

LEGAL BARRIERS AND DISINCENTIVES TO SELF-SUFFICIENT DISASTER PREPARATION IN THE UNITED STATES

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*An ounce of prevention is worth a pound of cure.*¹
– Benjamin Franklin

I. INTRODUCTION

The United States is still reeling from Hurricane Harvey, which struck at the heart of my home city—Houston, Texas—this August.² Federal Emergency Management Agency (“FEMA”) officials and news outlets have dubbed the storm the worst disaster in Texas history³ and “one of the costliest storms in U.S. history.”⁴ With major natural disasters like Harvey on the rise globally in the last decade,⁵ a recurring

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1. *Ounce of Prevention, Pound of Cure*, U. CAMBRIDGE: RES. (Oct. 9, 2012), <http://www.cam.ac.uk/research/news/ounce-of-prevention-pound-of-cure>.

2. Joel Achenbach & Lisa Rein, *FEMA Director Says Harvey Is Probably the Worst Disaster in Texas History*, WASH. POST (Aug. 27, 2017), https://www.washingtonpost.com/national/fema-director-says-harvey-is-probably-the-worst-disaster-in-texas-history/2017/08/27/ef01600a-8b3f-11e7-8df5-c2e5cf46c1e2_story.html?utm_term=.e843fd6da9ea.

3. *Id.*

4. *Harvey May Be One of the Costliest Storms in U.S. History*, CBS NEWS (Aug. 28, 2017, 9:05 AM), <https://www.cbsnews.com/news/harvey-may-be-one-of-the-costliest-storms-in-u-s-history>.

5. *See Annual Number of Natural Disaster Events Globally from 2000 to 2016*, STATISTA, <https://www.statista.com/statistics/510959/number-of-natural-disasters-events-globally> (last visited Feb. 15, 2018); *see also Disasters*, FEMA, <http://www.fema.gov/disasters/grid/year> (last visited Feb. 15, 2018) (charting major disaster declarations over the years and revealing that 2011 and 2016 were record-breaking natural disaster years); Doyle Rice, *U.S. Had More Floods in 2016 Than Any Year on Record*, USA TODAY, <https://www.usatoday.com/story/weather/2017/01/04/floods-natural-disasters-2016/96120150> (last updated Jan. 4, 2017, 10:04 AM); Adam B. Smith, *2016: A Historic Year for Billion-Dollar Weather and Climate Disasters in U.S.*, CLIMATE.GOV (Jan. 9, 2017), <https://www.climate.gov/news-features/blogs/beyond-data/2016-historic-year-billion-dollar>.

question surfaces: How can the severe consequences of natural disasters be minimized? The simple and reasonable answer is that all people should prepare themselves, their families, their homes, and their communities for self-sufficient⁶ survival in the wake of a natural disaster. Being prepared before disasters occur is generally wise because it enables people to be self-reliant and resilient when, not if, these disasters come; preparation allows them to help their dependents and others in affected communities. And in almost all places, it is not even a question: disasters will take a wide variety of shapes and forms, but one way or another, they will strike.⁷

Many who would otherwise strive to achieve a state of self-sufficiency run into legal “brick walls,” or at least publicly-perceived legal barriers and disincentives.⁸ FEMA openly encourages personal and familial preparation for natural disasters,⁹ but the agency fails to recognize and account for the legal barriers that bar, or at least discourage members of society from following such advice. This Article examines legal barriers and disincentives that exist in the United States at all levels—federal, state, and local—to discover what currently stands in the way of personal preparation for inevitable hard times.¹⁰ It also suggests compromises and solutions for how these laws, regulations, and policies should be updated and improved to allow the general public to live self-sufficiently and prepare for the unpredictable future.¹¹ Finally, this Article offers some suggestions for legal incentives to encourage at least some level of preparatory self-sufficiency.¹² To clarify, this Article does not conduct an empirical study that assesses all existing legal barriers and disincentives and all possible incentives; it merely explores some of the current laws and ordinances and argues that it is not unreasonable to draw preparation disincentives out of the existing legal structures of various governments.

weather-and-climate-disasters-us; *UN Chief Says Natural Disasters Have Quadrupled Since 1975*, FOX NEWS (Sept. 5, 2017), <http://www.foxnews.com/world/2017/09/05/un-chief-says-natural-disasters-have-quadrupled-since-1970.html>.

6. Self-sufficient means “able to maintain oneself or itself without outside aid: capable of providing for one’s own needs.” *Self-Sufficient*, MERRIAM-WEBSTER’S COLLEGIATE DICTIONARY (11th ed. 2003).

7. See Sam Jones, *World Heading for Catastrophe over Natural Disasters, Risk Expert Warns*, GUARDIAN (Apr. 24, 2016) <https://www.theguardian.com/global-development/2016/apr/24/world-heading-for-catastrophe-over-natural-disasters-risk-expert-warns>.

8. See *infra* Part III.

9. See *Be Informed*, READY, <http://www.ready.gov/natural-disasters> (last visited Feb. 15, 2018).

10. See *infra* Part III.

11. See *infra* Part III.

12. See *infra* Part IV.

Disaster law scholars have discussed related topics, but none have looked specifically at what legal barriers stand in the way of self-sufficient disaster preparation. Several have discussed macro ways to minimize disaster risks and harms, such as where and how the government and private organizations should build infrastructure.¹³ Many others have analyzed government structures and policies that encumber disaster policies.¹⁴ But no one has yet identified concrete or perceived legal barriers and disincentives to individual preparation for natural disasters.

Also, scholars who have discussed the importance of becoming self-sufficient have done so primarily in the disability context, by analyzing and critiquing Ticket to Work laws that help disabled workers get back on their feet, for example.¹⁵ Finally, many scholars and practitioners have discovered the emerging importance of conservation tactics with climate change and other various natural phenomena threatening our existing way of life.¹⁶ The most extensive discussion of

13. See, e.g., Lisa Grow Sun, *Smart Growth in Dumb Places: Sustainability, Disaster, and the Future of the American City*, 2011 BYU L. REV. 2157, 2159, 2162-63, 2174-91 (“‘Smart Growth[—building and expanding current urban cities—] in dumb places’—those that are particularly disaster prone—is the antithesis of true sustainability.”); see also DENNIS S. MILETI, *DISASTERS BY DESIGN: A REASSESSMENT OF NATURAL HAZARDS IN THE UNITED STATES 2* (1999) (arguing that because of consistent and global failure to reduce losses caused by disasters, “the nation must shift to a policy of ‘sustainable hazard mitigation’”); Sharona Hoffman, *Preparing for Disaster: Protecting the Most Vulnerable in Emergencies*, 42 U.C. DAVIS L. REV. 1491, 1507-15 (2009); Justin Pidot, *Deconstructing Disaster*, 2013 BYU L. REV. 213, 224-54 (identifying three categories of obstacles to disaster policy: symbolic, cognitive, and structural, and arguing that the government should understand the obstacles collectively and coordinate responses in order to tackle current natural disaster problems).

14. See, e.g., Raymond J. Burby, *Hurricane Katrina and the Paradoxes of Government Disaster Policy: Bringing About Wise Governmental Decisions for Hazardous Areas*, 604 ANNALS AM. ACAD. POL. & SOC. SCI. 171, 173-81 (2006) (contending that natural disaster policy suffers from a “safe development paradox” and a “local government paradox”); Howard Kunreuther & Mark Pauly, *Neglecting Disaster: Why Don’t People Insure Against Large Losses?*, 28 J. RISK & UNCERTAINTY 5, 6-7 (2004) (arguing that limited information, transaction costs, and assumptions of the practical impossibility of low-level risks, all lead to underinsurance in state-wide and/or county-wide disaster preparation).

15. See, e.g., Mark McWilliams, *The Ticket to Work and Work Incentives Improvement Act: An “E” Ticket for Adults with Disabilities*, 79 MICH. B.J. 1680, 1681-83 (2000) (analyzing the federal Ticket to Work law for the disabled and discussing related work incentives); Robert Silverstein, *Emerging Disability Policy Framework: A Guidepost for Analyzing Public Policy*, 85 IOWA L. REV. 1691, 1695, app. 1 at 1765-71 (2000) (providing a guidepost for looking at disability-related programs and stating that “[r]ather than focusing on ‘fixing’ the individual, the ‘new paradigm’ focuses on taking effective and meaningful actions to ‘fix’ or modify the natural, constructed, cultural, and social environment”).

16. See, e.g., Jessica Owley, *Conservation Easements at the Climate Change Crossroads*, LAW & CONTEMP. PROBS., Fall 2011, at 199, 201-08; Richard B. Stewart, *A New Generation of Environmental Regulation?*, 29 CAP. U. L. REV. 21, 164-73 (2001). See generally Lauren E. Schmidt & Geoffrey M. Williamson, *Recent Developments in Climate Change Law*, COLO. LAW.,

what to do about the onslaught of natural disasters and the reality of climate change is a movement called the “sharing economy,” spearheaded by Janelle Orsi, a practitioner in California.¹⁷ In her book, *Practicing Law in the Sharing Economy: Helping People Build Cooperatives, Social Enterprise, and Local Sustainable Economies*, Orsi defines legal challenges facing people in the United States who want to “go green,” and she essentially provides an instruction manual for attorneys whose practice revolves around helping people do so.¹⁸ She argues that this new “sharing economy” will mean that more people will want to share their resources to eliminate perceived scarcities and avoid real ones.¹⁹ But while the sharing economy movement embodies a general goal for self-sufficiency,²⁰ it lacks the specific application to disaster preparation that this Article provides.²¹

The remainder of this Article is organized as follows. Part II presents a brief background of why it is important to self-sufficiently prepare in the United States.²² Part III discusses examples of actual and apparent legal barriers and disincentives to disaster preparedness that exist at all governmental levels—federal, state, and local.²³ Part IV presents potential solutions and legal incentives for self-sufficient disaster preparation.²⁴ Finally, Part V briefly concludes.²⁵

II. WHY SHOULD WE PREPARE?

A. *Disaster Costs Are Steadily Rising Even in Developed Nations*

As foreboding as it may sound, natural disasters are occurring with more frequency and fervor than ever before. And even if the actual

Nov. 2008, at 63.

17. See JANELLE ORSI, PRACTICING LAW IN THE SHARING ECONOMY: HELPING PEOPLE BUILD COOPERATIVES, SOCIAL ENTERPRISE, AND LOCAL SUSTAINABLE ECONOMIES 21-35 (2012); Jenny Kassan & Janelle Orsi, *The LEGAL Landscape of the Sharing Economy*, 27 J. ENVTL. L. & LITIG. 1, 3-4, 16 (2012) (“Sharing lawyers and community activists have a great deal of work ahead to bring our laws into sync with the realities of the sharing economy. Certain employment laws, securities regulations, commercial regulations, and zoning ordinances create incredibly difficult legal barriers, such that we should change them sooner rather than later. In other legal realms the sharing economy will forge ahead, *in spite of* the legal barriers and inconveniences that remain.”).

18. ORSI, *supra* note 17, at 12-15, 25-30.

19. See *id.* For more information about Orsi’s work, see SHARING SOLUTION, <http://sharingsolution.com> (last visited Feb. 15, 2018).

20. See Kassan & Orsi, *supra* note 17, at 3-12.

21. See *infra* Parts III-IV.

22. See *infra* Part II.

23. See *infra* Part III.

24. See *infra* Part IV.

25. See *infra* Part V.

number of disasters has not dramatically increased, the risks and costs that disasters pose are steadily on the rise.²⁶ In the past thirty years, the United States has sustained 198 weather-related natural disasters, in which economic damages either reached or exceeded \$1 billion.²⁷ Of these 198 disasters, ninety happened just in the last eight years.²⁸ Undoubtedly in recent years, disasters are increasing both in frequency and in magnitude.

While a clear majority of deaths caused by natural disasters occur in developing nations,²⁹ even the most developed countries are not exempt. The 2011 tsunami in Japan that killed more than 20,000 people, demonstrates that, at least occasionally, natural disasters drastically affect populations in developed countries.³⁰ Even the United States, which is arguably the most developed nation, has not been able to escape natural disasters unscathed. Hurricanes Harvey (2017), Sandy (2012), and Katrina (2005)—collectively killing at least 2021 people in the United States—serve as harsh reminders of that reality.³¹ “Katrina taught us that under such circumstances, government cannot be relied on exclusively to protect us or rescue us from disastrous conditions.”³² Rather, “we as citizens must accept the responsibility to organize our resources to do some things for ourselves.”³³

26. See DANIEL A. FARBER ET AL., *DISASTER LAW AND POLICY* 9-10 (3d ed. 2015); UNITED NATIONS, *SUMMARY AND RECOMMENDATIONS: 2009 GLOBAL ASSESSMENT REPORT ON DISASTER RISK REDUCTION* 8 (2009), http://www.preventionweb.net/files/9414_GARsummary.pdf.

