteers' willingness to help by making already costly, uncompensated behavior even less appealing. As such, reasonably restricting the extent to which possible liability may attach to good faith efforts may ensure robust volunteering. Although Congress has addressed aspects of this concern,[388] liability issues remain. For instance, states retain broad authority to opt out of legislation, immunity extends to volunteers not organizations, and government and nonprofits may sue individual volunteers.[389] More comprehensive, prospective coverage in all states could reduce concerns and foster greater willingness to participate in disaster relief efforts.

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384. *See* Gu & Han, *supra* note 305, at 265; Simon, *supra* note 341.

385. *See* Dickert & Slovic, *supra* note 297, at 304; Simon, *supra* note 341.

386. *See* DEP'T OF HEALTH & HUMAN SERVS., EMERGENCY SYSTEM FOR ADVANCE REGISTRATION OF VOLUNTEER HEALTH PROFESSIONALS, LEGAL AND REGULATORY ISSUES REPORT 62 (2005).

387. *Id.*

388. Such limited liability holds only so long as the volunteer is working within the scope of her responsibilities, is appropriately licensed or certified, and does not cause willful or grossly negligent harm. *See* Volunteer Protection Act of 1997, 42 U.S.C. §§ 14501–14503 (2012).

389. *See id.*

C. ELITE AND EXPERT DISASTER MANAGEMENT

Lawmakers, engineers, economists, biohazard technicians, and other authorities are not immune to potential bias and distortion, or the prominent role of affect in their decision-making. In particular, authorities and experts retaining a robust sense of empathy and human connection with disaster and its victims is essential. As Kenneth Feinberg, administrator of the BP Oil Spill and other disaster funds, has admonished authorities: never underestimate the effect of empathizing with and listening to the victims of disaster.[390] When decision-makers pursue systematic reforms without consideration of the broader human and empathic dimensions of disaster, their own framework may blind them to their biases and errors. As the state definitions suggest, the policies governing disaster declaration and relief efforts offer extensive opportunities for subjective judgment.[391] Equivalent license exists in determining what constitutes problems "too large in scope or unusual in type,"[392] and in defining what entails "widespread or severe damage."[393] Similarly, the benchmarks that authorities select significantly influence how genuine need and successful disaster relief are measured.[394] Authorities may also decide the extent to which a community can participate in decision-making and what issues are barred from public discussion.

The potential for abuse of power might suggest that more formalistic mechanisms will eliminate such concerns by generating decisions arrived at without regard to persons and in purely procedural manner.[395] However, formalistic efforts

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390. Kathleen Hennessey, *Overseer of Gulf Victim Fund 'a Force of Nature'*, L.A. TIMES, June 18, 2010, at A15. Although initially perceived as cool and aloof among victims, Feinberg changed tacks and was largely praised for his empathy and willingness to listen to hundreds of victims' stories, which significantly facilitated resolving highly complex, emotionally-charged issues. *See* Volunteer Protection Act of 1997, 42 U.S.C. §§ 14501–14503 (2012).

391. *See* CONN. GEN. STAT. ANN. § 28-1 (West 2010); NEV. REV. STAT. § 414.0335 (2015).

392. N.J. STAT. ANN. § App. A:9-33.1 (West 2006); *see also* TENN. CODE ANN. § 58-2-101 (2013).

393. IND. CODE § 10-14-3-1(a) (2005); N.Y. EXEC. LAW § 20, 2(a) (McKinney 2004); TEX GOV'T CODE ANN. § 418.004 (West 2012).

394. *See, e.g.*, DAVIS, *supra* note 92; Fothergill, *supra* note 7, at 34–35; Landis, *supra* note 6, at 971; Pulido, *supra* note 7, at 12.

