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Louis Masi

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THE NATIONAL FLOOD INSURANCE PROGRAM:
WHY GOVERNMENT-BACKED FLOOD INSURANCE
IS DROWNING IN DEBT

I. AN INTRODUCTION TO THE NATIONAL FLOOD INSURANCE
PROGRAM

Joey's Pizza & Pasta was a long-time popular restaurant located on Long Beach Island, New Jersey.¹ Aside from its food, the restaurant was well known for another thing — flooding.² Flooding became so prevalent that the restaurant's owner, Joe Rulli, added a message to the sign outside that read "Occasional Waterfront Dining."³ Rulli credits the National Flood Insurance Program (NFIP) for keeping him in business for nearly thirty years.⁴ Rulli filed several insurance claims over the years and worked tirelessly to mitigate the flood damage.⁵ The increasing occurrences of floods in his location, however, led him to sell his property to Long Beach Township.⁶ Rulli's story, regrettably, is becoming increasingly more common.⁷

This Comment provides an in-depth review of the NFIP.⁸ Part II outlines the NFIP's evolution and the effects of climate change

1. See Gilbert M. Gaul, *How Rising Seas and Coastal Storms Drowned the U.S. Flood Insurance Program*, YALE ENV'T 360 (May 23, 2017), <https://e360.yale.edu/features/how-rising-seas-and-coastal-storms-drowned-us-flood-insurance-program> (discussing popular restaurant on Long Beach Island).

2. See *id.* (noting commonality of floods at restaurant).

3. See *id.* (describing restaurant sign).

4. See *id.* (attributing National Flood Insurance Program (NFIP) for keeping Rulli in business).

5. See *id.* (listing various measures taken to flood-proof Rulli's restaurant).

6. See Gaul, *supra* note 1 (noting increased frequency of floods); see also Pat Sharkey, *Joey's Pizza and Pasta in Beach Haven Crest Sold to Long Beach Township in Effort to Combat Flooding*, TAPINTO STAFFORD/LBI (Apr. 21, 2019, 10:13 PM), <https://www.tapinto.net/towns/stafford-slash-lbi/sections/food-and-drink/articles/joey-s-pizza-and-pasta-in-beach-haven-crest-sold-to-long-beach-township-in-effort-to-combat-flooding> (discussing sale of Rulli's restaurant).

7. See Brad Plumer, *Rising Seas Could Menace Millions Beyond Shorelines, Study Finds*, N.Y. TIMES (July 30, 2020), <https://www.nytimes.com/2020/07/30/climate/sea-level-inland-floods.html> (reporting increasing threat of flooding); see also *Risky Business: The Economic Risks of Climate Change in the United States*, RISKY BUS. PROJECT 3 (June 2014) [hereinafter *Risky Business*], https://riskybusiness.org/site/assets/uploads/2015/09/RiskyBusiness_Report_WEB_09_08_14.pdf (observing potential future losses due to flood damage).

8. For a further discussion of the NFIP as it exists today, see *infra* notes 87-162 and accompanying text.

on the program.⁹ Part II also provides an overview of the insurance market.¹⁰ Part III analyzes the NFIP's current framework.¹¹ Part IV then examines issues plaguing the NFIP and explores possible solutions.¹² Lastly, Part V discusses how implementing or ignoring such solutions might impact the NFIP and market participants.¹³

II. A BRIEF HISTORY OF THE NFIP

In July 2020, the National Oceanic and Atmospheric Administration (NOAA) reported that fifty-seven of sixty-two cities on the East and Gulf Coasts set records for rising relative sea levels.¹⁴ NOAA forecasts that the rate of high-tide flooding may triple by 2030 and possibly increase by fifteen fold by 2050.¹⁵ This dramatic increase in flooding does not come without its costs.¹⁶ As of January 5, 2021, the NFIP is over twenty billion dollars in debt.¹⁷ This debt is primarily due to an increase in the frequency of powerful tropical storms, rising sea levels, and faulty policies and programs.¹⁸

9. For a further discussion of climate change and its effect on the NFIP, see *infra* notes 14-71 and accompanying text.

10. For a further discussion of the flood insurance market, see *infra* notes 72-86 and accompanying text.

11. For a further discussion of the NFIP's current framework, see *infra* notes 87-162 and accompanying text.

12. For a further discussion of problems the NFIP faces and potential solutions, see *infra* notes 163-200 and accompanying text.

13. For a further discussion of the importance of the NFIP moving forward, see *infra* notes 201-13 and accompanying text.

14. William Sweet et al., *2019 State of U.S. High Tide Flooding with a 2020 Outlook*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. 4 (July 2020), https://tidesandcurrents.noaa.gov/publications/Techrpt_092_2019_State_of_US_High_Tide_Flooding_with_a_2020_Outlook_30June2020.pdf (documenting prevalence of coastal flooding); see also Christopher Flavelle, *New Data Shows an "Extraordinary" Rise in U.S. Coastal Flooding*, N.Y. TIMES (July 14, 2020), <https://www.nytimes.com/2020/07/14/climate/coastal-flooding-noaa.html> (observing dramatic increase in U.S. coastal and high-tide flooding).

15. See Flavelle, *supra* note 14 (reporting projected increase in high-tide flooding). NOAA defines high-tide flooding as water rising at least twenty-one inches above the average high-tide level. See *U.S. High-Tide Flooding Continues to Increase*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (July 14, 2020), <https://www.noaa.gov/media-release/us-high-tide-flooding-continues-to-increase> (defining high-tide flooding).

16. See Mary Williams Walsh, *A Broke, and Broken, Flood Insurance Program*, N.Y. TIMES (Nov. 4, 2017), <https://www.nytimes.com/2017/11/04/business/a-broke-and-broken-flood-insurance-program.html> (describing costs of NFIP).

17. See DIANE P. HORN & BAIRD WEBEL, CONG. RSCH. SERV., R44593, INTRODUCTION TO THE NATIONAL FLOOD INSURANCE PROGRAM (NFIP) 26 (Dec. 9, 2021) [hereinafter INTRODUCTION], <https://sgp.fas.org/crs/homsec/R44593.pdf> (calculating current NFIP debt).