27. *Billion-Dollar Weather and Climate Disasters: Table of Events*, NOAA NAT'L CENTERS FOR ENVTL. INFO., <http://www.ncdc.noaa.gov/billions/events> (last visited, Feb. 15, 2018).

28. *Id.*

29. CHARLES PERROW, *THE NEXT CATASTROPHE: REDUCING OUR VULNERABILITIES TO NATURAL, INDUSTRIAL, AND TERRORIST DISASTERS* 15 (2007).

30. See UNITED NATIONS, *2011 GLOBAL ASSESSMENT REPORT ON DISASTER RISK REDUCTION* 5 (2011), http://www.preventionweb.net/english/hyogo/gar/2011/en/bgdocs/GAR-2011/GAR2011_Report_Chapter1.pdf.

31. Hurricane Harvey killed more than sixty people. Sara Shayanian, *Death Toll over 60 as Harvey Cleanup Resumes*, UPI (Sept. 5, 2017, 10:53 AM), <https://www.upi.com/Death-toll-over-60-as-Harvey-cleanup-resumes/1581504621615>. Hurricane Sandy killed at least 125 people in the United States. *Worst Natural Disasters of 2012 (PHOTOS)*, HUFFINGTON POST, https://www.huffingtonpost.com/2012/12/28/worst-natural-disasters-of-2012_n_2349311.html (last updated Dec. 28, 2012). Hurricane Katrina claimed about 1836 lives. FARBER ET AL., *supra* note 26, at 10.

32. Mtangulizi Sanyika, *Katrina and the Condition of Black New Orleans: The Struggle for Justice, Equality, and Democracy*, in *RACE, PLACE, AND ENVIRONMENTAL JUSTICE AFTER HURRICANE KATRINA: STRUGGLES TO RECLAIM, REBUILD, AND REVITALIZE NEW ORLEANS AND THE GULF COAST* 87, 109 (Robert D. Bullard & Beverly Wright eds., 2009).

33. *Id.*; see also Nick Rosen, *Private Underground Shelters*, OFF-GRID (Nov. 6, 2013), <http://www.off-grid.net/2013/11/06/private-underground-shelters> (noting that while the United States government maintains its own underground bunkers “to protect the president and top U.S. government officials from a catastrophic incident . . . very little is done to protect private citizens from the effects of global catastrophes,” so “[w]e will largely be left to fend for ourselves”).

B. Importance of Being Prepared

Scholars and practitioners across the nation have consistently stressed the importance of preparing for natural disasters.³⁴ Mainstream Americans are taking action to prepare themselves and remove their reliance on governmental bureaucracies, so the movement toward self-sufficient preparedness is no longer on the fringe. In fact, some studies show developing trends of more and more people choosing to live off-grid lives.³⁵ People will naturally learn from the catastrophic losses that result from disasters, and they will strive, at least initially, to better prepare for future disasters.³⁶ Additionally, as human beings “[o]ur collective vulnerability” in the face of natural disasters “imposes a *moral obligation* upon people to assist those affected by disaster and to prepare better for its occurrence.”³⁷ While it may appear “counterintuitive” at first to think of preparation in the face of disasters as an obligation because mankind has no control over the disaster itself, “[o]ur preparation for and response to a natural disaster . . . is a human effort and construct for which people share a responsibility.”³⁸ Further, humanity’s contribution to natural disasters and their negative effects does not end with personal preparation failures. A large human dimension contributes not only to the *preparation* aspect, but also to the *causation* element of disasters, exhibited by the fact that people

34. See, e.g., Brooke Ashton, *Disasters: Are You Prepared Personally and Professionally?*, UTAH B.J., Sept.–Oct. 2011, at 42, 42 (“Before a person can assist others in a disaster, he or she must first be prepared himself or herself.”); Ben Depoorter, *Horizontal Political Externalities: The Supply and Demand of Disaster Management*, 56 DUKE L.J. 101, 103 (2006) (“My analysis of the supply and demand of disaster management predicts that disaster preparation will be undersupplied and ex post relief will be oversupplied.”); Cori Harbour, *Are You Prepared?*, 72 TEX. B.J. 590, 590 (2009) (“The time invested now will benefit you and your clients should a natural disaster strike. As the old saying goes, an ounce of prevention is worth a pound of cure!”).

35. See John Platt, *Going off the Grid: Why More People Are Choosing to Live Life Unplugged*, MOTHER NATURE NETWORK (Nov. 14, 2012, 6:03 PM), <http://www.mnn.com/lifestyle/responsible-living/stories/going-off-the-grid-why-more-people-are-choosing-to-live-life-un>; see also Aimee Picchi, *Want to Get off the Grid? It’ll Cost You*, MSN MONEY (June 28, 2013, 7:15 PM ET), <https://web.archive.org/web/20130705004734/money.msn.com/personal-finance/want-to-get-off-the-grid-itll-cost-you> (“Living with renewable technologies has become much more mainstream. Just because you happen to use renewable energies doesn’t mean you’re a hermit.” (quoting Greg Pahl)).

36. E.g., Elaine C. Kamarck, *When First Responders Are Victims: Rethinking Emergency Response*, 1 HARV. L. & POL’Y REV. 97, 107 (2007) (observing that in the aftermath of Hurricane Katrina, “politics triumphed and common sense lost” because FEMA’s rebuilding guidelines for New Orleans were well below what would be required to safeguard the city from future disaster destruction).

37. Jenny R. Hernandez & Anne D. Johnson, *A Call to Respond: The International Community’s Obligation to Mitigate the Impact of Natural Disasters*, 25 EMORY INT’L L. REV. 1087, 1091 (2011) (emphasis added).

38. *Id.*

collectively continue to build and develop residential areas in risky places.³⁹

Therefore, discovering the legal barriers that stand in the way of disaster preparation is an important step to take. Yet even with all of the talk about how important it is to “be prepared” and with the public trends of people striving to live self-sufficient lives, legal academics have missed this step of parsing out legal disincentives. This Article aims to take the initial step of identifying legal barriers, both real and widely perceived, that disincentivize self-sufficient disaster preparation efforts by individuals and families.

III. EXAMPLES OF EXISTING LEGAL BARRIERS AND DISINCENTIVES

Legal barriers and disincentives exist at all levels of the legal hierarchy in the United States, so this Article’s analysis is not limited to any particular governmental level. First, this Part identifies actual and perceived legal barriers and disincentives to personal preparation at the federal level.⁴⁰ Next, this Part provides examples at the state level,⁴¹ and finally, it identifies examples at the local level.⁴²

A. Federal

1. The Fight Against Homegrown Terrorism Actually Disincentivizes Disaster Preparation

The best example of federal actions that infringe on Americans’ ability to make adequate individual disaster preparations comes from an extension, or governmental application, of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism (“PATRIOT Act” or “Act”).⁴³ In the aftermath of this Act and in the continued effort to fight terrorism, the Federal Bureau of Investigation (“FBI”) published several fliers to alert Americans to “suspicious” behavior that could be an indication of terrorist activities.⁴⁴ The irony here is that this law, which is meant to protect American

39. See Sun, *supra* note 13, at 2165-66.

40. See *infra* Part III.A.

41. See *infra* Part III.B.

42. See *infra* Part III.C.

43. Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA PATRIOT ACT), Pub. Law 107-56, 115 Stat. 272 (codified in scattered sections of U.S.C.).

44. See, e.g., *Communities Against Terrorism: Potential Indicators of Terrorist Activities Related to Military Surplus Stores*, FBI, https://info.publicintellgence.net/FBI-SuspiciousActivity/Military_Surplus.pdf (last visited Feb. 15, 2018).

citizens from terrorism, may actually deter many people from taking actions to protect themselves from natural disaster risks if they are concerned about being labeled as terrorist suspects.⁴⁵ In 2011, before former President Barack Obama signed the National Defense Authorization Act⁴⁶ into law, Senator Rand Paul argued against that bill's passage by stating from the floor:

We're talking about American citizens who can be taken from the United States and sent to a camp at Guantanamo Bay and held indefinitely. There are laws on the books right now that characterize who might be a terrorist: someone missing fingers on their hands is a suspect, according to the Department of Justice. . . . [S]omeone who has more than seven days of food in their house can be considered a potential terrorist. If you are suspected because of these activities, do you want the government to have the ability to send you to Guantanamo Bay for indefinite detention?⁴⁷

Scholars and citizens alike have discussed the implications that these worries have on a person's constitutional due process rights,⁴⁸ but a civilian perspective that storing food could potentially be considered indicia of terrorist inclinations, whether or not it is true, also implicates people's ability or at least their incentive to adequately prepare for disasters by stocking up their pantries. FEMA itself encourages Americans to include "a three-day supply of non-perishable food" in their basic disaster supplies kit.⁴⁹ Three days is encouraged, but seven

45. Alton Lu, *The National Defense Authorization Act: Our Disappearing Rights and Liberties*, HUFFINGTON POST, http://www.huffingtonpost.com/alton-lu/the-national-defense-auth_b_1180869.html (last updated Mar. 4, 2012) ("Issues such as having an armed weapon or having a food supply lasting at least seven days can be grounds for terrorism.").

46. Pub. L. No. 111-383, 124 Stat. 4137 (codified predominantly as amended in scattered sections of 5, 10, and 37 U.S.C.).

47. Da Tagliare, *Storing 7 Days of Food Could Send You to Gitmo Indefinitely*, GODFATHER POL. (Dec. 19, 2011), <http://godfatherpolitics.com/2686/storing-7-days-of-food-could-send-you-to-gitmo-indefinitely> (statement of United States Senator Rand Paul); see also *10 Ridiculous Things that Make You a Terror Suspect*, ACTIVIST POST (Dec. 13, 2011), <http://www.activistpost.com/2011/12/10-ridiculous-things-that-make-you.html> (identifying public perception and fear of being labeled as terrorists for storing food, flashlights, and/or ammunition, and referring to the video of Senator Rand Paul's statement on the senate floor).

48. E.g., Susan M. Akram & Maritza Karmely, *Immigration and Constitutional Consequences of Post-9/11 Policies Involving Arabs and Muslims in the United States: Is Alienage a Distinction Without a Difference?*, 38 U.C. DAVIS L. REV. 609 *passim* (2005) ("The material witness statute permits the government to detain individuals, including citizens, upon a showing that the individual's appearance is material to a criminal proceeding." (citing 18 U.S.C. § 3144 (2004, amended 2012))).

49. FEMA, U.S. DEP'T OF HOMELAND SEC., EMERGENCY SUPPLY LIST (2006), https://www.fema.gov/media-library-data/1390846764394-dc08e309debe561d866b05ac84daf1ee/checklist_2014.pdf.

days is too much? In times of food scarcity, people should be encouraged to store more food to provide for themselves and others, not less. In fact, if more people are persuaded to sustain a food storage, rather than implicitly dissuaded, a “more the merrier” policy would prevail, and the aftereffects of natural disasters would be alleviated with enough food to go around.

Terrorism suspicions publicized by the federal government regarding food storage have instilled a fear of buying and storing more than just food. Buying flashlights can also be suspect.⁵⁰ Such instruments have been regarded up to this point as basic needs in power outages, but recent public fear of being ostracized may have been a primary source of discouragement for making such baseline preparations, leaving people unprepared in some of the most frequent power-outage circumstances.

Thus, there are at least public concerns that the federal government is being too invasive, and such concerns can discourage preparedness. Granted, some of these concerns are outside of the mainstream and expressed by fringe or extremist groups. For instance, Off-Grid, an online organization that helps people who want to live off the grid globally, argues that the U.S. government is already discouraging preparedness for personal or national disasters.⁵¹ Although these groups may have incentives to exaggerate existing issues, the underlying issues are still present, even if they may not be as severe as Off-Grid or other like groups may make them out to be.

But even these fringe groups recognize that conditions in the United States could be worse, like the more extreme legal disincentives to disaster preparation occurring in other countries.⁵² The Venezuelan government, for example, used a food shortage as an opportunity to seek and detain food-hoarders and treat them like domestic terrorists for being prepared.⁵³ Venezuela’s Attorney General, Luisa Ortega Díaz, targeted a broad audience when she called on prosecutors to seek the detention of “people involved in hoarding of basic staples,” without differentiating

50. See *Communities Against Terrorism: Potential Indicators of Terrorist Activities Related to Military Surplus Stores*, *supra* note 44; see also *10 Ridiculous Things that Make You a Terror Suspect*, *supra* note 47.