395. *See* Kalberg, *supra* note 83, at 1158; WEBER, ECONOMY *supra* note 82, at 656–57.

are no guarantee of efficiency and impartiality. Not only did excessive legal details and disputes contribute to the delayed response to Katrina,[396] but also numbers and objective protocols can deceive authorities of their own biases, even within standardized frameworks. For instance, Slovic et al. tested elites and experts on judgments of risk.[397] They were asked to assess the risk of exposure to varying chemicals, such as benzene, cigarette smoke, and dioxins in food, and then to judge the degree of risk associated with minimal exposure defined as less than 1/100th the exposure level relevant to a regulatory agency.[398] Because exposure was so low for every hazard, risk judgments should have rationally been uniform and low; yet, almost every respondent rated significantly higher those chemicals more negatively rated in terms of affect.[399] Although one could conjecture that the study proves that numbers are, in fact, the solution, the study's deeper meaning implies that any rigid distinction between expert judgment relying on affect but discoursing in numbers, and expert judgment derived purely from numbers, is tenuous.

If systematic frameworks of disaster response are instruments of value and preference, then whether those preferences and assessments demonstrate empathy and show genuine concern for all is significant. For example, genuine empathy may encourage authorities to *do more* for victims than legal reforms or codes require, or legal constraints might otherwise allow. For instance, in the past, U.S. legislators have disregarded potential constitutional limits for providing disaster relief in deference to appeals to empathy, charity, or humanity.[400] They have proclaimed that amidst "the cries of children and the petitions of women homeless" from disaster, they could not "stop to argue literal construction of the Constitution" and would instead "take the side of mercy and risk it on that."[401]

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396. *See* Ryan, *supra* note 73, at 522–23.

397. Paul Slovic et al., *Evaluating Chemical Risks: Results of a Survey of the British Toxicology Society*, 16 HUM. & EXPERIMENTAL TOXICOLOGY 289 (1997).

398. *Id.*; Paul Slovic et al., *Risk as Analysis and Risks as Feeling: Some Thoughts About Affect, Reason, Risk and Rationality* 24 RISK ANALYSIS 311, 315–16 (2004) (describing methodologies in Slovic et al., *supra* note 398).

399. Slovic et al., *supra* note 399.

400. Landis, *supra* note 22, at 405.

401. *Id.* at 406.

Similar dynamics may have been at play during the Deepwater Horizon/BP oil spill crisis.[402] BP Oil was initially criticized as failing to express concern and empathy to accident victims,[403] while President Obama emphasized the human dimensions of the disaster by stating that the catastrophe and response were

> not just a matter of dollars and cents . . . . [Rather,] the standard I'm going to be applying is whether or not those individuals I met with [in the Gulf], their family members, those communities that are vulnerable . . . are uppermost in the minds of all concerned. That's who we're doing this work for.[404]

As part of this concern, Obama relied on extra-legal values and judgment, went beyond the legal cap for liabilities, and sought additional funds of over $20 billion to compensate victims.[405] Rather than remain a peripheral issue, empathy and prosocial concern were essential features of the disaster compensation efforts.[406]

Conversely, authorities can use numeric assessments to deceive or manipulate public reactions to disaster, and numbers may be skewed to arbitrarily alter judgments and motivation to help others.[407] In one study, investigators manipulated the proportion of "people saved" while holding the

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402. Jonathan Weisman & Guy Chazan, *BP Agrees to $20 Billion Fund*, WALL ST. J., June 17, 2010, at A1. Of course, it is entirely possible that politics, rather than empathy, motivated President Obama's decision. Nonetheless, such statement was not the first time President Obama had invoked empathy as a guide of policy-making. In a commencement address at Xavier University, President Obama exhorted students to empathize with "the family who lost the entire life they built together when the storm came to town . . . . [When you] empathize with the plight of others, whether they are close friends or distant strangers—it becomes harder not to act, harder not to help." Bloom, *supra* note 203.

403. *See* Daniel De Wolf & Mohamed Mejri, *Crisis Communication Failures: The BP Case Study*, INT'L J. ADVANCES MGMT. & ECON., Mar.–Apr. 2013, at 48, 52.

404. President Barack Obama, Statement by the President After Meeting with BP Executives (June 16, 2010), [https://web.archive.org/web/20100617004624/http://www.whitehouse.gov/the-press-office/statement-president-after-meeting-with-bp-executives].

405. *See* JONATHAN L. RAMSEUR & CURRY L. HAGERTY, CONG. RESEARCH SERV., R42942, DEEPWATER HORIZON OIL SPILL: RECENT ACTIVITIES AND ONGOING DEVELOPMENTS 1 (2014).