18. See Walsh, *supra* note 16 (discussing debt problems of NFIP).

The NFIP's indebtedness is due to a combination of natural disasters and a lack of private flood insurers.¹⁹ For example, the Great Mississippi Flood of 1927 caused nearly all private insurers to leave the flood insurance market, requiring the government to fill the void through the National Flood Insurance Act of 1968 (NFIA).²⁰ As natural disaster after natural disaster mounted over the past two decades, the NFIP has remained the sole insurer in a seemingly never-ending debt crisis.²¹

A. The Beginnings of the NFIP

To better understand the NFIP's dire situation, it is best to start from its inception.²² In April 1927, heavy rains caused the Mississippi River to overflow at unprecedented levels.²³ The levee system built along the river systematically collapsed over a few weeks, causing flooding in surrounding residential areas to reach up to thirty feet of water.²⁴ This event, known as the Great Mississippi Flood of 1927, is "one of the worst natural disasters in the history of the United States."²⁵ The flood caused more than twenty-three thousand square miles of flooding and displaced an estimated 750 thousand people from their homes.²⁶ As a result, most private insurance companies stopped providing flood-loss coverage, deeming it too risky.²⁷ Between 1929 and 1968, the United States flood insurance market was practically non-existent.²⁸ Instead, Congress passed sev-

19. See Logan Strother, *The National Flood Insurance Program: A Case Study in Policy Failure, Reform, and Retrenchment*, 46 POL'Y STUD. J. 452, 459-60 (2018) (examining insurance market, NFIP policies, and natural disasters as contributing factors to NFIP debt).

20. *Id.* (stating private insurers left market after 1927); see also Walsh, *supra* note 16 (determining Great Mississippi Flood of 1927 caused private insurers to drop flood insurance coverage).

21. See INTRODUCTION, *supra* note 17, at 27 (noting impossibility of NFIP, in its current form, to pay off its debt fully in ten years).

22. See Strother, *supra* note 19, at 452 (discussing historical failure of NFIP).

23. See *Mississippi River Flood of 1927*, BRITANNICA, <https://www.britannica.com/event/Mississippi-River-flood-of-1927> (last visited Jan. 15, 2021) (noting cause of Mississippi River flood).

24. *Id.* (describing levee system's collapse).

25. *Id.* (contextualizing natural disaster).

26. *Id.* (detailing extent of flood damage).

27. See Strother, *supra* note 19, at 459 (explaining why private insurers abandoned flood-insurance market).

28. See *A Chronology of Major Events Affecting the National Flood Insurance Program*, FED. EMERGENCY MGMT. AGENCY 2-13 (Oct. 2020), https://www.dhs.gov/xlibrary/assets/privacy/privacy_pia_mip_apnd_h.pdf (observing void in United States flood insurance coverage).

eral bills and took other measures to help pay for flood disaster relief when necessary.²⁹

In September of 1965, Hurricane Betsy made landfall in the southeastern region of the United States.³⁰ It tore through parts of Florida and Louisiana, causing over one billion dollars in damage.³¹ Aside from the financial loss, Hurricane Betsy claimed the lives of seventy-six people.³² The damage left in Hurricane Betsy's wake spurred calls for the government to fix this "market failure" and create a flood insurance program.³³ In response, Congress passed the NFIA, which created the NFIP.³⁴

Congress cited "an increasing burden on the Nation's resources" resulting from flood disasters as the primary motivation to create the NFIP.³⁵ The legislation's purpose centered around two main policy objectives.³⁶ Congress's first goal focused on providing expansive access to flood insurance.³⁷ This helps minimize the financial risk of property owners in flood-prone areas.³⁸ Moreover, by charging insurance premiums in exchange for coverage, the government shifts the economic burden of paying for disaster relief to the property owners who are most likely to experience flood-related disasters and require federal aid.³⁹ Congress's second goal aimed at reducing the country's overall flood risk.⁴⁰ This goal is achieved by conditioning the availability of flood insurance to a community's

29. *See id.* (listing actions Congress took in aftermath of Great Mississippi Flood of 1927). Congress enacted bills that, among other things, provided direct payments, loans, and investment for flood-prone areas. *See id.* (detailing effects of congressional legislation).

30. Kelby Ouchley, *Hurricane Betsy*, 64 PARS., <https://64parishes.org/entry/hurricane-betsy> (Feb. 9, 2021) (noting date of landfall).

31. *Id.* (quantifying damage caused by Hurricane Betsy).

32. *Id.* (stating Hurricane Betsy's casualties).

33. Strother, *supra* note 19, at 459 (analyzing history of NFIP); *see also* Bethan Moorcraft, *The National Flood Insurance Program — Everything You Need to Know*, INS. BUS. (Mar. 15, 2019), <https://www.insurancebusinessmag.com/us/guides/the-national-flood-insurance-program—everything-you-need-to-know-162323.aspx> (discussing Hurricane Betsy's impact on NFIP creation).

34. *See* National Flood Insurance Act of 1968, 42 U.S.C. §§ 4001-129 (outlining NFIP).

35. 42 U.S.C. § 4001(a) (delineating need of widely available flood insurance).

36. *Id.* (listing reasons for enacting NFIP).

37. *Id.* (codifying overarching goal of NFIP).

38. *See Flood Insurance*, FED. EMERGENCY MGMT. AGENCY, <https://www.fema.gov/flood-insurance> (May 26, 2021) (observing advantages of flood insurance).

39. *See* Walsh, *supra* note 16 (noting benefits of government-backed insurance program over disaster relief bailouts).

40. *See* 42 U.S.C. § 4001(a) (explaining purpose of NFIP).

adoption of floodplain management standards.⁴¹ The standards' purpose was to curb development in flood-prone areas while also mitigating the effects of flood damage and otherwise improving land management in flood-prone areas.⁴²

Before 2005, the NFIP was generally solvent.⁴³ The 2005 hurricane season, however, required the program to pay over sixteen billion dollars in claims.⁴⁴ Disaster struck again during the 2017 hurricane season when Hurricanes Harvey, Irma, and Maria made landfall in the United States.⁴⁵ Hurricane Harvey, specifically, caused massive flood damage in the greater Houston area.⁴⁶ Despite Congress cancelling sixteen billion dollars of debt in October of 2017, the NFIP borrowed twelve billion dollars to cover insurance obligations stemming from the 2017 hurricane season.⁴⁷ The NFIP's debt will seemingly continue to accumulate due to the increase in sea levels across the globe and the frequency and strength of tropical cyclones.⁴⁸

B. The Effect of Climate Change on the NFIP

Hurricanes and tropical storms that made landfall in the United States over the past two decades are responsible for an overwhelming percentage of the NFIP's current debt.⁴⁹ This issue is

41. See 42 U.S.C. § 4012(c) (listing conditions of flood insurance availability).

42. See *id.* (delineating minimum standards required to provide NFIP insurance).

43. INTRODUCTION, *supra* note 17 (reviewing NFIP's finances).

44. See Walsh, *supra* note 16 (calculating cost of 2005 hurricane season). Hurricane Katrina alone caused roughly 161 billion dollars of damage. See Kathryn Reid, *2005 Hurricane Katrina: Facts, FAQs, and How to Help*, WORLD VISION, <https://www.worldvision.org/disaster-relief-news-stories/2005-hurricane-katrina-facts#damage> (Nov. 25, 2019) (aggregating Hurricane Katrina's damage across Gulf Coast).

45. *2017 Atlantic Hurricane Season Fast Facts*, CNN, <https://www.cnn.com/2017/05/15/us/2017-atlantic-hurricane-season-fast-facts/index.html> (June 2, 2020) (listing storms that formed during 2017 hurricane season).