51. See Daisy Luther, *Could Prepping Become Illegal Here Too? Venezuelan Govt to Detain “Hoarders”*, OFF-GRID (Oct. 9, 2013), <http://www.off-grid.net/2013/10/09/could-prepping-become-illegal-here-too-venezuelan-govt-to-detain-hoarders>.

52. See *id.*

53. *Id.*; *Attorney General Urges Prosecutors to Seek Detention of Hoarders*, EL UNIVERSAL (Oct. 3, 2013, 1:42 PM), <http://www.eluniversal.com/nacional-y-politica/131003/attorney-general-urges-prosecutors-to-seek-detention-of-hoarders>.

between people who began storing food before or after the start of the shortage.⁵⁴

The United States has not used the legal enforcement system to send as strong of an anti-food-storage message as Venezuela's detentions, but a few executive orders send the message that storing your own food might be a wasted effort due to potential governmental confiscation of individual food supplies during an emergency, and several of these presidential directives came into being more than half a century ago. One such order authorized governmental seizure of food and other goods during national disasters.⁵⁵ President John F. Kennedy signed this order in 1962, giving the Secretary of Agriculture the power to develop preparedness programs and actually "claim materials, manpower, equipment, supplies and services" needed to carry out such plans.⁵⁶ While it sent a strong, disincentivizing message at the time it was signed, this particular order—as well as a few others signed by President Kennedy that implicitly discourage personal preparation—has since been revoked by a subsequent executive order.⁵⁷

More recently, former President Obama signed an executive order in 2012 that gives various agencies complete control of all resources within the United States during national emergencies,⁵⁸ "including the ability to seize, confiscate or re-delegate resources, materials, services, and facilities as deemed necessary or appropriate to promote the national defense."⁵⁹ The order has no express limitation on who such resources can be taken from, so it seems that the executive branch gets to decide the limits of its authority and can go as far as the President feels is "prudent, necessary, and appropriate."⁶⁰ Although these executive orders are meant to have a plan in place to protect Americans, in practice they

54. *Attorney General Urges Prosecutors to Seek Detention of Hoarders*, *supra* note 53; *see also Venezuela Reinforces Shortage Controls*, PANAM POST (Oct. 7, 2013, 3:52 PM), <http://panampost.com/panam-staff/2013/10/07/venezuela-reinforces-shortage-controls> ("Due to the food shortage affecting Venezuela, the nation's attorney general, Luisa Ortega Díaz, yesterday made a threatening statement in an interview on Venevisión. There are public prosecutors, she says, working throughout the country to counter the hoarding of food and other essential needs, and they are authorized to apply the Organized Crime and Terrorism Financing Act. In some cases, this act might result in imprisonment.").

55. Exec. Order No. 10,998 § 1, 5; 3 C.F.R. 152, 152, 154 (Supp. 1962).

56. *Id.*

57. Exec. Order No. 11,490 § 3015, 3 C.F.R. 150, 191 (1969); *see also 1962 Executive Orders Disposition Tables*, NAT'L ARCHIVES, <http://www.archives.gov/federal-register/executive-orders/1962.html> (last visited Feb. 15, 2018).

58. Exec. Order No. 13,603 § 103, 3 C.F.R. 225, 226 (2012).

59. Mac Slavo, *They Will Seize Your Food and Resources: "Hoarding of Just About Anything Can Be Banned"*, SHTFPLAN.COM (July 1, 2013), http://www.shtfplan.com/headline-news/they-will-seize-your-food-and-resources-hoarding-of-just-about-anything-can-be-banned_07012013.

60. *Id.*

actually discourage personal preparation because they imply that no matter how much you prepare, your personal resources can be claimed and taken away from you should a governmental need arise.⁶¹

Arguably, some people may make their preparedness decisions without regard to these executive orders. These people just want to prepare to protect their own families in times of need, and they will worry about any potential government infringement with that plan when the time comes. But these are not the types of people that need to be actively encouraged to prepare, so they are not the group that governmental disincentives, like the executive orders mentioned previously, will affect. The people at the highest risk of being dissuaded from preparing by government action are the fence-sitters—people who are undecided about whether or not disaster preparation is worthwhile. The last thing these people need to hear is news of another executive order where the government is further invading their personal spheres.⁶² Not only does knowledge of such governmental action disincentivize efforts to maintain food and water storage, but it also creates a lackadaisical mentality that people should not care to prepare if their government will take care of them and provide for their needs in national disasters.⁶³

61. See Exec. Order No. 10,998 § 5, 3 C.F.R. 152, 154; Slavo, *supra* note 59. Additionally, in 2013, former President Obama issued another executive order expanding federal authority in the name of fighting climate change. Exec. Order No. 13,653 § 1, 3 C.F.R. 330, 330-31 (2013). One state senator stated that this Order “appears to be the mother of all efforts by the Executive to take over the control of the people” because the entire system proposed to enhance climate preparedness and safety “functionally bypasses Congressional constitutional authority.” Doug Whitsett, *The Audacious Power Creep of the Executive Branch*, OR. CATALYST (Nov. 23, 2013), <http://oregoncatalyst.com/25619-audacious-power-creep-executive-branch.html>. Although Executive Order 13,653 does not expressly deal with disaster preparedness, it provides another example of executive action that may take a few steps too far in trouncing personal liberties in the name of national preparedness.

62. Cf. Exec. Order No. 13,603 §§ 103, 801(e), 3 C.F.R. 225, 226, 234-35 (authorizing the Secretary of Agriculture to redistribute “food resources,” which includes “all commodities and products (simple, mixed, or compound), or complements to such commodities or products, that are capable of being ingested by either human beings or animals . . . at all stages of processing from the raw commodity to the products thereof in vendible form for human or animal consumption,” but excluding “any such material after it loses its identity as an agricultural commodity or agricultural product”). Some online authorities interpreted this Order’s authority to not include the power to take and redistribute personal food storage supplies. See, e.g., *Would New Executive Order Seize Your Food Storage?*, READY STORE (Mar. 19, 2012), <http://www.thereadystore.com/food-and-water-storage/3154/would-new-executive-order-seize-your-food-storage>. But the broad definition does not specifically exclude purchased products; after all, the market value of food does not cease automatically upon its purchase. So the textual argument could at least be made that the authority granted in Executive Order 13,603 could include purchased products within individual homes.

63. The federal government only adds more fuel to the “dependence on the government” fire when it prioritizes its own preparation by stockpiling governmental food storage or encouraging only federal employees to provide for themselves, instead of creating a general preparation focus for

Even more unsettling than the executive orders that grant governmental checks and seizures of personal preparedness stores, are documented incidents where the government has actually used such powers to keep track of individual disaster-preparedness inventories. An example of government agents checking on personal preparedness occurred a few years ago, in 2011, when Tennessee state officials conducted a door-to-door assessment of disaster preparedness.⁶⁴ In this instance, “[t]he Metro Public Health and the Tennessee Department of Health [used] a tool designed by the Centers for Disease Control and Prevention to go door to door and check[ed] to see how disaster ready” citizens were.⁶⁵ Perhaps these governmental checks occurred just to ensure that people are prepared and to encourage preparedness. But an equally likely rationale behind collecting this inventory is to provide the government with the necessary information to know where to go looking for supplies and food. After all, the officials did not merely check preparedness status; they recorded people’s state of preparedness. The concern created here is embodied in the underlying question: how will the government use that information?⁶⁶ Most people would be more incentivized to prepare if they were sure that their provisions would supply their own needs, rather than being listed as potential *suppliers*

individual homes and families. See Michael Snyder, *Is the U.S. Government Stockpiling Food in Anticipation of a Major Economic Crisis?*, ECON. COLLAPSE (Sept. 23, 2011), <http://theeconomiccollapseblog.com/archives/is-the-u-s-government-stockpiling-food-in-anticipation-of-a-major-economic-crisis> (citing Envylife904, *NASA Emails ALL Employees to PREPARE!*, YOUTUBE (June 11, 2011), <http://www.youtube.com/watch?v=Lm33qNR2mVA&feature=related>). Furthermore, the very mindset that the government will be capable of taking care of its citizens’ critical needs in the aftermath of a disaster is inaccurate; the government will *not* be able to adequately take care of its citizens, as exhibited by Hurricane Katrina and by the more recent, international example of Typhoon Haiyan (in the Philippines). John R. Edwards, *Katrina’s Lessons: Moving Forward in the Fight Against Poverty: An Overview of Panel Five*, 10 EMP. RTS. & EMP. POL’Y J. 151, 166 (2006) (“The polls show a pattern of people blaming the Bush Administration, along with local government entities, for an incompetent response to Katrina. . . . Whether it is the war in Iraq, the latest spike in oil prices, and now Katrina, it is difficult to have much faith in government solutions to the serious challenges we face . . .”); Matt Gurney, *Lesson from the Philippines: The Government Won’t Save You*, NAT’L POST (Nov. 13, 2013, 1:17 PM), <http://nationalpost.com/opinion/matt-gurney-lesson-from-the-philippines-the-government-wont-save-you> (arguing that the key lesson learned from Typhoon Haiyan’s destruction of the Philippines is that the government will not be able to save its people from the tragic effects of natural disasters).

64. Janet Kim, *Door-to-Door Assessment for Disaster Preparedness*, NEWSCHANNEL5.COM, <https://web.archive.org/web/20140711042340http://www.newschannel5.com/story/15948523/door-to-door-assessment-for-disaster-preparedness> (last updated Nov. 3, 2011, 8:54 AM).

65. *Id.*; see Buck Sexton, *Did Federal Agents Really Raid a Mormon Food Storage Facility?*, BLAZE (Dec. 13, 2011, 7:17 AM), <http://www.theblaze.com/news/2011/12/13/did-federal-agents-really-raid-a-mormon-food-storage-facility>.

66. *Tennessee Conducts Door to Door Preparedness Checks*, OATH KEEPERS (Dec. 8, 2011), <https://web.archive.org/web/20120424211137/http://oathkeepers.org:80/oath/2011/12/08/door-to-door-assessment-for-disaster-preparedness>.

that the government can turn to in times of need. This example shows that perhaps the government has taken the fight against homegrown terrorism a few steps too far.⁶⁷

Some citizens have also expressed concerns about administrative agencies in general and, ironically, about the governmental agency created to help the nation recover from natural disasters: FEMA. The reason why some believe FEMA and other agencies pose a threat is because in the name of FEMA's mission of recovery and survival in nationally declared emergencies, several executive orders have given FEMA personnel and other governmental directors "teeth" that may be too powerful for virtually unchecked administrative agencies.⁶⁸ For instance, in the 1960s, the Director of Telecommunications Management had emergency powers to seize and control communications media by amending, reassigning, or revoking radio frequency assignments.⁶⁹ Another 1962 executive order gave the Secretary of Interior the power to take over all electrical power and fuel in national emergencies.⁷⁰ These broad powers were expressly granted in the text of several executive orders, and even though most of these orders have since been revoked,⁷¹ the fact that mere strokes of the pen by the sitting President have the vast power to assign and revoke such sweeping authority⁷² sends a message

67. See Michael Snyder, *Preppers Are Now Considered to Be Potential Terrorists?*, AM. DREAM (Dec. 9, 2011), <http://endoftheamericandream.com/archives/preppers-are-now-considered-to-be-potential-terrorists?TuLiEoh9BWs>, blogger.

68. See *US: FEMA's Hidden Powers – Executive Orders*, SIGNS TIMES (Nov. 3, 2011, 6:23 PM), <https://www.sott.net/article/237163-US-FEMAs-Hidden-Powers-Executive-Orders>; see also *The FEMA List of Presidential Executive Orders*, SWEET LIBERTY, <http://www.sweetliberty.org/issues/co/femalist.htm> (last visited Feb. 15, 2018).