406. Whether $20 billion was the "correct" amount for compensation is another matter, and irrelevant to the fact that empathy played an important, favorable role.

407. *See* Featherstonhaugh et al., *supra* note 354, at 283.

actual number in need constant.[408] As a result, individuals preferred a humanitarian policy in which 4,500 out of 11,000 lives were saved to one in which 4,500 out of 250,000 were, suggesting that something as irrelevant as changing the denominator can significantly sway desires to help.[409] Numeric or statistical measurements are thus not just a potential means of clarifying harm and risk, but also of distorting or systematically concealing human suffering. In extreme cases, elite decision-makers may exploit systematization in order to conceal their own agendas or create the conditions of disaster themselves.[410]

In less drastic but still prominent examples, decision-makers retain significant power concerning public necessity. For instance, authorities often have at their disposal the discretion of demolishing, reducing, or using real or personal property if they deem it necessary to avert an imminent public disaster.[411] In the United States, often as elsewhere, individuals who lose their property as a result of state responses to disaster generally must bear the attendant financial loss,[412] as the recent Federal Court of Claims decision *TrinCo Investment Co. v. United States* reaffirmed.[413] In this

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408. *Id.* at 285.

409. *Id.* at 283–86, 297–99.

410. Particularly egregious examples include modern famines in which 30,000,000 Chinese died as a result of Maoist policies, and 2,000,000 Ukrainians died from Soviet efforts to eliminate peasant resistance to collectivization. Although systematization does not cause such results, ominous parallels exist between the formalistic and substantive types of systematization discussed above and the various techniques and procedures employed in these cases. *See* JASPER BECKER, HUNGRY GHOSTS: CHINA'S SECRET FAMINE 266–74 (1996). *See generally* JEAN DRÈZE & AMARTYA SEN, HUNGER AND PUBLIC ACTION (1989).

411. RESTATEMENT (SECOND) OF TORTS § 196 (AM. LAW INST. 1965) (noting a privilege to enter land and take actions that are "necessary for the purpose of averting an imminent public disaster"). A "public disaster" includes events "such as a conflagration, flood, earthquake, or pestilence." RESTATEMENT (SECOND) OF TORTS § 196 cmt. a (AM. LAW INST. 1965); *see also* John Alan Cohan, *Private and Public Necessity and the Violation of Property Rights*, 83 N.D. L. REV. 651, 690–94, 718–28 (2007) (discussing the relationship between public necessity, takings, and compensation in cases of necessary private property destruction in situations of fires, floods, infectious diseases, and sick animals).

412. *See* Armstrong v. United States, 364 U.S. 40, 49 (1960).

413. TrinCo Inv. Co. v. United States, 106 Fed. Cl. 98, 98–99 (2012) (dismissing TrinCo's complaint for failure to state a claim, finding that the government is not liable for damages under a takings theory when the

case, the U.S. Forest Service had initiated a number of fires adjacent to properties, the resulting damage of which was considered outside the Takings Clause and solely the plaintiff's responsibility.[414] Other victims of government-induced disaster have similarly suffered when their homes or farmland were devastated by flooding.[415] Currently, many states refuse to provide compensation for property taken or destroyed in cases such as firebreak, release of waters, or breach of impoundments.[416]

Authorities may also use disaster and systematic calculations of necessity to "upgrade" particular regions. In China, Ethiopia, and Vietnam, for instance, government officials have evicted residents and demolished dwellings under the guise of disaster prevention and mitigation, without consultation or adequate compensation and relocation for residents.[417] In fact, these efforts were partly directed towards serving alternative economic and social purposes. The Sri Lankan Parliament passed an act imposing an extensive coastal no-construction zone around hundreds of kilometers of the island.[418] The affected people faced resettlement, as well as loss of assets, cultural roots, and economic livelihood, while exceptions were made for expensive hotel projects.[419]

Amidst these conditions, it is problematic to assume that quantified approaches or the various formalistic, substantive, and theoretical tools of systematization alone will necessarily forestall abuse, ensure equal treatment, and motivate authorities to treat human tragedy with the highest priority.