46. See Walsh, *supra* note 16 (noting Hurricane Harvey's impact on Houston); see also Heather Long, *Where Harvey is Hitting Hardest, 80 Percent Lack Flood Insurance*, WASH. POST (Aug. 29, 2017), <https://www.washingtonpost.com/news/wonk/wp/2017/08/29/where-harvey-is-hitting-hardest-four-out-of-five-homeowners-lack-flood-insurance/> (discussing fallout of Hurricane Harvey).

47. See INTRODUCTION, *supra* note 17 (examining NFIP financing activities during 2017 hurricane season).

48. See *Global Warming and Hurricanes*, GEOPHYSICAL FLUID DYNAMICS LAB'Y [hereinafter *Global Warming*], <https://www.gfdl.noaa.gov/global-warming-and-hurricanes/> (Sept. 23, 2020) (analyzing impact of global warming on frequency of hurricanes and tropical storms).

49. See INTRODUCTION, *supra* note 17 (acknowledging NFIP's debt problems began shortly after Hurricane Katrina in 2005).

likely to worsen in the coming years, as scientists project that tropical cyclone strength and rainfall rates will increase.⁵⁰

Hurricanes are one of the most destructive forces on earth.⁵¹ A hurricane requires two things to form: (1) a weather disturbance and (2) warm seawater.⁵² Research has shown a statistically significant trend that hurricanes today are more likely to strengthen into category three storms or higher when compared to hurricanes in the 1970s.⁵³ These findings support the scientific consensus that rising sea temperatures affect the frequency of powerful hurricanes.⁵⁴

Studies have also shown a correlation between an increase in greenhouse gas emissions and rising sea surface temperatures.⁵⁵ An increase in greenhouse gas emissions traps heat in the Earth's atmosphere and transfers it back to the ocean.⁵⁶ As a result, over the past three decades, average sea surface temperatures have been higher than at any other point since 1880.⁵⁷ Greenhouse gas emis-

50. See *Global Warming*, *supra* note 48 (finding tropical cyclone strength and rainfall rates likely to increase in future).

51. See Steve Graham & Holli Riebeek, *Hurricanes: The Greatest Storms on Earth*, NAT'L AERONAUTICS SPACE ADMIN. (Nov. 1, 2006), <https://earthobservatory.nasa.gov/features/Hurricanes> (discussing hurricane strength). Indeed, "a hurricane can expend as much energy as 10,000 nuclear bombs[.]" *Id.* (quantifying destructive power of hurricanes).

52. *How Does the Ocean Affect Hurricanes?*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., <https://oceanexplorer.noaa.gov/facts/hurricanes.html> (last visited Jan. 23, 2021) (describing formation of hurricanes).

53. Henry Fountain, *Climate Change is Making Hurricanes Stronger, Researchers Find*, N.Y. TIMES, <https://www.nytimes.com/2020/05/18/climate/climate-changes-hurricane-intensity.html> (Oct. 7, 2020) (analyzing data of strengthening storms); see also Katharina Buchholz, *Unpredictable Danger: Hurricane Seasons Since 1967*, STATISTA (May 21, 2021), <https://www.statista.com/chart/11009/hurricanes-over-the-atlantic-basin/> (finding stronger storms are more frequent today than fifty years ago). A category three hurricane is a hurricane with winds between 111 and 129 miles per hour. *Saffir-Simpson Hurricane Wind Scale*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., <https://www.nhc.noaa.gov/aboutsshws.php> (last visited Jan. 23, 2021) (categorizing hurricanes by sustained wind speed).

54. See *Global Warming*, *supra* note 48 (finding statistical relationship between rising sea surface temperature and hurricane strength).

55. See *id.* (linking greenhouse gas emissions to increase in sea surface temperatures).

56. LuAnn Dahlman & Rebecca Lindsey, *Climate Change: Ocean Heat Content*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Aug. 17, 2020), <https://www.climate.gov/news-features/understanding-climate/climate-change-ocean-heat-content> (describing process of warming oceans across globe).

57. *Climate Change Indicators: Sea Surface Temperature*, U.S. ENV'T PROT. AGENCY (July 18, 2021), <https://www.epa.gov/climate-indicators/climate-change-indicators-sea-surface-temperature> (noting increase in global sea surface temperature).

sions continue to rise, leading to warmer oceans and the likelihood of more powerful hurricanes.⁵⁸

Global warming and the increase in sea surface temperatures further impact the NFIP's solvency issues by causing sea levels to rise across the globe.⁵⁹ As sea surface temperatures increase, glaciers and ice sheets worldwide melt.⁶⁰ Ten percent of the earth's land is glacial ice, yet this percentage accounts for roughly sixty-nine percent of the world's freshwater.⁶¹ If all glacial ice melted, the world's sea level would rise about 230 feet.⁶² Indeed, between 2006 and 2015, sea levels rose by 0.14 inches per year, which was more than double the average rate throughout the twentieth century.⁶³

Additionally, the volume of the ocean expands as sea level temperatures increase.⁶⁴ This phenomenon is known as thermal expansion.⁶⁵ Scientists have determined that thermal expansion accounts for about one-third of the increase in global sea levels.⁶⁶

The recent trend in sea level rise shows no signs of stopping.⁶⁷ A 2017 study concluded that the most conservative greenhouse gas emission projections would cause sea levels to rise by at least twelve

58. See Rebecca Hersher, *Greenhouse Gas Emissions are Still Rising*, U.N. Report Says, NAT'L PUB. RADIO (Nov. 26, 2019, 4:00 AM), <https://www.npr.org/2019/11/26/782586224/greenhouse-gas-emissions-are-still-rising-u-n-report-says> (reporting continued increase in greenhouse gas emissions); see also *Global Warming*, *supra* note 48 (linking warming oceans with frequency of stronger hurricanes).

59. See Rebecca Lindsey, *Climate Change: Global Sea Level*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Jan. 25, 2021), <https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level> (analyzing rise in global sea levels).

60. *Id.* (discussing increased rate of glacier and ice sheet melting).

61. *All About Glaciers*, NAT'L SNOW & ICE DATA CTR., <https://nsidc.org/cryosphere/glaciers/quickfacts.html> (Mar. 16, 2020) (observing quantity of fresh water stored in glaciers).

62. *Id.* (quantifying future rise in sea level).

63. Lindsey, *supra* note 59 (examining rate of sea level increase).

64. *Id.* (analyzing cause of rapid sea level rise).

65. See *Understanding Sea Level*, NAT'L AERONAUTICS & SPACE ADMIN., <https://sealevel.nasa.gov/understanding-sea-level/global-sea-level/thermal-expansion> (last visited Feb. 8, 2021) (identifying cause of rising sea levels). Thermal expansion is the "fractional change in size of a material in response to a change in temperature." Glenn Elert, *Thermal Expansion*, PHYSICS HYPERTEXTBOOK, <https://physics.info/expansion/summary.shtml> (last visited Feb. 8, 2021) (defining thermal expansion).