69. Exec. Order No. 10,995 § 3, 3 C.F.R. 144, 146 (Supp. 1962).

70. Exec. Order No. 10,997 § 1, 3 C.F.R. 149, 149 (Supp. 1962).

71. Exec. Order No. 11,490 § 3015, 3 C.F.R. 150, 191 (1969) (revoking Executive Orders 10,997 and 10,998).

72. Many scholars have argued that recent presidents' liberal use of their power to issue executive orders goes far beyond what powers the constitutional framers likely intended to grant in Article II. U.S. CONST. art. II, § 1, cl. 1, 3; see Tara L. Branum, *President or King? The Use and Abuse of Executive Orders in Modern-Day America*, 28 J. LEGIS. 1, 21 (2002) ("Allowing the President to make laws and set national policy through the use of executive orders or other presidential directives directly contradicts the intent of the Framers."); Edward H. Levi, *Some Aspects of Separation of Powers*, 76 COLUM. L. REV. 371, 374 (1976) (arguing that the framers intended for the executive power to be robust and energetic but also controlled and limited, in stating that "[t]he doctrine of separation of powers was seen as a means of controlling executive power"). See generally TODD F. GAZIANO, HERITAGE FOUND., *THE USE AND ABUSE OF EXECUTIVE ORDERS AND OTHER PRESIDENTIAL DIRECTIVES* (2001), <http://www.heritage.org/research/reports/2001/02/the-use-and-abuse-of-executive-orders-and-other-presidential-directives> (pointing out that former President Bill Clinton abused much of his presidential authority, including "his executive order authority"). But some scholars counter that "[t]he value of original intent is especially doubtful" and unhelpful on the issue of executive authority and administrative agencies because such a vast expansion in the executive branch has "dimensions and activities that were not then

to the American people: Why prepare if the government, or rather a single signature without authorization from the other branches, has the capacity to seize and redistribute your preparations? Thus, the federal government is at least creating some disincentives for disaster preparation, in the name of fighting terrorism, through the PATRIOT Act and its offspring, and responding to nationally declared emergencies, through sweeping executive orders.

2. Laws Regarding the National Electric Grid that Discourage Energy Efficient Preparation

Another way that federal law can disincentivize self-sufficient disaster preparation is by discouraging those who would try to live independent of the national electric grid or those who would prepare by purchasing backup generators or installing clean energy devices. “The transmission of electric current from one state to another . . . is interstate commerce’ subject to the Commerce Clause.”⁷³ So, often electric issues are handled by federal law.⁷⁴

Regarding the electric grid generally, Congress has expressed concerns about storing vital electricity backups (such as emergency generators and other technical appliances and equipment necessary to temporarily restore power) and alternative energies (“green” energy supplies) in case the Smart Grid fails.⁷⁵ But federal statutes have not spoken on the importance of electricity preparation at the individual level.⁷⁶ Perhaps this is because the federal government is concerned only

foreseen.” Frank B. Cross, *Executive Orders 12,291 and 12,498: A Test Case in Presidential Control of Executive Agencies*, 4 J.L. & POL. 483, 522 (1988) (quoting Harold H. Bruff, *Presidential Power and Administrative Rulemaking*, 88 YALE L.J. 451, 468 (1979)).

73. *Entergy Nuclear Vt. Yankee, LLC v. Shumlin*, 733 F.3d 393, 429 (2d Cir. 2013) (quoting *Pub. Utils. Comm’n v. Attleboro Steam & Elec. Co.*, 273 U.S. 83, 86 (1927)).

74. Nuclear power is also regulated exclusively by Congress, meaning states are always preempted in this field. *Id.* at 409 (“Radiological safety therefore represents an arena of field preemption that ‘Congress, acting within its proper authority, has determined must be regulated by its exclusive governance,’ thus precluding any regulation by the states.” (quoting *Arizona v. United States*, 567 U.S. 387, 399 (2012))); *see also* *Skull Valley Band of Goshute Indians v. Nielson*, 376 F.3d 1223, 1242 (10th Cir. 2004) (“[S]tate laws within ‘the entire field of nuclear safety concerns’ are preempted, even if they do not directly conflict with federal law.” (quoting *Pacific Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm’n*, 461 U.S. 190, 212 (1983))). But this Article need not go into nuclear resources because a ban on nuclear power at the individual level is not a reasonable factor in an ordinary person’s disaster preparation.

75. *See* 42 U.S.C. § 17381(9) (2012) (“It is the policy of the United States to support the modernization of the Nation’s electricity transmission and distribution system to maintain a reliable and secure electricity infrastructure that can meet future demand growth and to achieve . . . [d]evelopment of standards for communication and interoperability of appliances and equipment connected to the electric grid, including the infrastructure serving the grid.”).

76. One statute did acknowledge the possibility of microgrids—“integrated energy system[s] consisting of interconnected loads and distributed energy resources (including generators and

with interstate matters, not those that occur on a merely local scale.⁷⁷ But even national electricity regulation standards are largely outdated due to the lack of a free market influence.⁷⁸ Although the federal failure to “upgrade” the national grid regulations by introducing capitalist incentives does not necessarily disincentivize people from developing off-grid capability, it shows a lack of government concern and priority in the area of electrical management, efficiency, and regulation. The government could be doing more to encourage self-sufficiency in the electric context. To be fair, the federal government has created some incentives in the energy industry for going “green” and using cleaner energy, but it could do more to specifically encourage self-sufficient, disaster preparation.

The federal government is thus not doing enough to encourage energy efficient preparation. For years, the federal focus for energy has been on going “green” and on not being so dependent on fossil fuels.⁷⁹ But with so much financial and infrastructural ruin in the aftermath of natural disasters, a new focus should now be federally recognized: incentivizing adequate energy preparations.

3. Barriers to Medical Preparedness

Legal barriers and disincentives affecting individual medical preparedness exist at all levels of government,⁸⁰ but the main medical

energy storage devices), which . . . can operate in parallel with the utility grid or in an intentional islanding mode.” *Id.* § 17231(b)(6). But the statute only recognized microgrids in the context of “[e]nergy storage systems demonstrations,” designed to improve and enhance the federal grid itself; it did not address the issue of how *private* microgrids could work in relation to the federal electric grids. *See id.* § 17231(i). Each demonstration must include at least one objective from a list provided in the statute, one of which is “[e]nergy storage to improve the feasibility of microgrids or islanding, or transmission and distribution capability, to improve reliability in rural areas.” *Id.* § 17231(i)(4)(A).

77. *See id.* § 17385(b)(3) (providing that the Director of the National Institute of Standards and Technology has the ability and power “to consider the use of voluntary uniform standards for certain classes of mass-produced electric appliances and equipment for homes and businesses that enable customers, at their election and consistent with applicable State and Federal laws, and are manufactured with the ability to *respond to electric grid emergencies* and demand response signals by curtailing all, or a portion of, the electrical power consumed by the appliances or equipment in response to an emergency or demand response signal” (emphasis added)).

78. *See* EDISON ELEC. INST., REMOVE FEDERAL BARRIERS TO COMPETITION: REFORM THE PUBLIC UTILITIES REGULATORY POLICIES ACT (2001), http://web.archive.org/web/20060909021528/http://lobby.la.psu.edu/_107th/128_PURPA/Organizational_Statements/EEI/remove_federal_barriers.pdf (encouraging reform for the Public Utilities Regulatory Policies Act (“PURPA”)); PAUL KOMOR, RENEWABLE ENERGY POLICY 138 (2004) (“Many view PURPA as well-intentioned but outdated in an increasingly market-driven electricity system.”).

79. *See, e.g.*, Transforming Our Nation’s Electric Grid Through Improved Siting, Permitting, and Review, 78 Fed. Reg. 35,539, 35,530-42 (June 12, 2013).

80. *See* Robert M. Pestronk et al., *Improving Laws and Legal Authorities for Public Health*

concern at issue in this Article arises for people who rely on controlled substances to keep life-threatening diseases at bay. Federal laws regulate possession of controlled substances,⁸¹ making it difficult and, at times impossible, for concerned medical dependents to store enough medicine to adequately prepare for disasters or medical shortages. Of course, the law is by no means the only source barring medical storage; more sources provide real obstacles to medical preparation, such as limited insurance coverage and short-term expiration dates. But this Article only looks at the legal issues involving medicine storage.

Many of the prescription drugs that fall under the heavily regulated label of controlled substances treat non-life-threatening “medical conditions such as pain, anxiety, and attention-deficit disorder.”⁸² But occasionally, physicians will prescribe doses of controlled substances to treat illnesses that could be life-threatening if left unchecked, like seizures⁸³ and epilepsy.⁸⁴ Where these circumstances exist and illnesses treated with prescribed controlled substances can become life-threatening, governmental plans should be in place to ensure that individuals depending on such heavily regulated medicines can obtain adequate medical supplies in emergencies. Because patients are not capable of stockpiling these regulated medicines, due to their uniquely high potential for abuse, the government has a responsibility to ensure that each medically dependent individual is provided for in disaster scenarios. For example, perhaps, local pharmacies should be required to keep enough medication on-hand to provide a two or three month supply to their customers. These plans would avoid the federal public health

Emergency Legal Preparedness, 36 J.L. MED. & ETHICS 47, 48 (Special Supp. Spring 2008).

81. See 21 U.S.C. § 844(a) (2012) (outlining penalties for simple possession of controlled substances and providing that “[i]t shall be unlawful for any person knowingly or intentionally to possess a controlled substance unless such substance was obtained directly, or pursuant to a valid prescription or order, from a practitioner, while acting in the course of his professional practice, or except as otherwise authorized by this subchapter or subchapter II of this chapter”); *id.* § 826(a) (“Production quotas shall be established in terms of quantities of each basic class of controlled substance and not in terms of individual pharmaceutical dosage forms prepared from or containing such a controlled substance.”).

82. *Medicines*, N.Y. ST. DEP’T HEALTH (2007), <http://www.health.ny.gov/professionals/patients/medicines>; see also DIANE L. DARVEY, LEGAL HANDBOOK FOR PHARMACY TECHNICIANS 54 (2008) (“Controlled substances are used to treat a number of medical conditions such as pain, anxiety, seizures, and insomnia.”).

83. See Rachel Nall, *What Causes Seizures?*, HEALTHLINE, <http://www.healthline.com/health/seizures?toptocstest=expand> (last updated May 3, 2016) (“If you don’t get treatment for seizures, their symptoms can become worse and progressively longer in duration. Extremely long seizures can lead to coma or death.”).

84. See *Epilepsy (Seizure Disorder)*, MEDICINENET, <https://www.medicinenet.com/seizure/article.htm> (last updated April 15, 2014) (“Although most people with epilepsy lead full, active lives, they are at special risk for two life-threatening conditions: status epilepticus and sudden unexplained death.”).

preparedness problem for people dependent on controlled substances without necessitating a change in laws governing individual possession of controlled substances.

While this group of people dependent on heavily-regulated controlled substances to keep their potentially life-threatening illnesses under control make up a very small percentage of the population (as most uses of controlled substances for medication do not involve treatment of life-threatening conditions), the federal government should still make plans to provide for the medical needs, and it should strive to educate these people about their roles in sufficiently preparing to handle their illnesses and obtain necessary medicines in disasters. Additionally, the government should even have plans for the larger group of people who rely on controlled substances for non-life-threatening diseases, like people with mental health illnesses or chronic pain, because if these people are not taken care of in the aftermath of a disaster, an entirely new set of problems arises.⁸⁵ Therefore, federal laws regulating possession of controlled substances, including vital medication, are barring individuals who are dependent on that medicine from storing the necessary supplies to adequately prepare, and the government should implement a plan to provide for these medically-dependent people during and after disasters.

B. State

1. Do “Right-to-Farm” Acts Provide Enough Protection for Self-Sufficient Farming?

Farming is another way that some people may wish to prepare themselves for a natural disaster. But many who want to try their hand at farming run into legal barriers and lawsuits. Although not directly state-implemented bars, private nuisance actions (or fear of being sued with a nuisance claim) can disincentivize disaster preparation via farming or raising livestock.⁸⁶

Right-to-farm acts were created to stop the onslaught of private lawsuits against farmers because voters and legislatures realized that, at least to some extent, America needs farmers.⁸⁷ But many of these right-to-farm/anti-nuisance laws do not go far enough to protect farming,

85. For example, if their illnesses get out of hand, these people could cause harm to themselves or others, harm which could either be life-threatening itself or could, at the very least, divert precious resources that should be reserved for life-threatening cases after a disaster.

86. See Kyle Weldon & Elizabeth Rumley, *States' Right-to-Farm Statutes*, NAT'L AGRIC. L. CTR., <http://nationalaglawcenter.org/state-compilations/right-to-farm> (last visited Feb. 15, 2018).

87. See *id.*

especially when it comes to smaller scale agriculture. State governments and legislatures should do more to incentivize self-sufficient, preparatory farming on the small scale, for people who only farm/garden as a hobby.