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government destroys property as part of necessary actions to prevent a fire), *rev'd*, 722 F.3d 1375, 1380 (Fed. Cir. 2013) (finding that TrinCo's complaint was sufficiently plead to survive dismissal at the pleading stage, but preserving government's right to demonstrate its necessity defense to liability on remand).

414. *Id.* at 101–02.

415. *See* Big Oak Farms, Inc. v. United States, 105 Fed. Cl. 48, 56 (2012).

416. *See* ARK. CODE ANN. § 12-75-124(f) (2003 & Supp. 2011); FLA. STAT. §252.43(6) (2009); LA. STAT. ANN. § 29;730(H) (2007).

417. *See* INT'L FED'N OF RED CROSS & RED CRESCENT SOCIETIES , LAW AND REGULATION FOR THE REDUCTION OF RISK FROM NATURAL DISASTERS IN PEOPLE'S REPUBLIC OF CHINA: A NATIONAL LAW DESK SURVEY 88–89 (2012); INT'L FED'N OF RED CROSS & RED CRESCENT SOCIETIES, LAW AND REGULATION FOR THE REDUCTION OF RISK FROM NATURAL DISASTERS IN VIET NAM: A NATIONAL LAW DESK SURVEY 74 (2012).

418. *See* ASIAN DEV. BANK, CURBING CORRUPTION IN TSUNAMI RELIEF OPERATIONS 93–95 (2005).

419. *See id.*

The guarantee of optimal disaster outcomes by burdening legal procedure with regulating all possible acts of deceit, stratagem, or wrong committed by an authority during or in response to disaster is implausible. Moreover, rule of law often suffers during disaster crises, making extra-legal, empathic, and prosocial responses all the more important.

Robust empathic and prosocial sentiment and judgments by authorities will also play a particularly vital role for poor, minority, handicapped, and elderly populations in catastrophic situations.[420] Indeed, much of the destruction during Katrina affected particularly marginalized or vulnerable groups.[421] Nearly half of all persons age sixty-five or older living in flooded areas during Katrina reported having a disability.[422] Moreover, those impacted tended to be disproportionately poor.[423] Pregnant women also have special needs and face increased risks during disasters, including premature deliveries, underweight infants, and infant mortality.[424] The elderly are also more susceptible in disaster to poor nutrition, extreme temperatures, exposure to infection, and emotional distress than younger populations.[425] Ensuring that the most vulnerable are fully taken into account in planning and developing plans that incorporate intricate, local factors are prominent examples of empathic and prosocial decision-making. Integrating empathy and prosocial considerations is thus best contemplated as partner, rather than foe, of improved planning and regulation.

### D. EMPATHY AND FRAMES OF DISASTER

Finally, beyond the practical considerations of political will, volunteers, donations, and experts and authorities, the

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420. *See* Emanuele Castano, *Antisocial Behavior in Individuals and Groups: An Empathy-Focused Approach*, *in* THE OXFORD HANDBOOK OF PERSONALITY AND SOCIAL PSYCHOLOGY 419, 431–32 (Kay Deaux & Mark Snyder eds., 2012).

421. *See* THOMAS GABE ET AL., CONG. RESEARCH SERV., RL33141, HURRICANE KATRINA: SOCIAL-DEMOGRAPHIC CHARACTERISTICS OF IMPACTED AREAS 14, 16–17 (2005).

422. *Id.* at 17.

423. *See id.* at 16–17.

424. *See* Rama Lakshmi, *Group Urges Disaster Planning for Pregnant Women, Babies*, WASH. POST, Aug. 17, 2006, at A9.