66. *Understanding Sea Level*, *supra* note 65 (determining increase in sea level attributable to thermal expansion); see also Lindsey, *supra* note 59 (outlining factors contributing to rise in global sea levels).

67. See Lindsey, *supra* note 59 (discussing future projections of rising sea levels).

inches above 2000 levels by 2100.⁶⁸ Conversely, with high levels of greenhouse gas emissions, sea levels could rise to over eight feet above 2000 levels by 2100.⁶⁹ Other studies have determined that if melting glaciers and sea surface temperatures continue on their current trajectory, between sixty-six and 106 billion dollars of coastal real estate will be underwater by 2050.⁷⁰ Rising sea levels increase coastal flooding risk, which increases the amount of potential claims the NFIP must pay out.⁷¹

C. An Overview of the Flood Insurance Market

Purchasing insurance is a form of risk management to protect oneself from unforeseen loss.⁷² Insurance companies stake their profitability on identifying, pooling, and redistributing risk across their customers.⁷³ Generally, insurance companies make money in two ways: insurance premiums and the investments made using those premiums.⁷⁴ Although insurance revenue models differ across various sectors, the most important function of any insurance company is to adequately price risk and the premiums it charges for assuming that risk.⁷⁵ To generate income, insurance companies must price coverage to entice lower-risk customers to purchase insurance, which helps pay for claims from higher-risk customers.⁷⁶

Flood insurance, however, presents the antithesis of a healthy insurance market.⁷⁷ Customers face a high risk of flooding when

68. *Id.* (observing best case scenario for rising sea levels).

69. *Id.* (noting worst case scenario for rising sea levels).

70. *See Risky Business*, *supra* note 7, at 4 (analyzing impact of rising sea level).

71. *See* Agustín Indaco, Francesc Ortega & Suleyman Taspınar, *Flood Insurance in a World with Rising Seas*, ECONOFACT (Oct. 15, 2018), <https://econofact.org/flood-insurance-in-a-world-with-rising-seas> (observing NFIP's increasing economic burden).

72. *See* Julia Kagan, *Insurance*, INVESTOPEDIA, <https://www.investopedia.com/terms/i/insurance.asp> (Mar. 30, 2021) (identifying purpose of insurance protection).

73. Sean Ross, *What Is the Main Business Model for Insurance Companies?*, INVESTOPEDIA, <https://www.investopedia.com/ask/answers/052015/what-main-business-model-insurance-companies.asp> (June 25, 2019) (discussing insurance companies' business model).

74. *Id.* (identifying insurance companies' main revenue streams). Premiums are "the consideration paid for a contract of insurance." *Premium*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/premium> (last visited Jan. 22, 2021) (defining premiums).

75. *See* Ross, *supra* note 73 (establishing insurance companies' most important tasks).

76. *See id.* (explaining insurance company business model).

77. *See* Logan Strother, *National Flood Insurance Will Help Clean Up After Irma and Harvey. And That's a Problem.*, WASH. POST (Sept. 11, 2017, 1:06 PM), <https://www.washingtonpost.com/news/monkey-cage/wp/2017/09/11/national-flood-in>

purchasing coastal properties or homes built on floodplains.⁷⁸ As a result, fewer lower-risk customers are willing to buy insurance coverage, potentially exposing private insurance companies to extensive losses.⁷⁹ This void in demand is one of the primary reasons why Congress stepped in to create the NFIP, which provides affordable flood insurance coverage to property owners who would otherwise have no other recourse.⁸⁰

Despite flaws with flood insurance, “[F]ederal policies, new technology[,]” and large increases in funding have prompted private insurers to recently re-enter the market.⁸¹ In 2019, Congress authorized regulated lending institutions to accept certain private flood insurance policies in lieu of an NFIP plan.⁸² Congress’s new regulation permitted property owners to choose a private insurance plan if their property was in an area where the NFIP mandates flood insurance coverage.⁸³ Furthermore, new surveying technology and flood risk models improved private insurers’ ability to predict floods, enabling them to better assess risk.⁸⁴ Institutional investors provided large amounts of capital, which further facilitated the return of private insurers to the flood insurance market.⁸⁵ These factors have allowed private insurance to grow to roughly five

insurance-will-help-clean-up-after-irma-and-harvey-and-thats-a-problem/ (describing difficulties faced by private insurers in flood insurance market).

78. *See id.* (discussing geographic flood risk).

79. *See id.* (highlighting speculative nature of offering flood insurance).

80. *See* 42 U.S.C. § 4001(a) (classifying consumer protection as one reason for enacting NFIP).

81. Thomas Frank, *The Private Sector is Returning to the Flood Insurance Game*, SCI. AM. (Mar. 18, 2019), <https://www.scientificamerican.com/article/the-private-sector-is-returning-to-the-flood-insurance-game/> (observing reasons for private sector’s return to flood insurance market).

82. 42 U.S.C. § 4012a(b)(1)(B) (authorizing applicable private flood insurance policies in lieu of NFIP coverage). For a private insurance plan to qualify, the plan must at least cover “the outstanding principal of the loan or the maximum limit of coverage” under the NFIP, whichever is less. *Id.* § 4012a(b)(1)(A) (identifying requirements of applicable private flood insurance plans). For a further discussion of when the NFIP mandates that property owners purchase flood insurance, see *infra* notes 100-06 and accompanying text.

83. *See* INTRODUCTION, *supra* note 17, at 9-10 (observing increase in consumer choice); *see also* Frank, *supra* note 81 (examining privatization of flood insurance).

84. *See* Pat Howard, *Private Flood Insurance vs NFIP*, POLICYGENIUS (July 16, 2019), <https://www.policygenius.com/homeowners-insurance/private-flood-insurance-vs-nfip/> (assessing technological advancements in flood insurance market); *see also* Frank, *supra* note 81 (noting progress of risk-modeling companies).

85. *See* Frank, *supra* note 81 (analyzing role of increased investment in private insurance companies).

percent of the flood insurance market, with continued growth likely.⁸⁶

III. THE NFIP IN ACTION: THE CURRENT FRAMEWORK OF PUBLIC FLOOD INSURANCE IN THE UNITED STATES

Congress authorized the Federal Emergency Management Agency (FEMA) to regulate and administer the NFIP.⁸⁷ As of September 30, 2020, the NFIP owed over twenty billion dollars to the United States Treasury.⁸⁸ The NFIP has over five million active policies, representing roughly \$1.3 trillion in flood insurance coverage.⁸⁹ The average annual premium charged is \$730, which translates to revenues of roughly \$3.4 billion per year.⁹⁰

A. Availability of NFIP Coverage

To purchase flood insurance under the NFIP, the property must be located in a participating community's jurisdiction.⁹¹ A community is "a [s]tate or political subdivision" with jurisdiction over zoning and building codes in particular areas.⁹² Congress does not require communities to participate in the NFIP.⁹³ A community participating in the NFIP, however, must adhere to a set of minimum standards.⁹⁴ The NFIP intended these legally imposed standards to reduce new land development, mitigate flood damage, and improve current land management in flood-prone areas.⁹⁵ These objectives are consistent with the NFIP's goal of reducing the overall risk that flood damage poses to property owners.⁹⁶

86. *Id.* (evaluating growth of private insurance); *see also* Howard, *supra* note 84 (discussing growth of private insurance in flood insurance market).