Granted, the passage of these statutes serves to incentivize farming because their mere existence prevents disincentives, like rampant lawsuits, from taking over the American farming industry. All fifty states have passed versions of right-to-farm laws in order to protect qualifying farmers and ranchers from nuisance lawsuits filed by new neighbors.⁸⁸ For instance, in Connecticut, “no agricultural or farming operation, place, establishment or facility, or any of its appurtenances, or the operation thereof, shall be deemed to constitute a nuisance, either public or private.”⁸⁹ Connecticut’s statute specifically prohibits nuisance claims based on a range of various complaints, including “odor[s] from livestock, manure, fertilizer or feed, [] noise from livestock or farm equipment used in normal, generally acceptable farming procedures, [] dust created during plowing or cultivation operations,” and “water pollution from livestock or crop production activities,” but excluding pollution of drinking water supplies.⁹⁰ Some scholars have even argued that these right-to-farm/anti-nuisance laws are so beneficial, they should be extended to other fields that are important for green energy and self-sustaining disaster preparation.⁹¹

But despite the progress shown by the widespread existence of right-to-farm/anti-nuisance state laws, most of them have not gone far enough to protect farming, especially small-scale, residential farms or gardens.

A typical Right-to-Farm Act provides that an agricultural operation or activity shall not be considered a nuisance if the nuisance derives from changed conditions in the area surrounding the operation and if the operation was established first and operated for a defined period of time, typically one year, before the change in conditions occurred.⁹²

In most cases, right-to-farm laws are steps in the right direction, but they are too shallow to fight the nuisance disincentive, which means people

88. *See id.* (including a compilation of state right-to-farm laws).

89. CONN. GEN. STAT. § 19a-341(a) (1958).

90. *Id.* § 19a-341(a)(1)–(3), (5).

91. *See, e.g.,* Tyler Marandola, Comment, *Promoting Wind Energy Development Through Antinuisance Legislation*, 84 TEMP. L. REV. 955, 987-92 (2012) (arguing that right-to-farm-type laws should protect wind energy development projects from nuisances lawsuits, just as they protect farmers and agriculture).

92. Harrison M. Pittman, *Validity, Construction, and Application of Right-to-Farm Acts*, 8 A.L.R. 6th 465, 481 (2005).

are indirectly barred or at least not enabled by their states to effectively prepare by farming without fear of expensive reprimand.

One way existing laws should be improved is by preempting and prohibiting local governments from standing in the way of residential farming. Right-to-farm statutes should exchange their current and partially outdated statuses, to mirror the provision of Utah's Right-to-Farm Act that puts limitations on local regulations of agriculture.⁹³ Laws that disallow people from bringing nuisance claims in state court do nothing to stop local ordinances from upstaging their efforts and bearing down harshly on agricultural areas.⁹⁴

Also, states' right-to-farm statutes are falling short of the mark because many are being challenged on constitutional grounds. For example, in *Gacke v. Pork Xtra*, the plaintiff brought a nuisance claim against her neighbor's hog feeding operation.⁹⁵ The Supreme Court of Iowa held that a provision of the Iowa Right-to-Farm Act⁹⁶ was unconstitutional under the Takings Clause of the United States Constitution⁹⁷ and under article I, section 18 of the Iowa Constitution,⁹⁸ because it deprives property owners of a remedy for the taking of their property that occurs via nuisance created by animal feeding operations.⁹⁹ The court clarified that the agricultural operation could continue as long

93. See UTAH CODE ANN. § 17-41-402(2) (LexisNexis 1953) ("A political subdivision may not change the zoning designation of or a zoning regulation affecting land within an agriculture protection area unless the political subdivision receives written approval for the change from all the landowners within the agriculture protection area affected by the change."). Other states that have a local authorities preemption clause in their codes include Alabama (ALA. CODE § 6-5-127(a) (1975)), Alaska (ALASKA STAT. § 09.45.235(c) (1986)), Arkansas (ARK. CODE ANN. § 2-4-105 (1981)), California (CAL. CIV. CODE § 3482.5(d) (West 1981)), Colorado (COLO. REV. STAT. § 35-3.5-102(5) (1981)), Florida (FLA. STAT. § 823.14(6) (1979)), Idaho (IDAHO CODE § 22-4504 (1994)), Kentucky (KY. REV. STAT. ANN. § 413.072(7) (West 1980)), and Louisiana (LA. STAT. ANN. § 3:3607 (1983)).

94. States with no preemption clause regarding local/municipal authorities in their right to farm statutes or states that defer to municipal law include: Arizona (ARIZ. REV. STAT. ANN. § 3-112 (LexisNexis 1991)), Connecticut (CONN. GEN. STAT. § 19a-341(a) (1958)), Delaware (DEL. CODE ANN. tit. 3, § 1401 (1980)), Georgia (GA. CODE ANN. § 41-1-7 (1980)), Hawaii (HAW. REV. STAT. §§ 165-5 to -6 (1993); and HAW. REV. STAT. §§ 165-1 to -4 (1982)), Illinois (740 ILL. COMP. STAT. 70/4.5 (1995); 740 ILL. COMP. STAT. 70/0.01 (1990); and 740 ILL. COMP. STAT. 70/1 to /5 (1981)), Indiana (IND. CODE § 32-30-6-9.5 (2012); IND. CODE § 32-30-6-11(2005); and IND. CODE §§ 32-30-6-1 to -9, -10 (2002)), Iowa (IOWA CODE §§ 352.1-.10, .11 (*declared unconstitutional by Gacke v. Pork Xtra*, L.L.C., 684 N.W.2d 168 (Iowa 2004)), .12 (1993)), Kansas (KAN. STAT. ANN. § 2-3204 (1998); and KAN. STAT. ANN. §§ 2-3201 to -3203 (1982); Texas (TEX. AGRIC. CODE ANN. § 251.004(c) (West 1981)), and Washington (WASH. REV. CODE §§ 7.48.315-.320 (2005); and WASH. REV. CODE § 7.48.300-.310 (1979)).

95. *Gacke*, 684 N.W.2d at 170-71.

96. IOWA CODE § 657.11(1)(a) (1995).

97. U.S. CONST. amend. V.

98. IOWA CONST. art. I, § 18.

99. *Gacke*, 684 N.W.2d at 172-79.

as the neighboring property owners were compensated for the decreased value of their property due to the “noxious odors that emanated from the [hog] operation.”¹⁰⁰ Thus, while right-to-farm laws do protect farming to an extent, they do not provide enough protection for individuals who wish to self-sufficiently prepare for disasters by farming.

2. State Laws Preventing Rainwater Collection on Private Property

“Rainwater harvesting is the act of utilizing a collection system to use rainwater for outdoor uses, plumbing, and, in some cases, consumption.”¹⁰¹ Fortunately, eastern states with abundant supplies of freshwater have never passed laws preventing this practice. But many of the western and more arid states have laws restricting rainwater collection practices and “making it difficult for the average homeowner to set up a rainwater harvesting system.”¹⁰² Sixteen states currently have laws restricting rainwater collection, but the severity differs from state to state.¹⁰³

News outlets followed the development of these laws closely in recent years, and there is always a flurry any time someone is penalized for collecting rain. For example, in Oregon, a man named Gary Harrington spent time in jail and had to pay a \$1500 fine for setting up his own water collection system.¹⁰⁴ “Under Oregon law, all water is publicly owned,” and “[w]ith some exceptions, cities, irrigators, businesses, and other water users must obtain a permit or license from the Water Resources Department to use water from any source.”¹⁰⁵ Harrington initially received permits from the state for his reservoirs in 2003, but the state reversed its decision.¹⁰⁶ Granted, in Oregon “it is legal to set up rainwater collection barrels on roofs or other artificial surfaces,”¹⁰⁷ but state enforcement against Harrington’s actual

100. *Id.* at 171, 174-75.

101. See *State Rainwater Harvesting Laws and Legislation*, NAT’L CONF. ST. LEGISLATURES (June 13, 2017), <http://www.ncsl.org/research/environment-and-natural-resources/rainwater-harvesting.aspx>.

102. Chaffin Mitchell, *Is Collecting Rainwater Legal in Your State?*, ACCUWEATHER (Nov. 15, 2016, 4:50 PM), <https://www.accuweather.com/en/weather-news/is-rainwater-harvesting-legal-in-your-state-us/61586739>.

103. See *State Rainwater Harvesting Laws and Legislation*, *supra* note 101.

104. Harris Effron, *Man Jailed for Collecting Rainwater in Illegal Reservoirs on His Property*, FOX NEWS (Aug. 16, 2012), <http://www.foxnews.com/real-estate/2012/08/16/man-jailed-for-collecting-rainwater-in-illegal-reservoirs-on-his-property.html>.

105. OR. WATER RES. DEP’T, WATER RIGHTS IN OREGON: AN INTRODUCTION TO OREGON’S WATER LAWS 5 (2013), <http://www.oregon.gov/owrd/PUBS/docs/aquabook.pdf>.

106. Effron, *supra* note 104.

107. *Id.*

implementation of a water collection system sends a message of a lack of government support for this kind of preparation. Even if Oregon officials have a good reason for regulating water collection, as they did in Harrington's case,¹⁰⁸ the state should still prioritize public encouragement of water collection in general.

Going beyond Oregon's state borders, Utah also has laws against water collection that disincentivize people's environmentally friendly efforts to collect rainwater.¹⁰⁹ One Utah woman captured rainwater in a barrel to water her plants because she said letting it fall into the gravel would be a waste.¹¹⁰ A car dealer in Utah wanted to do the same thing by collecting rainwater that falls on his roof, storing it in an underground cistern, and using it to conduct a new, water-efficient car wash.¹¹¹ But state officials stated that, in both cases, the people needed to obtain a water right permit before diverting and collecting any of this water that falls on their properties.¹¹²

The attitude of needing the state's blessing before collecting rainwater discourages people from building water collection systems to prepare. "As long as people believe their rights stem from the government (and not the other way around),"¹¹³ the people are in danger of losing widespread recognition of inalienable freedoms and unenumerated rights.¹¹⁴ Fortunately, many of these states' laws are broadening to allow more room for personal water-collection. Record droughts and water-supply worries have served as catalysts for state legislators to consider legislation legalizing rainwater harvesting for use in individual households and lawns. For instance, "Rhode Island, Texas, and Virginia offer tax credits or exemptions on the purchase of rainwater harvesting equipment," and "[b]oth Texas and Ohio allow the practice for potable purposes, which is frequently excluded from other states'

108. Harrington's reservoirs were illegal because of their magnitude; he collected and stored nearly thirteen million gallons of water. *Id.*

109. See John Hollenhorst, *Catching Rain Water Is Against the Law*, KSL.COM (Aug. 12, 2008, 11:49 PM), <http://www.ksl.com/?sid=4001252>; *Collecting Rainwater Now Illegal in Many States (Video)*, BEFORE IT'S NEWS (Apr. 28, 2013, 3:49 AM), <http://beforeitsnews.com/politics/2013/04/collecting-rainwater-now-illegal-in-many-states-2513766.html>.

110. Hollenhorst, *supra* note 109.

111. *Id.*

112. *Id.*

113. *Collecting Rainwater Now Illegal in Many States, supra* note 109.

114. The Ninth Amendment was created to address these concerns and ensure the continued protection of unenumerated individual rights. U.S. CONST. amend. IX ("The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people."). But, until recently, judges and scholars largely dismissed it as a "constitutional irrelevance." Randy E. Barnett, *The Ninth Amendment: It Means What It Says*, 85 TEX. L. REV. 1, 2 (2006).

laws and regulations.”¹¹⁵ Other cities are taking an even more proactive approach, like in Key West, Florida, where new ordinances require that all new buildings be built with “large, freshwater cisterns” because “[b]y collecting rainwater, cisterns help reduce flooding by keeping it out of the streets.”¹¹⁶ Such new laws go beyond incentivizing freshwater collection; they command it.¹¹⁷ As citizens in one of the driest states in America, Utahns trying to be more efficient by using water collection systems believe that the state’s “water laws ought to catch up with” the fact of Utah’s aridness, and the state laws should make it easier for people to save water and use it more efficiently.¹¹⁸

These states’ efforts to legalize some degree of rainwater harvesting will better prepare their citizens for a disaster. But there is still a long journey ahead before citizens can start meaningfully collecting rainwater for individual use.¹¹⁹ In fact, states should go even further than legalization and incentivize rainwater harvesting and alleviate the permitting process to better prepare their people and communities for disasters on the horizon. These efforts would go a long way toward nullifying the effect and perception of past and current disincentives for rainwater harvesting.

C. Local

1. Zoning Ordinances Barring Backyard Agriculture

One of the primary responsibilities given to local governments is creating zoning regulations.¹²⁰ “Zoning is the traditional and nearly ubiquitous tool available to local governments to control the use of land.”¹²¹ Such local regulations can be good for general aesthetics and

115. *State Rainwater Harvesting Laws and Legislation*, *supra* note 101.