425. *See* Nancy Aldrich & William F. Benson, *Disaster Preparedness and the Chronic Disease Needs of Vulnerable Older Adults*, PREVENTING CHRONIC DISEASE, Jan. 2008 (A27), at 1, 2.

actual means by which disaster is framed may also impact disaster management outcomes. There is lingering disagreement among disaster scholars about how to define "disaster,"[426] and yet "each group or individual creates a definition with different ends in mind."[427] Since "many people and groups both define and need definitions of disaster," the criteria selected are consequential.[428] Indeed, today's debates are the result of significant changes in disaster research over the past fifty years, as theorists and practitioners have broadened the focus of disaster research from "classical" analysis of physical agents[429] to social construction, structural vulnerability, and subjective dimensions.[430] Today, some theorists view disasters as parts of a social structure of human choice and historical process that reveal social inequality.[431] Other commentators favor more objective definitions of disaster.[432] Furthermore, some experts and many state, federal, and foreign authorities employ characterizations focusing primarily on physical events.[433]

This variability raises a question as to whether distinct characterizations may differentially affect empathic responses and prosocial motivation in ways relevant to the preceding analysis. Shifts in focus from the physical character of disaster to socially constructed dimensions may be relevant. Conceptualizing hurricanes or earthquakes primarily as physical events tends to emphasize the traumatic, unforeseen character of nature's forces.[434] Conversely, social approaches to disaster focus on the social system itself, and how ongoing

426. *See* Chen, *supra* note 8, at 3–5; Chen, *supra* note 14, at 1121–24.

427. Ronald W. Perry, *Definitions and the Development of a Theoretical Superstructure for Disaster Research*, *in* WHAT IS A DISASTER? PERSPECTIVES ON THE QUESTION, *supra* note 63, at 197, 214.

428. *Id.*

429. *See* Quarantelli, *supra* note 63, at 3.

430. *See* Wolf R. Dombrowsky, *Again and Again: Is a Disaster What We Call "Disaster"? Some Conceptual Notes on Conceptualizing the Object of Disaster Sociology*, 13 INT'L J. MASS EMERGENCIES & DISASTERS 241, 241 (1995).

431. *See* Tom Horlick-Jones, *Modern Disasters as Outrage and Betrayal*, 13 INT'L J. MASS EMERGENCIES & DISASTERS 305, 305 (1995).

432. *See, e.g.*, Chen, *supra* note 14; Karatani & Hayashi, *supra* note 23.

433. *See* DYNES & QUARANTELLI, *supra* note 24.

434. *See* Gary A. Kreps, *Disasters as Systemic Event and Social Catalyst*, *in* WHAT IS A DISASTER? PERSPECTIVES ON THE QUESTION, *supra* note 63, at 31, 33.

structural and societal norms, buildings, and organizations directly or indirectly create disasters and related vulnerabilities.[435] The latter often dismisses "classic" physical descriptions of disaster as ignoring the genuine systemic inequalities or vulnerabilities that calamity exposes rather than causes.[436]

At first glance, a more socially constructed approach seems more likely to foster empathy and prosocial decision-making. As mentioned earlier, the intensity of experienced emotion, perceptions of the situation and victim, and characteristics of the empathizer all substantially determine whether observers feel empathy or not.[437] Social construction appears to capture the human element better than just focusing on the physical event itself.[438] However, a deeper examination suggests that social constructivist interpretations could inadvertently undermine empathy and altruism. A core feature of the social construction approach is to focus less on the shocking, unforeseen natural calamity brought about by a physical event such as a tsunami. Instead, it focuses on the underlying structural vulnerabilities that exist. Inasmuch as this approach portrays a disaster as merely a common occurrence that reveals ongoing inequality and disparity,[439] empathy may seem inappropriate or even foolish.[440]

Legislative experience appears to corroborate this judgment concerning the frames of disaster. As 18th and 19th century U.S. legislators entertained appeals for disaster relief, mere need, even if desperate, was never enough to ensure a

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435. *See* Quarantelli, *supra* note 13, at 339.

436. *See* Carlo Pelanda, *Disaster and Sociosystemic Vulnerability*, *in* SOCIAL AND ECONOMIC ASPECTS OF EARTHQUAKES 67, 69 (Barclay G. Jones & Miha Tomazevic eds., 1982).

437. *See* Dickert & Slovic, *supra* note 297; Figley, *supra* note 312, at 6–7; B. Hudnall Stamm, *Introduction* to SECONDARY TRAUMATIC STRESS: SELF-CARE ISSUES FOR CLINICIANS, RESEARCHERS, AND EDUCATORS, *supra* note 312, at xiii, xiv; Villemure & Bushnell, *supra* note 304.