87. 42 U.S.C. § 4011(a) (noting FEMA's authority to regulate NFIP).

88. FED. EMERGENCY MGMT. AGENCY, THE WATERMARK — NATIONAL FLOOD INSURANCE PROGRAM FINANCIAL STATEMENTS (2020) [hereinafter THE WATERMARK], https://www.fema.gov/sites/default/files/2020-07/fema_nfip_eval_chronology.pdf (recording debt owed to United States Treasury).

89. *See id.* (highlighting extent of NFIP coverage).

90. *See id.* (analyzing NFIP financial statements).

91. *See* INTRODUCTION, *supra* note 17, at 8 (delineating requirements to purchase national flood insurance).

92. 42 U.S.C. § 4003(a)(1) (defining communities).

93. INTRODUCTION, *supra* note 17, at 2 (observing choice that communities have).

94. 42 U.S.C. § 4012(c) (requiring communities to follow standards to participate in NFIP).

95. *Id.* (listing minimum standards).

96. *See id.* § 4001(a) (identifying preventative and protective measures as goal of NFIP).

State and local governments enforce minimum floodplain management standards.⁹⁷ The standards often translate into regulations, such as requiring development permits for flood-prone areas, mandating buildings in flood-prone areas to raise their lowest floor to safe levels, and necessitating specific construction materials and methods to mitigate flood risk.⁹⁸ Communities should consider these standards as a baseline because they may adopt more stringent measures to reduce flood risk.⁹⁹

Despite communities having discretion to participate in the NFIP, Congress requires certain property owners to purchase NFIP flood insurance.¹⁰⁰ Under the NFIP, any property owner who is located in a special flood hazard area (SFHA) and seeks to acquire, increase, extend, or renew a mortgage backed by a federally regulated lending institution must purchase flood insurance as a precondition to the loan.¹⁰¹ A SFHA is subject to a one percent or greater risk of flooding every year.¹⁰² The purpose of the mandatory mortgage purchase requirement is to “increase compliance with flood insurance requirements and participation in the NFIP.”¹⁰³ Moreover, the requirement helps alleviate the financial burden on the government by ensuring property owners, who assume the risk of flood damage, pay their share of insurance coverage.¹⁰⁴ In 2012, Congress amended the mandatory mortgage purchase requirement to allow qualifying private flood insurance to satisfy the statutory requirement.¹⁰⁵ Although this amendment un-

97. INTRODUCTION, *supra* note 17, at 6-7 (noting communities’ role in enforcing NFIP minimum standards).

98. *Id.* (providing examples of regulation meeting NFIP minimum floodplain management standards).

99. *See id.* at 7 (acknowledging communities’ right to impose stricter preventive measures).

100. *Id.* at 9 (determining when property owners are required to purchase flood insurance).

101. *See* 42 U.S.C. § 4012a(a) (delineating mandatory mortgage purchase requirement); *see also* *Lending – Flood Disaster Protection*, FED. DEPOSIT INS. CORP. 6.1, 6.2 (Sept. 2019) [hereinafter *Lending*], <https://www.fdic.gov/regulations/compliance/manual/5/V-6.1.pdf> (outlining mandatory mortgage purchase requirement).

102. *See* INTRODUCTION, *supra* note 17, at 3 (defining SFHA). A SFHA is also known as a “base flood or 100-year floodplain.” *Flood Zones*, FED. EMERGENCY MGMT. AGENCY, <https://www.fema.gov/glossary/flood-zones> (July 8, 2020) (explaining SFHAs).

103. *Lending*, *supra* note 101, at 6.1 (discussing rationale of requiring property owners to purchase flood insurance).

104. *See id.* (analyzing benefits of mandatory mortgage purchase requirement).

105. *See* 42 U.S.C. § 4012a(b)(1)(B) (codifying property owners’ ability to meet statutory requirement with private flood insurance); *see also* *Lending*, *supra*

dercuts the goal of increasing consumer participation in the NFIP, it provides consumers with the ability to shop for a flood insurance policy that is more suited to their needs.¹⁰⁶

B. Reducing Flood Risk

An overarching policy goal of the NFIP is to lower the overall risk that flood damage will occur.¹⁰⁷ One way the NFIP attempts to achieve this goal is by conditioning participation in the program on the adoption of minimum standards of floodplain management.¹⁰⁸ Another way the NFIP attempts to accomplish this goal is by developing Flood Insurance Rate Maps (FIRMs) and enacting flood-prevention policies based on those maps.¹⁰⁹ FIRMs are “official community maps” that identify SFHAs, assess flood risk, and establish risk premium zones.¹¹⁰ As such, FIRMs represent an important resource for both FEMA and property owners.¹¹¹

The NFIP charges FEMA with “identify[ing] and publish[ing] information” related to flood-risk locations in the United States.¹¹² The NFIP requires FEMA to update its flood risk information and estimate the potential flood-related loss in identified at-risk zones.¹¹³ FEMA fulfills this duty by publishing FIRMs.¹¹⁴ FEMA uses the data collected in FIRMS to assess flood risk and price premiums, as well as to determine which property owners must purchase NFIP flood insurance.¹¹⁵ Property owners utilize FIRMs

note 101, at 6.1 (discussing availability of certain private flood insurance policies to satisfy statutory requirements).

106. See Howard, *supra* note 84 (explaining benefits tied to variety of flood-insurance policies available for consumers).

107. See 42 U.S.C. § 4001(a) (outlining purpose of NFIP). For a further discussion of the purpose of the NFIP, see *supra* notes 35-42 and accompanying text.

108. See 42 U.S.C. § 4012(c) (requiring adoption of minimum floodplain management standards as precondition to NFIP flood insurance availability).

109. See INTRODUCTION, *supra* note 17, at 3 (highlighting NFIP measures to accomplish policy goals).

110. See *id.* (identifying function of FIRMs); see also *Flood Map Products*, FED. EMERGENCY MGMT. AGENCY, <https://www.fema.gov/flood-maps/products-tools/products> (Nov. 16, 2020) (discussing FIRMs and other FEMA reports).