116. Greg Allen, *Key West Awash with Plans for Rising Sea Level*, NPR (Nov. 12, 2013, 3:06 AM), <http://www.npr.org/2013/11/12/241350517/key-west-awash-with-plans-for-rising-sea-level>.

117. *See, e.g., id.* Forcing people to create cisterns could be problematic and may not be the most effective way to encourage preparation through water collection (because it involves taking over more private rights, which tends to be unpopular), but the decision to do so is within each state legislature’s power and discretion to determine, under the state police power. *See* D. Benjamin Barros, *The Police Power and the Takings Clause*, 58 U. MIAMI L. REV. 471, 474 (2004) (“The term ‘police power’ was introduced in the Marshall and Taney Courts’ attempts to delimit the scope of federal and state authority.” (citing *Brown v. Maryland*, 25 U.S. (12 Wheat.) 419, 443 (1827))).

118. *See* Hollenhorst, *supra* note 109 (statement of Mark Miller).

119. *See id.*

120. Restrictions in private contract law such as covenants and commitments enforced by home owners associations, contribute to other governmental zoning regulations, but this Article focuses on just the government’s regulations.

121. Anna K. Schwab & David J. Brower, *Increasing Resilience to Natural Hazards: Obstacles and Opportunities for Local Governments Under the Disaster Mitigation Act of 2000*, in

safety concerns, but sometimes, like when they get in the way of self-sufficient gardening, farming, or even raising livestock, these zoning laws can go too far and discourage such self-sufficient, productive behavior.¹²² A few categories that these local organizations can affect include restrictions on “the style of home that you build, the number and type of outbuildings, limits on ‘for profit’ agriculture and the size of garden plots, livestock raising, timber harvesting, operation of a home-based businesses, pond and road construction, and hunting or target shooting on your own land.”¹²³

One example of an overzealous local ordinance standing in the way of private agriculture comes from DeKalb County, Georgia, where the city fined a man named Steve Miller \$5000 for growing too many organic vegetables on his property.¹²⁴ Apparently, vegetable farming was previously zoned out of urban areas,¹²⁵ which seems strange because a vegetable garden does not carry any of the issues that may arise with steel mills or livestock ranches.¹²⁶

Another example that made the news over zoning ordinances involved a Northbrook, Illinois, woman who got into legal trouble for growing a garden in her front yard.¹²⁷ The planning department in her

LOSING GROUND: A NATION ON EDGE 281, 290 (John Nolon & Dan Rodriguez eds., 2007).

122. Many zoning laws and restrictive housing codes have “become outdated or excessively complex as they are amended piecemeal in response to, among other things, growing human populations, expanding resource demands, and a shrinking resource base.” ORSI, *supra* note 17, at 519 (statement of Julie Pennington). So people who wish to engage in self-sufficient, preparatory behavior but are barred from doing so by local ordinances need to look carefully at these “codes to distinguish between unnecessary or discriminatory barriers to environmentally and socially beneficial housing solutions and codes that are needed to protect resources and infrastructure.” *Id.* at 519-20.

123. James Wesley Rawles, *Zoning Laws, HOAs, and CC&Rs as Criteria for Choosing Your Retreat Locale*, SURVIVALBLOG.COM (Aug. 29, 2005), <http://www.survivalblog.com/2005/08/zoning-laws-hoas-and-ccrs-as-c.html>.

124. Matt Steinglass, *Where Growing Too Many Vegetables Is Illegal*, ECONOMIST (Oct. 3, 2010), http://www.economist.com/blogs/democracyinamerica/2010/10/weird_zoning_laws. For a brief discussion of the expectation of privacy concerns that Miller’s situation raises, see *You Couldn’t Make It Up! Georgia Man Fined \$5000 for Growing Vegetables*, INFOWARS (Sept. 16, 2010), <http://www.infowars.com/you-couldn%E2%80%99t-make-it-up-georgia-man-fined-5000-for-growing-vegetables>. For an example of farm owners facing potential jail time in Canada, see *1-Acre “Farm” Owners Face Jail in Lantzville, BC*, FOOD FREEDOM (July 21, 2011), <http://foodfreedom.wordpress.com/2011/07/21/1-acre-farm-owners-face-jail-in-lantzville-bc>.

125. For more information on types of existing urban agriculture bans, see Sarah B. Schindler, *Of Backyard Chickens and Front Yard Gardens: The Conflict Between Local Governments and Locavores*, 87 TUL. L. REV. 231, 239-46 (2012).

126. See Steinglass, *supra* note 124.

127. See Graydon Megan, *This Year’s Harvest Could Be Last for Resident’s Garden*, TRIBLOCAL (Aug. 23, 2010, 12:00 PM), <http://www.triblocal.com/northbrook/2010/08/23/this-years-harvest-could-be-last-for-residents-garden>.

community asked her to remove the garden.¹²⁸ Shortly thereafter, the Northbrook Village Board decided gardens were permitted in front yards so long as they are well-maintained.¹²⁹ But recent studies show that community gardening is an important piece of long-term disaster preparation.¹³⁰ And such gardens should be allowed and encouraged to bloom to strengthen societies before and during a disaster.

If mere farming and gardening can run into zoning problems, then raising livestock doubtlessly will too.¹³¹ With the noises and odors that come with all livestock, neighbors have valid reasons to pass anti-livestock zoning ordinances. But if chickens, pigs, bees, etc., can be raised with minimal noise and odor, raising them should be not only legalized but also encouraged by local laws and ordinances. Local livestock would come in handy during a natural disaster or in its immediate aftermath when food sources are scarce, and it would also prove useful in times of plenty because of the local food-source option. Imagine how nice it would be to walk next door to get your morning eggs.¹³²

Speaking of eggs, one common local ban on livestock concerns backyard chickens. The common story here is that citizens want to raise chickens in their backyards for their eggs, but local zoning ordinances prohibit them from doing so.¹³³ Although backyard chicken bans have existed for quite some time and in many cities, many Americans are

128. *Id.*

129. Jeff Danna, *Front-Yard Gardens OK, but There Are Guidelines to Follow*, TRIBLOCAL (Feb. 9, 2011, 11:12 AM), <http://www.triblocal.com/northbrook/2011/02/09/front-yard-gardens-ok-but-there-are-guidelines-to-follow>.

130. See Pam Bailey, *Community Gardening a Boon to Neighborhoods in Crisis*, NONPROFIT Q. (Aug. 10, 2017), <https://nonprofitquarterly.org/2017/08/10/community-gardening-boon-neighborhoods-crisis>.

131. See Matt Sailor, *Ten Deed Restrictions That Could Ruin Your Dream Home*, HOW STUFF WORKS, <http://home.howstuffworks.com/real-estate/10-deed-restrictions.htm#page=9> (last visited Feb. 15, 2018) (“Restrictions on livestock like chickens, goats and pigs are some of the most common deed restrictions.”).

132. See Tim Flach, *Irmo to Let Voters Decide Fowl Dispute*, STATE (Sept. 6, 2017, 5:43 PM), <http://www.thestate.com/news/local/article171620627.html> (noting the benefits of backyard chickens, including fresh eggs and natural life lessons for children).

133. E.g., Lyle Moran, *Chicken Advocate Caught Raising Illegal Chickens*, LOWELLSUN.COM, http://www.lowellsun.com/breakingnews/ci_23965104 (last updated Aug. 28, 2013, 3:24 PM) (“Rachel Chandler, one of the leaders of the push for the city to allow backyard chickens, has been illegally keeping chickens on property she owns.”); see also Allison Bourg, *Anne Arundel County Council Debates Merits of Poultry Legislation*, CAP. GAZETTE (Oct. 22, 2013, 11:15 AM), <http://www.capitalgazette.com/cg2-arc-146b7e26-e427-530d-9b28-a0993adc7358-20131022-story.html> (identifying the Gozzo family, who bought four chickens, but kept them on a neighbor’s property because their own property was not big enough pursuant to the applicable county law, and identifying another resident, Elizabeth Greene, who claims to want chickens on her property “to keep deer ticks away”).

uniting to fight against these bans and overturn them. A recent national trend of legalizing backyard chicken farms is spreading, even to more urban areas like Providence, Rhode Island,¹³⁴ and Lexington County, South Carolina.¹³⁵ Some of the benefits these areas have noted include healthier and tastier eggs, natural insect repellent, compost production for fertilizer, and typical benefits that come along with having any pets (i.e., lessons in responsibility, companionship, compassion for animals, etc.).¹³⁶ But even within the small State of Rhode Island, a chicken discrepancy exists, as nearby city Cranston's mayor "vetoed an ordinance similar to Providence's that would allow residents to raise small backyard flocks."¹³⁷ Those against chickens pose compelling concerns, such as noise (especially with roosters), expense, smell, damage to gardens, and predator attraction.¹³⁸ These are valid concerns, but they are at least arguably outweighed by the value of chicken farms in most circumstances. For instance, the security that comes from having a constant food source provides a priceless peace of mind for owners and neighbors that benefit from local chickens and eggs. They know that even if a market shortage occurs or a natural disaster inhibits agriculture importation, they have one local food source to turn to. This immediate and long-term assurance of food security outweighs the concerns that accompany chicken farms, especially if the farms are reasonably regulated. In fact many of the concerns people have about chickens and other farm animals can also be said of all domestic pets, cats and dogs included, and these nationally accepted residential pets do not even give back in the same self-sufficient, preparatory fashion.¹³⁹

Bans against raising chickens arise in many forms.¹⁴⁰ Though many communities have come a long way in allowing at least some legal backyard chicken raising, many communities still maintain a flat ban on

134. See Flach, *supra* note 132.

135. See Stephen Briggs, Jr., *Should Backyard Chickens Be Legal in Urban Areas?*, NORTH KINGSTOWN PATCH, <http://northkingstown.patch.com/groups/stephen-briggs-jrs-blog/p/bp--should-backyard-chickens-be-legal-in-urban-areas> (last updated Jan. 10, 2013, 3:39 AM) (identifying the decision of Providence, Rhode Island, to "legalize raising small backyard chicken flocks").

136. *Id.*

137. *Id.*

138. *Id.*

139. See Bourg, *supra* note 133 (quoting some proponents of legalizing a backyard chickens ordinance who argue that a dog's barking can be just as loud or louder than chickens, and dogs' and cats' feces do not smell any better than chickens'). Two scholars even argue that objections to overturning chicken bans create negative externalities in what they call the "clucking theorem." See generally Barak Y. Orbach & Frances R. Sjoberg, *Excessive Speech, Civility Norms, and the Clucking Theorem*, 44 CONN. L. REV. 1 (2011).

140. Schindler, *supra* note 125, at 244-46 (discussing several types of "[b]ackyard chicken bans").

this practice.¹⁴¹ Even in cities where raising chickens is legal, homeowners often cannot meet the stringent requirements, such as lot size, to turn their backyard chicken dreams into realities.¹⁴²

Beekeeping is another rural trade that more urban areas across the nation are adopting.¹⁴³ Los Angeles legalized backyard beekeeping in 2015, “[o]verturning a 136-year-old ban.”¹⁴⁴ New York City legalized beekeeping in 2010, and two years later the practice had “exploded” to such a degree that many even started “to question whether the city [could] sustain the increasing number of hives.”¹⁴⁵ Despite the success that the most urban city in the nation saw with legalizing beekeeping, “No Buzz Zones” are still abundant “in many cities, towns and counties that still equate beekeeping with causing a public nuisance,” including Ithaca and Geneva, New York; Fort Worth, Texas; Lafayette, Louisiana; and Concord, New Hampshire.¹⁴⁶

For many of the same reasons used to ban backyard chickens and bees (noise and odor), some cities also seek to ban all farm animals, including, but not limited to, pigs.¹⁴⁷ Some residents living where no farm animals are allowed in residential neighborhoods will try to bend the rules. For example, one pig owner found a loophole in the city’s code which banned hogs weighing 120 pounds or more but did not

141. To view examples of city backyard chicken ordinances across the country, see *Chicken Laws*, BACKYARD CHICKENS, <https://www.backyardchickens.com/articles/category/chicken-laws.13> (last visited Feb. 15, 2018).

142. See Schindler, *supra* note 125, at 245-46 (providing an example where a woman in Linthicum, Maryland, owned five egg-laying chickens, but was forced to dispose of them “[b]ecause her yard was less than the acre required to keep chickens”).