438. *See* Anthony Oliver-Smith, *"What Is a Disaster?": Anthropological Perspectives on a Persistent Question*, *in* THE ANGRY EARTH: DISASTERS IN ANTHROPOLOGICAL PERSPECTIVE 18, 22–23 (Anthony Oliver-Smith & Susanna M. Hoffman eds., 1999).

439. *See* Benigno E. Aguirre, *Can Sustainable Development Sustain Us?*, 20 INT'L J. MASS EMERGENCIES & DISASTERS 111, 114 (2002).

440. *See* CHARLES PERROW, NORMAL ACCIDENTS: LIVING WITH HIGH-RISK TECHNOLOGIES 306–08 (1999); SCOTT D. SAGAN, THE LIMITS OF SAFETY: ORGANIZATIONS, ACCIDENTS, AND NUCLEAR WEAPONS 233–35 (1993).

government response.[441] Rather, successful appeals nearly always told of events as "sudden, unforeseeable losses for which the claimant was morally blameless."[442] Indeed, the traumatic, shocking character of disaster as an act of God may have protected congressional disaster relief where appeals based on routine, normalized dependency may have otherwise floundered.[443]

Contemporary empirical research confirms that the more people see a tragedy as a normal, foreseeable event resulting from societal neglect, the less strength an appeal to empathy is likely to have.[444] A physical approach focuses on characteristics that make features of unforeseeability, shock, and senselessness more salient,[445] thereby encouraging empathy in non-victim witnesses to a disaster.[446] Additional studies suggest that donations are more miserly when the causes of disaster are perceived as human rather than natural in origin.[447] As such, greater focus on organizational, socio-economic, and regularly occurring conditions is likely to subvert empathy necessary for prosocial helping. Certainly disasters could be alternatively framed so as to elicit anger and blame—perhaps more consistent with the social constructionist approach—but this tack does not come without potential risks. Blaming can easily shift away from authorities and society to those adversely affected by disaster, which research suggests can strongly diminish donations and willingness to help.[448]

On balance, then, if definitions and responses are standardized, research suggests that an approach emphasizing the physical, unforeseen, or shocking aspects of disaster would likely elicit greater empathy in citizens and decision-makers than those that do not. Said approach would allow greater room

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441. Landis Dauber, *supra* note 22, at 395.

442. *Id.*

443. *Id.*

444. *See* Paul Slovic et al., *The Affect Heuristic*, *in* HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT 397, 419–20 (Thomas Gilovich et al. eds., 2002).

445. *See* Gary A. Kreps, *Disaster as Systemic Event and Social Catalyst: A Clarification of Subject Matter*, 13 INT'L J. MASS EMERGENCIES & DISASTERS 255, 256–57 (1995).

446. *See* JAMES REASON, HUMAN ERROR 234–37 (1990).

447. Hanna Zagefka et al., *Donating to Disaster Victims: Responses to Natural and Humanly Caused Events*, 41 EUR. J. SOC. PSYCHOL. 353 (2011).

448. Tehila Kogut, *Someone to Blame: When Identifying a Victim Decreases Helping*, 47 J. EXPERIMENTAL SOC. PSYCHOL. 748 (2011).

for concrete, visceral representations of harm and risk instead of colder, dehumanizing ones. At the same time, social construction elements that emphasize human suffering and displacement could be salutary as well. In any event, the frames of disaster we collectively employ, not just systematization generally, will have relevance to discussions of reform.

## VI. CONCLUSION

Incorporating considerations of the human, empathic, and prosocial elements of disaster into potential reforms at every level of disaster risk management is essential. Our collective response to disaster will no doubt benefit from further planning, statistical models, and legal regulation. However, mechanically employing the additional substantive, theoretical, and formalistic methods outlined above may jeopardize outcomes if not properly scrutinized. In particular, placing inordinate focus on formulas, blueprints, and statistics while disregarding the human dimensions of disaster would be ill-considered. More fully integrating the growing psychological and neuroscientific research on empathy and altruism into disaster decision-making and scholarship may be particularly useful in this regard. Indeed, as scholars and policy-makers seek to produce and impose a more systematized structure on disasters, keeping the human dimensions of disaster at the fore will ultimately generate more humane, and thus superior, results.