111. See Howard Kunreuther & Marilyn Montgomery, *The Importance of Accurate Flood Hazard Maps and Risk-Based Premiums*, WHARTON UNIV. OF PA. (Mar. 28, 2018), <https://riskcenter.wharton.upenn.edu/lab-notes/importance-accurate-flood-hazard-maps-risk-based-premiums/> (discussing critical role of accurate FIRMs).

112. 42 U.S.C. § 4101(a)(1) (highlighting specific responsibilities to minimize flood risk).

113. *Id.* § 4101(a)(2) (providing additional responsibilities for FEMA).

114. See INTRODUCTION, *supra* note 17, at 3 (explaining purpose of FIRMs).

115. See *id.* (observing FEMA’s use of FIRMs).

to inform property purchasing decisions and evaluate their own level of flood risk.¹¹⁶

The NFIP requires FEMA to assess the need to update FIRMs at least once every five years.¹¹⁷ Furthermore, FEMA updates its FIRMs if it deems an update necessary after review or upon request from a participating community.¹¹⁸ A participating community must have sufficient supporting data and the necessary funding for FEMA to update its FIRMs upon request.¹¹⁹ Therefore, while the NFIP instructs FEMA to assess the need to update its flood maps, it is not obligated to unless a state or local government makes a valid request.¹²⁰

As a result, FIRMs across the country “vary considerably in age and in quality.”¹²¹ FEMA tracks the need to update its maps with its Coordinated Needs Management Strategy.¹²² This process analyzes the flood hazard lifecycle and prioritizes which FIRMs need updating.¹²³ FIRMs may become out of date when changes to the “topography, hydrology, [or] land development” occur in any given area.¹²⁴ Congress established the Technical Mapping Advisory Council (Council) to advise FEMA on how to best produce FIRMs.¹²⁵ The Council estimates that FEMA takes an average of three to five years to create new FIRMs, which is much higher than the Council’s recommended timeline of twenty-five months.¹²⁶

State and local governments use the most up-to-date FIRMs available to enact policies that meet the NFIP’s minimum floodplain management standards.¹²⁷ Communities enforce the policies

116. *See id.* (noting consumer benefits of using FIRMs).

117. 42 U.S.C. § 4101(e) (outlining FEMA deadlines to review FIRMs).

118. *See id.* § 4101(f) (delineating when FEMA must update FIRMs).

119. *Id.* (listing requirements necessary for participating community to obligate FEMA to update FIRMs).

120. *Id.* (noting while duty to update maps is usually discretionary, it is obligatory upon state or local government request).

121. INTRODUCTION, *supra* note 17, at 4 (explaining qualitative difference in FIRMs across country).

122. *Coordinated Needs Management Strategy*, FED. EMERGENCY MGMT. AGENCY, <https://www.fema.gov/flood-maps/tools-resources/risk-map/coordinated-needs-management-strategy> (May 14, 2021) (detailing FEMA’s Coordinated Needs Management Strategy).

123. *Id.* (discussing methodology of updating FIRMs).

124. *Id.* (enumerating different causes that affect FIRM validity).

125. 42 U.S.C. § 4101a(a), (c) (establishing Council and listing Council’s duties).

126. INTRODUCTION, *supra* note 17, at 5-6 (discussing disparity between Council’s recommendations and FEMA’s practices).

127. *See id.* at 6-7 (analyzing how communities develop floodplain management policies).

themselves, as opposed to FEMA or another federal agency.¹²⁸ FEMA does, however, monitor compliance by conducting community assistance visits to compile data on enforcement.¹²⁹ To help incentivize floodplain management, FEMA offers state and local governments monetary awards through its Flood Mitigation Assistance Grant Program.¹³⁰ Participating communities become eligible to receive benefits under the program by undertaking projects that “reduce or eliminate the risk of repetitive flood damage to buildings insured by the [NFIP].”¹³¹ Examples of these projects include floodproofing buildings, acquiring repetitive loss properties, and elevating flood-prone land.¹³²

C. Public Flood Insurance Policies

FEMA has broad discretion in creating flood insurance policies.¹³³ Congress granted FEMA the authority to select the types of properties that are eligible for flood insurance, as well as to determine what the policy covers, limitations on coverage, and the price of premiums and deductibles.¹³⁴ FEMA created three different types of standard insurance policies: “[T]he Dwelling, the General Property, and the Residential Condominium Building Association” policies.¹³⁵ These policies contain two different types of coverage — building coverage and contents coverage.¹³⁶ Building coverage includes damage to the building structure itself, while contents coverage protects various personal belongings and other items damaged within a building.¹³⁷ Individuals may purchase contents coverage separately from building coverage.¹³⁸ Certain costs of flood damage are not included in any type of flood insurance cover-

128. *Id.* at 7 (discussing community floodplain management enforcement).

129. *Id.* (evaluating FEMA oversight over enforcement standards).

130. *See id.* at 8 (outlining purpose of FEMA grant program).

131. *Flood Mitigation Assistance (FMA) Grant*, FED. EMERGENCY MGMT. AGENCY, <https://www.fema.gov/grants/mitigation/floods> (May 20, 2021) (discussing grant program).

132. *See* INTRODUCTION, *supra* note 17, at 8 (listing examples of qualifying projects).

133. *See* 42 U.S.C. § 4013(a) (identifying FEMA’s authority to determine bounds of flood insurance coverage).

134. *See id.* (listing extent of FEMA’s authority).

135. INTRODUCTION, *supra* note 17, at 8 (identifying three standardized flood insurance policies).

136. FED. EMERGENCY MGMT. AGENCY, NATIONAL FLOOD INSURANCE PROGRAM: SUMMARY OF COVERAGE 4 (2021), https://agents.floodsmart.gov/sites/default/files/fema_NFIP-summary-of-coverage_brochure_09-2021.pdf (outlining boundaries of coverage).

137. *Id.* (listing what is covered by building and contents coverage).

138. *Id.* (examining bounds of content coverage).

age, such as living expenses from temporary housing, “financial losses caused by business interruption,” and damages to property outside of a building.¹³⁹

Preferred Risk Policies are also available for properties that are not located within a SFHA.¹⁴⁰ These policies use the same forms and offer the same coverage as the Standard Flood Insurance Policies but are offered at a lower price to reflect the lower risk.¹⁴¹ FEMA encourages property owners to purchase Preferred Risk Policies to help protect the financial interests of uncovered property owners who suffer flood damage and increase the policy base to help secure the NFIP’s financial soundness.¹⁴²

The amount of coverage each policy provides depends on the type of coverage and the amount of people living in the covered building.¹⁴³ Under a Dwelling Form policy, which applies to a residential property of one to four people, the maximum building coverage available is \$250,000 and the maximum contents coverage is one hundred thousand dollars.¹⁴⁴ Although the NFIP caps the amount at \$250,000, policy owners can purchase additional flood coverage through private insurers.¹⁴⁵

The NFIP authorized FEMA to price insurance premiums based on “the risk involved and accepted actuarial principles.”¹⁴⁶ This involves calculating the flood risk and quoting a price based on that risk.¹⁴⁷ FEMA evaluates a structure’s risk by examining its flood zone in the FIRM, assessing the elevation of the structure, and a combination of other factors.¹⁴⁸ Pricing of premiums, however, is also affected by various subsidies FEMA offers to policy holders.¹⁴⁹

139. *Id.* at 3 (identifying exclusions from all forms of flood insurance coverage).