143. See Lisa Wright, *The Rise and Rise of Urban Beekeeping*, BBC NEWS (Mar. 12, 2017), <http://www.bbc.com/news/uk-england-38227113>; see also Kim Flottum, *Which Cities Have Legalized Beekeeping?*, DAILY GREEN (Dec. 2, 2010, 9:36 AM), <http://preview.www.thedailygreen.com/environmental-news/blogs/bees/legalized-beekeeping>.

144. Laura Wagner, *Backyard Beekeeping Approved in Los Angeles*, NPR (Oct. 14, 2015, 8:12 PM), <http://www.npr.org/sections/thetwo-way/2015/10/14/448725988/backyard-beekeeping-approved-in-los-angeles>.

145. Stephen Nessen, *Two Years After Legalized Beekeeping, City May Be Running Short on Forage*, WNYC (June 25, 2012), <http://www.wnyc.org/story/218358-urban-bees-may-be-running-out-foraging-ground>; see also *Beekeeping Is All the Buzz in New York*, REUTERS (July 27, 2016, 5:15 PM), <http://www.reuters.com/article/us-newyork-bees/beekeeping-is-all-the-buzz-in-new-york-city-idUSKCN1072NX>.

146. Kim Flottum, *No Buzz Zones: 90+ U.S. Cities and Towns Where Beekeeping Is Still Illegal (Update)*, DAILY GREEN (Aug. 9, 2010, 11:23 AM), <http://preview.www.thedailygreen.com/environmental-news/blogs/bees/illegal-urban-beekeeping-0602>; Tara Hammonds, *Urban Guide to Farming in NY: #32 Beekeeping*, CORNELL SMALL FARMS PROGRAM (May 2, 2017, 11:38 AM), <http://smallfarms.cornell.edu/2017/05/02/32-beekeeping>.

147. See Mary Wood et al., *Promoting the Urban Homestead: Reform of Local Land Use Laws to Allow Microlivestock on Residential Lots*, 37 *ECOLOGY L. CURRENTS* 68, 75-76 (2010).

expressly ban smaller pigs.¹⁴⁸ In response, the city simply changed the code to include all pigs.¹⁴⁹

From a self-sufficiency perspective, cities often go about the regulation of agriculture in ways that lead to less than optimal results. Instead of making it difficult for citizens to grow local produce and raise livestock, this behavior should be incentivized, so long as it does not tread on the rights of nearby neighbors. If people can reasonably avoid creating eyesores and minimize odors and noises to normal levels of typical, domestic pets, people should be able and even encouraged to live this way. Encouraging this self-sufficient behavior is important for day-to-day life, but it is *essential* in times of natural disasters when all other food sources dry out.¹⁵⁰

2. Local Ordinances Barring Water Collection Efforts

Oregon makes another appearance at the local level for its creation of disincentives of water collection systems, by regulating even unofficial water resource collections like swimming pools.¹⁵¹ In West Linn, Oregon, the town's Water Resource Area Protection Code stated: "No person shall be permitted to fill, strip, install pipe, undertake construction, or in any way alter an existing water resource area without first obtaining a permit to do so."¹⁵² One couple in West Linn was fined close to \$1 million for building a pool in their backyard, including retroactive fees.¹⁵³ The couple says that city officials previously approved the pool's construction, and they should not be able to collect fines retroactively for something they approved in the first place.¹⁵⁴

Homeowners could use their recreational swimming pools as their water storage in case of a major disaster.¹⁵⁵ If local laws disincentivize people from building and maintaining pools, they are essentially

148. See Asher Klein, *Seal Beach Bans Pigs—Even the Small Ones*, ORANGE COUNTY REG. (Oct. 30, 2013, 8:51 AM), <http://www.oregister.com/articles/pig-533545-city-pigs.html>.

149. See *id.*

150. One problem that has not been mentioned, but that could easily occur in these agriculture scenarios, arises when city ordinances ban running small businesses out of the home. See Sailor, *supra* note 131. In these areas, people would be free to eat of their own garden or produce, but they could not profit by selling any of the leftovers, which could be wasteful and unnecessarily add to the expense of the operation. See *id.*

151. See Teke Wiggin, *Oregon Couple Faces Tsunami-Size Fine for Pool*, AOL (June 11, 2012, 3:50 PM), <https://www.aol.com/2012/06/11/oregon-couple-faces-tsunami-size-fine-for-pool>.

152. *Id.* (citing WEST LINN CDC § 32.025 (2012)). The municipality later amended this provision.

153. *Id.*

154. *Id.*

155. Ken Jorgustin, *Drinking Swimming Pool Water in an Emergency*, MOD. SURVIVAL BLOG (Jan. 28, 2011), <http://modernsurvivalblog.com/preps/drinking-swimming-pool-water-in-an-emergency>.

discouraging people from storing water to prepare for disasters. And in these residential communities, nothing even comes close to replacing the average in-ground swimming pool potential for water storage of 20,000 gallons of water.¹⁵⁶

Again, Oregon is not alone; several states cede control over their rainwater to local entities. Indiana, for example, gives its municipal boards the power to “install, maintain, and operate a storm water collection and disposal system.”¹⁵⁷ Perhaps this local power over water diversion and control of water collection systems stems from the idea that local governments are typically in charge of the sewage systems.¹⁵⁸ Keeping all the water regulations together makes sense, but this practice could, and often does, create a variety of opportunities for the government to stand in the way of people who would set up their own water collection systems and store that water. Such systems would undoubtedly be invaluable in the event of a natural disaster, but a government cannot reasonably expect its people to prepare to weather a storm when they are unable to practice collecting water under normal conditions before the skies dry up.¹⁵⁹

3. City Ordinances Making Fuel Storage Difficult or Nearly Impossible

Another inevitable issue involved in self-sufficient disaster preparation is fuel storage. Under local laws and ordinances, it can be tricky to figure out how, where, and in what to store home-fuel storage. One common theme though, is that storing fuel above ground is typically easier than trying to store it below ground.¹⁶⁰ But even this is difficult and sometimes the tight regulations make it impossible for laymen and laywomen to store enough fuel to be ready for a natural disaster and its aftermath.

156. *See id.*

157. IND. CODE § 8-1.5-5-6(3) (1987).

158. *See Schwab & Brower, supra* note 121, at 286 (“In most states, storm drainage is provided by counties and municipalities as one of the services required to maintain healthy and safe living conditions.”).

159. In an emergency situation, local authorities will likely not care how you are getting your energy or fuel, so long as people have an emergency store of it to rely on. So people always have an option of buying solar-power systems or water collection systems, as long as they leave them “uninstalled until a crisis is imminent.” Rawles, *supra* note 123. But such a scenario is less than ideal, and it begs the question of whether it is even worth it to invest in something that you only get to use on a rare rainy day.

160. *See Alexander Davies, Diesel Fuel Storage Regulations*, HOWSTUFFWORKS, <http://auto.howstuffworks.com/diesel-fuel-storage-regulation.htm> (last visited Feb. 15, 2018); James Wesley Rawles, *Fuel Storage for Survival Retreats*, by *Flighter*, SURVIVALBLOG.COM (May 7, 2007), http://www.survivalblog.com/2007/05/fuel_storage_for_survival_retr.html.

For example, the Utah State Code gives authority to cities and local communities to regulate fuel storage,¹⁶¹ but there is a statewide maximum limit: people can store up to thirty gallons of gas in properly designated containers, excluding the gas stored in cars' gas tanks.¹⁶² In Kaysville, Utah, the “[m]aximum residential storage of flammable [or combustible] liquids [is] limited to 30 gallons,” of which “no more than 10 gallons can be stored in an attached garage,” meaning that any amount over ten gallons must be stored in detached sheds or garages and not in the home.¹⁶³ Thus, in order to store more than ten gallons of fuel, one needs to build a shed, which adds an aspect of time and expense that many cannot spare.¹⁶⁴ Also, individuals must satisfy quantity limitations that depend on the fuel type.¹⁶⁵ Some quantity limitations are essential to protect homes and neighborhoods from potential house-fire damage, but many regulations seem to go too far, beyond national requirements,¹⁶⁶ which disincentivizes people from storing enough fuel.

Even where local governments conform exactly to the National Fire Protection Association's (“NFPA”) fire codes for home-fuel storage and do not create additional “red tape,” these baseline regulations can still serve as disincentives for fuel-storage preparation initiatives. In Brentwood, Tennessee, city codes limit fuel storage according to the NFPA's fire codes, which state a very low maximum for residential storage of flammable liquids, like gasoline and white gas (twenty-five gallons maximum; with only ten stored in an attached garage).¹⁶⁷ The

161. See, e.g., KAYSVILLE CITY FIRE DEP'T, EMERGENCY HOME FUEL STORAGE LIMITS AND GUIDELINES (2011), <http://www.kaysvillecity.com/DocumentCenter/Home/View/398>. In fact, several state Fuel Storage Acts dictate general rules (primarily regarding safety concerns), and they leave the specifics up to the local authorities and ordinances. E.g., Gasoline Storage Act, 430 ILL. COMP. STAT. 15/2(4)(b) (1919) (“The Office of the State Fire Marshal shall enforce its rules and regulations concerning aboveground storage tanks and associated piping; however, municipalities may enforce any of their zoning ordinances or zoning regulations regarding aboveground tanks.”). But some states take full power over fuel storage permitting and regulations, so this could probably be deemed a state barrier as well as a local barrier, depending on the jurisdiction. E.g., Combustible and Flammable Liquids Act, Pub. L. 58, No. 15 §§ 4–5 (1998) (codified at 35 PA. CONS. STAT. §§ 1244–1245 (1998)).

162. See KAYSVILLE CITY FIRE DEP'T, *supra* note 161; see also *Ready or Not #19: Gas*, A PREPARED HOME.COM, <http://apreparedhome.com/ready-or-not/gas> (last visited Feb. 15, 2018).

163. KAYSVILLE CITY FIRE DEP'T, *supra* note 161.

164. Even if you could afford to build a shed for fuel storage, your local ordinances may not allow the project due to zoning laws or deed restrictions. See Sailor, *supra* note 131.

165. See KAYSVILLE CITY FIRE DEP'T, *supra* note 161.

166. In the context of safety concerns with fuel storage, national requirements provide a reasonable measuring tape for determining whether city ordinances go too far to regulate fuel storage because local governments can reasonably rely on national scientists and experts to determine safety standards.

167. BRENTWOOD, TENN., CODE ORDINANCES §§ 26–67 (1978); *Additional Information on Residential Fuel Storage from the Remnant Fellowship Ministries Team*, REMNANT MINISTRIES

NFPA code also states a low maximum for combustible liquids like diesel and kerosene (sixty gallons maximum; with only ten stored in an attached garage).¹⁶⁸ With only twenty-five gallons, family members would have a difficult time reuniting in the wake of a disaster, and even that would typically only be a one-way trip. There would be no hope for going back to a daily commute to try to keep the economy up-and-running despite the disaster conditions. The solution: bring out those horse-and-buggies from your nineteenth century ancestors.

But the balancing act between avoiding everyday fire risks and storing enough fuel for long-term emergency preparedness presents a fine line and a tricky trade-off. Preparation has no benefit if it comes at a cost of fire hazards. Accordingly, given the national safety regulations and their safety precautions, local governments should do more to incentivize people to meet the national regulations and store as much fuel as safely practicable. For instance, municipalities should do more to offset expenses that necessarily accompany safety concerns set by national standards. Everyone benefits from having sufficient fuel during a shortage, so it is in everyone's best interest to publicly incentivize safe fuel storage and to assuage the burdens individuals storing fuel must bear.

The final examples in Mason City, Iowa, and in South Dakota illustrate practical difficulties of storing your own fuel. Mason City limits gasoline storage to a maximum of ten gallons, unless it is stored in a flammable liquid storage cabinet, in which case the maximum is increased to thirty gallons.¹⁶⁹ As if expenses were not high enough already, one needs a special cabinet to store more than a meager ten gallons. In South Dakota, the rules for home fuel storage have recently changed to require homeowners and farmers who store fuel to "add secondary containment systems to their fuel storage."¹⁷⁰ Safety specialists predicted that these changes and additional regulations would affect many South Dakotans, especially because they create a responsibility shift where home fuel storage owners are responsible for

FELLOWSHIP (Nov. 29, 2012), <http://www.remnantfellowshipministries.com/additional-information-on-residential-fuel-storage>.

168. *Additional Information on Residential Fuel Storage from the Remnant Fellowship Ministries Team*, *supra* note 167.