140. See INTRODUCTION, *supra* note 17, at 12 (discussing nature of Preferred Risk Policies).

141. *Id.* (comparing Preferred Risk Policies to Standard Flood Insurance Policies).

142. *Id.* (explaining FEMA’s purpose in offering Preferred Risk Policies).

143. *Id.* at 9 (examining maximum coverage under all policies).

144. *National Flood Insurance Program Summary of Coverage*, FEMA 1, https://www.nh.gov/insurance/consumers/documents/summary_cov.pdf (last visited Feb. 14, 2020) (detailing maximum coverage amounts).

145. See INTRODUCTION, *supra* note 17, at 9 (noting alternatives for purchasing additional flood insurance coverage).

146. 42 U.S.C. § 4014(a)(1)(A)(i) (delineating FEMA pricing method for insurance premiums).

147. INTRODUCTION, *supra* note 17, at 15 (explaining FEMA pricing methodology).

148. *Id.* at 15-16 (examining how FEMA evaluates risk).

149. See *id.* (noting effect subsidies have on actuarial pricing principles).

The NFIP authorizes FEMA to discount premium pricing to “encourage prospective insureds to purchase flood insurance.”¹⁵⁰ Flood insurance subsidies effectively lower the price of insurance for property owners and shift away from actuarial pricing.¹⁵¹ Currently, three different types of NFIP subsidies exist for different categories of property: “[P]re-FIRM properties, newly mapped properties, and grandfathered properties.”¹⁵²

The Pre-FIRM subsidy applies to properties built before 1975 or before FEMA published the first FIRM for the community where the property lies, whichever is later.¹⁵³ The policy’s purpose is to prevent pre-existing properties from being penalized but enable them to contribute to the financial burden of flood insurance.¹⁵⁴ “As of March 2017, approximately 16.1% of all NFIP policies received a pre-FIRM subsidy.”¹⁵⁵

The newly mapped subsidy applies to properties recently mapped into a SFHA by an updated flood map.¹⁵⁶ This subsidy helps property owners pay their new premiums by initially offering a subsidized rate that increases over time.¹⁵⁷ After the first year, the newly mapped subsidy rate begins to increase annually at a rate of no greater than eighteen percent until it matches a full-risk rate.¹⁵⁸ Currently, only four percent of properties receive this type of subsidy.¹⁵⁹

Grandfathered rates apply when a property that is already located in a SFHA and adheres to all NFIP regulations is remapped into a new flood rate class.¹⁶⁰ Despite the higher actuarial rate of the policy, this subsidy allows the property owner to pay premiums

150. 42 U.S.C. § 4014(a)(2) (identifying actuarial pricing principle exception).

151. See INTRODUCTION, *supra* note 17, at 16 (discussing relationship between subsidies and actuarial risk).

152. DIANE P. HORN, CONG. RSCH. SERV., R45091, 21ST CENTURY FLOOD REFORM ACT (H.R. 2874): REFORMING THE NATIONAL FLOOD INSURANCE PROGRAM 4 (Jan. 23, 2018) [hereinafter REFORMING THE NFIP], <https://sgp.fas.org/crs/homesecc/R45019.pdf> (identifying three main types of flood insurance subsidies).

153. See 42 U.S.C. § 4015(c)(1) (defining pre-FIRM properties by reference to post-FIRM properties).

154. REFORMING THE NFIP, *supra* note 152 (identifying policy rationale of subsidy).

155. *Id.* (noting number of policy holders making use of pre-FIRM subsidy).

156. *Id.* at 5 (observing property owners that qualify for newly mapped subsidy).

157. See *id.* (describing rationale behind newly mapped subsidy).

158. INTRODUCTION, *supra* note 17, at 18-19 (analyzing transition in risk rate for newly mapped subsidy).

159. *Id.* at 19 (indicating amount of policy holders using subsidy).

160. *Id.* (observing who qualifies for grandfathered subsidy rate).

based on a lower rate.¹⁶¹ As of September 2018, roughly nine percent of NFIP policy holders took advantage of these lower rates.¹⁶²

IV. HOW THE NFIP MAY BEGIN TO MANAGE ITS DEBT PROBLEM

Congress enacted the NFIP to meet two clear goals: (1) to provide affordable flood insurance in flood-prone areas and (2) to reduce the cost of flood damage by mapping flood-risk areas and funding flood-mitigation projects.¹⁶³ FEMA's administration of the NFIP, however, has failed to meet these goals.¹⁶⁴ Notably, FEMA has been unable to effectively update its flood maps or enforce its flood mitigation programs targeted at severe repetitive loss properties.¹⁶⁵

A. Accurate Flood Mapping

The greatest criticism that FEMA faces in administering the NFIP is its enforcement and maintenance of FIRMs.¹⁶⁶ Under the NFIP, FEMA must assess the necessity to update a FIRM at least once every five years.¹⁶⁷ Nothing, however, obligates FEMA to substantively update these flood maps, which has caused a great disparity in the accuracy and age of these maps across the country.¹⁶⁸

A large body of evidence suggests that many FEMA flood maps are not up to date.¹⁶⁹ According to a 2020 flood map study, nearly

161. See REFORMING THE NFIP, *supra* note 152, at 5 (describing grandfathered subsidy rates).

162. INTRODUCTION, *supra* note 17, at 19 (reporting how many NFIP policy holders have grandfathered premium rates).

163. *Id.* at 2 (outlining general purpose of NFIP); see also 42 U.S.C. § 4001(a) (listing purpose of NFIP).

164. See Walsh, *supra* note 16 (discussing how NFIP has many logistical issues).

165. For a further discussion of FEMA's administrative issues, see *infra* notes 166-200 and accompanying text.

166. U.S. DEP'T OF HOMELAND SEC., FEMA NEEDS TO IMPROVE MANAGEMENT OF ITS FLOOD MAPPING PROGRAMS 3 (2017) [hereinafter FLOOD MAPPING], <https://www.oig.dhs.gov/sites/default/files/assets/2017/OIG-17-110-Sep17.pdf> (finding deficiencies in FEMA's handling of flood mapping responsibilities).

167. 42 U.S.C. § 4101(e) (requiring FEMA to review FIRMs at least once every five years).

168. See INTRODUCTION, *supra* note 17, at 4 (discussing variability in age and accuracy of flood maps). For a further discussion of flood maps, see *supra* notes 107-26 and accompanying text.