169. Bob Link, *Law Limits Gasoline Storage*, GLOBE GAZETTE (Jan. 6, 2009), http://globegazette.com/news/local/law-limits-gasoline-storage/article_e0e72c4e-b8c0-5eb8-a98d-27675ecb26f3.html.

170. *Farm and Home Fuel Storage Regulations Soon Will Change*, TRI-STATE LIVESTOCK NEWS (Aug. 9, 2010), <https://www.tsln.com/news/farm-and-home-fuel-storage-regulations-soon-will-change>.

consequences of leaks and spills and cleanup costs.¹⁷¹ This alteration, though federally inspired, only makes it more difficult for South Dakotans, particularly farmers, who wish to prepare themselves for natural disasters or other causes of fuel shortages.¹⁷²

Of course these precautions are important for fire safety; it makes little sense to try to avoid one disaster by creating another, possibly more hazardous, one. But the government should not be overzealous about discouraging self-sufficient preparation in the name of safety. Rather, the government should focus on incentivizing safe fuel storage to alleviate the inconvenience and financial concerns that may necessarily accompany building sufficient fuel storage.

IV. LEGAL INCENTIVES

Despite the legal barriers and disincentives facing Americans wanting to prepare for natural disasters, some incentives exist at various levels of government. This Part offers a few examples of such preparation incentives.¹⁷³ Because this Article's main purpose is to identify flaws in the legal structure, this Part merely points out examples without analysis.

A. Tax Incentives

Saving taxpayers' money is always a good way to incentivize behavior, but surprisingly such incentives to encourage self-sufficient disaster preparation exist more prominently in the local government arena.¹⁷⁴ "Tax abatements can encourage homeowners and developers to integrate mitigation measures into new structures and to retrofit existing properties, much like tax credits and allowances have been used to encourage the construction of energy efficient homes and office buildings."¹⁷⁵ For example, "[t]ax incentives have been applied to storm proofing, flood proofing, wind strengthening, and seismic retrofitting, among other hardening construction techniques."¹⁷⁶

Federal tax incentives may also be able to apply to people who wish to engage in self-sufficient disaster preparation if they are able to fit within the right entity. For instance, section 501(c)(4) of the Internal

171. *Id.*

172. *See id.*

173. *See infra* Part IV.A–D.

174. *See* Schwab & Brower, *supra* note 121, at 293.

175. *Id.*

176. *Id.*

Revenue Code¹⁷⁷ creates a tax exemption for “organizations engaging in activities that benefit the public or a broad sector of the community.”¹⁷⁸ So if people can pass off their local agriculture projects, energy efficient systems, and fuel storage facilities, as generally or, perhaps potentially, benefitting the public or local community, they may be able to receive tax exemptions for running these organizations.

B. Federal Incentives for Clean Energy Projects

While not directly incentivizing disaster preparation, the federal government has incentivized citizens’ attempts to move away from fossil fuel dependency and toward clean energy usage. Such behavior certainly contributes to a self-sufficient preparation process. Former President Obama signed an executive order discussing the importance of eliminating barriers to energy efficiency and incentivizing energy-efficient investments at the federal level, but also at the local and community level:

[I]ndependent studies have pointed to under-investment in industrial energy efficiency and [combined heat and power (“CHP”)] as a result of numerous barriers. The Federal Government has limited but important authorities to overcome these barriers, and our efforts to support investment in industrial energy efficiency and CHP should involve coordinated engagement with a broad set of stakeholders, including States, manufacturers, utilities, and others. By working with all stakeholders to address these barriers, we have an opportunity to save industrial users tens of billions of dollars in energy costs over the next decade.

There is no one-size-fits-all solution for our manufacturers, so it is imperative that we support these investments through a variety of approaches, *including encouraging private sector investment* by setting goals and highlighting the benefits of investment, improving coordination at the Federal level, partnering with and supporting States, and identifying investment models beneficial to the multiple stakeholders involved.¹⁷⁹

Also, relating back to an earlier Part in this Article discussing tax incentives,¹⁸⁰ the federal government is capable of granting citizens tax credits if they try to “go green” and produce self-sustaining energy or store energy, as long as their efforts qualify as a “qualifying advanced

177. I.R.C. § 501(c)(4) (2012).

178. ORSI, *supra* note 17, at 510 (citing JOHN FRANCIS REILLY ET AL., IRC 501(C)(4) ORGANIZATIONS (2003), <http://www.irs.gov/pub/irs-tege/eotopici03.pdf>).

179. Exec. Order No. 13,624 § 1, 3 C.F.R. 299, 300 (2012) (emphasis added).

180. *See supra* Part IV.A.

energy project.”¹⁸¹ Furthermore, the federal government has passed a matching fund for Smart Grid investment costs where the government provides grants of up to one-half the cost of qualifying Smart Grid investments even for individuals other than electric utilities “owning and operating a distributed electricity generator.”¹⁸² Such examples and other examples where the government provides funds to encourage the development of clean, self-sustaining energy development, incentivize clean energy use, a practice that plays a key role in self-sufficient disaster preparation.¹⁸³

However, the energy focus and these incentive systems could be expanded to encourage self-sufficient disaster preparation, not just clean energy usage. For example, the President could issue a statement encouraging personal preparedness, and to back up such a statement, Congress could pass tax incentives and/or cuts pursuant to its commerce power for citizens that have purchased backup electric generators and for citizens who are storing enough energy to share with their communities should the need arise.¹⁸⁴ In fact, China seems to be doing more than the

181. I.R.C. § 48C(c)(1)(A)(i)(I)–(III) (discussing “property designed to be used to produce energy from the sun, wind, geothermal deposits . . . or other renewable resources, [] fuel cells, microturbines, or an energy storage system for use with electric or hybrid-electric motor vehicles, [and] electric grids to support the transmission of intermittent sources of renewable energy, including storage of such energy”). For purposes of calculating tax deductions, “any qualified smart electric grid system” is classified as “10-year property” in the Internal Revenue Code. *Id.* § 168(e)(3)(D)(iv). “In order to be considered a qualifying small power production facility, a facility must meet all of the requirements of 18 C.F.R. §§ 292.203(a), 292.203(c) and 292.204 for size and fuel use, and be certified as a QF pursuant to 18 C.F.R. § 292.207.” *What Is A Qualifying Facility?*, FED. ENERGY REG. COMMISSION, <http://www.ferc.gov/industries/electric/gen-info/qual-fac/what-is.asp> (last updated Nov. 18, 2016); *see* 18 C.F.R. §§ 292.203(a), (c), 292.204 (2017).

182. 42 U.S.C. § 17386(a), (b)(7) (“In the case of persons or entities other than electric utilities owning and operating a distributed electricity generator, the documented expenditures of enabling that generator to be monitored, controlled, or otherwise integrated into grid operations and electricity flows on the grid utilizing Smart Grid functions.”).

183. *See id.* § 6345(d)(1)(A) (“Each Clean Energy Application Center shall . . . operate a program to encourage deployment of clean energy technologies through education and outreach to building and industrial professionals; and other individuals and organizations with an interest in efficient energy use.” (footnote omitted)); *see also id.* § 16157(b)(1)(B)(i) (authorizing the Secretary to “provide grants, on a cost share basis as appropriate, to eligible entities (as determined by the Secretary) for use in . . . designing a local distributed energy system that . . . incorporates renewable hydrogen production, off-grid electricity production, and fleet applications in industrial or commercial service”). An additional perk that the federal government offers for small, independent electric units is possibly less federal regulation. *See id.* § 7412(a)(8), (n)(1)(A) (“The term ‘electric utility steam generating unit’ means any fossil fuel fired combustion unit of more than 25 megawatts that serves a generator that produces electricity for sale. A unit that cogenerates steam and electricity and supplies more than one-third of its potential electric output capacity and more than 25 megawatts electrical output to any utility power distribution system for sale shall be considered an electric utility steam generating unit.”).

184. For more information on how this might be a potential option for Congress, *see* 16 U.S.C. §§ 824–824w (2012).

United States to promote small distributed wind power by “forcing power companies to provide consultancy and acceptance for individuals setting up small wind turbines and help connect them to the grid.”¹⁸⁵ The time is ripe for such promotion to occur in the United States; a Northwest Public Radio study indicated a growing trend for small wind turbines in the United States, which “are mostly single turbines in people’s backyards, on farms, or supplementing power for business.”¹⁸⁶ No matter what actions occur, the federal government should be more cognizant of the importance of disaster preparation, and it should demonstrate its awareness by actively incentivizing self-sufficient, preparatory actions.

C. Municipality Support for Solar Energy Users; Fostering Relationships with Utility Companies

People who install solar panels on their roofs for their own clean energy production currently have the built-in incentive of significantly lower energy bills.¹⁸⁷ But many utility companies in several states believe the solar users are getting too good of a deal; they believe solar power customers who use the grid for backup energy at night on cloudy days should have to pay additional fees.¹⁸⁸ “[U]tilities say solar customers are paying so little that they don’t cover their share of the cost of maintaining the grid, which they still rely on[,] driv[ing] up costs for nonsolar customers”¹⁸⁹ Utility companies certainly have a valid point in their argument that solar customers should do more to pay additional maintenance fees to support the grid as a whole because they are benefitting from the grid without having to pay.¹⁹⁰ But the dilemma is that such additional fees would likely disincentivize people’s shift to

185. Amy Suarez, *Energy from Neighbors, Not Utilities*, OFF-GRID (Aug. 15, 2013), <http://www.off-grid.net/2013/08/15/energy-from-neighbors-not-utilities>.

186. *Id.*

187. See *Solar Power Lowers Your Electricity Bill*, SOLARCITY, <http://www.solarcity.com/residential/lower-electricity-costs.aspx> (last visited Feb. 15, 2018); see also Christopher Martin, *SolarCity Sells Power Storage to Trim Customer Utility Bills (2)*, BLOOMBERG BUSINESSWEEK (Dec. 5, 2013), <http://web.archive.org/web/20140220121040/http://www.businessweek.com:80/news/2013-12-05/solarcity-offers-power-storage-to-lower-customers-utility-bills>.

188. Cassandra Sweet, *Utilities Want Solar Customers to Pay More*, WALL ST. J. (Sept. 22, 2013, 5:17 PM), <https://www.wsj.com/articles/utilities-want-solar-customers-to-pay-more-1379884647>.

189. *Id.*

190. The benefit solar users get from being connected to the electric grid is twofold. First, they can use the energy from the grid on cloudy days when there is not enough solar energy for their needs. *Id.* And second, “[u]nder state rules known as net metering, customers are credited on their bills for any power that flows from their homes to the grid, usually at the same rate they pay when they draw power from the grid.” *Id.*

the more self-sufficient, clean solar energy power option in the first place. This is where local governments should take action.

To fight this emerging disincentive, local governments should begin developing some sort of match system, by pitching in and paying some of the additional fees to use the grid that utility companies are demanding. Although this idea is just in a brainstorming stage and details would have to be worked out for individual communities, a governmental program that lightens the burden of additional fees borne by solar customers would alleviate utility companies' concerns about emerging solar customers and maintain a sufficient economic incentive for installing residential solar panels.

D. Post-Disaster Compensation Patterns

Finally, governments may be able to incentivize preparation for disasters by their organization of post-disaster compensation funds.¹⁹¹ To encourage preparation, the government could institute certain post-disaster “perks” for people who invested in personal or community preparation. For example, local governments could issue the equivalent of post-disaster “food stamps,” to allow people who had sufficient food and water storage to replenish their storage at a discounted rate. Or municipalities could even grant small tokens of gratitude with honorary ceremonies to the most prepared families in the community for living self-sufficiently after the disaster and for serving neighbors and friends with extra food, fuel, or electric energy. Articulating such post-disaster rewards runs into the same chaotic problems as all post-disaster events. The priority after the disaster is naturally just to help everyone by tending to immediate life-threatening needs, without regard for how to reward those who successfully weathered the storm. Thus, it is perhaps the long-term recovery that could be the means of incentivizing pre-disaster preparation efforts.

V. CONCLUSION

Disaster preparation is an important part of survival and recovery in the aftermath of natural disasters. With the increasing severity and frequency of natural disasters ravaging the nation, governments at all levels in the United States—federal, state, and local—should strive to alleviate real and perceived legal barriers and disincentives to preparation. In addition to removing disincentives, these governments

191. For more in-depth discussions of post-disaster compensation sources, see FARBER ET AL., *supra* note 26, at 331-90.

should focus on creating incentives to self-sufficient preparation. Such efforts would allow and encourage individuals to adequately prepare themselves and their families for natural disasters, which would lead to better-prepared communities and faster, more successful disaster recoveries.