169. See Christopher Flavelle et al., *New Data Reveals Hidden Flood Risk Across America*, N.Y. TIMES (June 29, 2020), <https://www.nytimes.com/interactive/2020/06/29/climate/hidden-flood-risk-maps.html> (highlighting unreported flood risk); see also Joel Scata, *FEMA's Outdated and Backward Looking Flood Maps*, NAT'L RES. DEF. COUNCIL (Oct. 12, 2017), <https://www.nrdc.org/experts/joel-scata/femas-outdated-and-backward-looking-flood-maps> (discussing FEMA's failure to update flood maps).

six million more homes are considered at risk than current FEMA maps convey.¹⁷⁰ Moreover, FEMA is far from meeting its own flood map goals.¹⁷¹ A Department of Homeland Security (DHS) investigation found that FEMA's flood maps are only forty-two percent up to date, falling significantly short of FEMA's eighty percent goal.¹⁷²

FIRMs and other flood maps are an integral part of administering flood insurance policies; without them, there is no accurate way to determine which properties are at risk of flooding or to calculate the rate for premiums.¹⁷³ Recommendations to improve flood mapping include replacing FEMA's current oversight initiatives with predictive flood models that account for variables such as rising sea levels.¹⁷⁴ Additionally, depoliticizing the role of flood maps may also increase risk-assessment accuracy.¹⁷⁵ Currently, local lawmakers have an incentive to challenge the adequacy of flood maps because understating flood risk lowers insurance premiums for constituents and eliminates potential restrictions on local development.¹⁷⁶

The NFIP can increase its policy base and become more cost-effective by regularly enforcing and updating these flood maps.¹⁷⁷ The NFIP aims to keep premium prices reasonable so that flood insurance is widely available.¹⁷⁸ As a result, the NFIP relies on a

170. See Flavelle et al., *supra* note 169 (evaluating 2020 flood study).

171. See FLOOD MAPPING, *supra* note 166 (observing FEMA's failure to meet its own flood map goals).

172. *Id.* (highlighting disparity in FEMA's attainment).

173. See Scata, *supra* note 169 (analyzing importance of FEMA's flood mapping function).

174. See *id.* (advocating for new flood mapping practices); see also FLOOD MAPPING, *supra* note 166, at 11 (endorsing FEMA oversight changes).

175. Sarah Pralle, *Hurricane Harvey Shows How Floods Don't Pay Attention to Flood Zone Maps – or Politicians*, WASH. POST (Sept. 7, 2017, 6:00 AM), <https://www.washingtonpost.com/news/monkey-cage/wp/2017/09/07/hurricane-harvey-shows-how-floods-dont-pay-attention-to-flood-zone-maps-or-politicians/> (analyzing role local politics plays in map updating process). In New Orleans, local officials pressured FEMA to redraw flood maps, which moved more than half of the population out of a high-risk flood zone despite most residents living at or below sea level. *Id.* (highlighting inconsistent flood mapping results); see also Ryan Kailath, *New Maps Label Much of New Orleans Out of Flood Hazard Area*, NAT'L PUB. RADIO (Sept. 30, 2016, 4:43 PM), <https://www.npr.org/2016/09/30/495794999/new-maps-label-much-of-new-orleans-out-of-flood-hazard-area> (observing impacts of political pressure on flood mapping).

176. See Pralle, *supra* note 175 (discussing effects of politicization); see also Flavelle et al., *supra* note 169 (noting impact of politics on flood map accuracy).

177. See REFORMING THE NFIP, *supra* note 152, at 10 (analyzing methods to increase NFIP participation).

178. See *id.* at 9 (discussing policy rationale behind low premiums).

large premium base to generate revenue.¹⁷⁹ By timely updating flood maps, FEMA can effectively identify more consumers that live in flood-risk areas.¹⁸⁰ This not only helps the program generate revenue, but it also offers insurance to property owners who would otherwise not be covered in the event of a flood disaster.¹⁸¹

B. Repetitive Loss Properties

Another major problem that the NFIP faces is paying for repetitive loss property and severe repetitive loss property claims.¹⁸² Under the NFIP, a repetitive loss property is a property subject to flood-related damage on at least two occasions, with damages totaling at least twenty-five percent of the building's value during each flooding event.¹⁸³ The NFIP defines severe repetitive loss properties as properties that incurred flood damage at least four times with the amount of each claim totaling over five thousand dollars or the cumulative claims totaling over twenty thousand dollars.¹⁸⁴ The NFIP also classifies a property as a severe repetitive loss property if the property owner made at least two flood claims that exceeded the property's full value.¹⁸⁵

Repetitive loss properties and severe repetitive loss properties make up only two percent of active NFIP policies, yet they “account[] for approximately . . . 16% of total claims.”¹⁸⁶ This disparity causes the NFIP to pay more in claims for repetitive loss properties than the properties are worth.¹⁸⁷ This untenable result conflicts with the NFIP's overarching goal of mitigating flood risk.¹⁸⁸

In a recent audit, DHS determined that FEMA has not “adequately manag[ed] [severe repetitive loss] properties covered by

179. See INTRODUCTION, *supra* note 17, at 23 (discussing NFIP's main sources of revenue).

180. See Scata, *supra* note 169 (noting importance of updating maps).

181. *Id.* (reasoning benefits of updated maps).

182. See REFORMING THE NFIP, *supra* note 152, at 15 (analyzing need for reform).

183. 42 U.S.C. § 4121(a)(7)(A) (defining repetitive loss structures).

184. *Id.* § 4014(h) (defining severe repetitive loss properties).

185. *Id.* (classifying additional severe repetitive loss properties).

186. REFORMING THE NFIP, *supra* note 152, at 15 (analyzing extent of repetitive loss property cost).

187. See Alice C. Hill & Craig Fugate, *The Same Houses Flood Every Year and We Keep Paying for Them*, HILL (July 31, 2017, 1:40 PM), <https://thehill.com/blogs/pundits-blog/energy-environment/344607-the-same-houses-flood-every-year-and-we-keep-paying-for> (exemplifying cost of repetitive loss property issue).

188. See 42 U.S.C. § 4001(a) (listing purpose of NFIP).

NFIP.”¹⁸⁹ The report found that FEMA does not maintain accurate data regarding severe repetitive loss properties, and its flood mitigation efforts for these properties provide “neither equitable nor timely relief.”¹⁹⁰ Specifically, the audit established that seventy-three percent of properties listed as severe repetitive loss properties had not completed any flood-mitigation work.¹⁹¹ The report recommended that FEMA revamp its community outreach program to address the pressing needs of severe repetitive loss properties.¹⁹² Moreover, DHS recommended that FEMA increase the availability of grants and develop a transparent plan to enforce flood-mitigation efforts.¹⁹³

FEMA could further offset the cost of severe repetitive loss properties by increasing the availability of property buyouts.¹⁹⁴ According to FEMA data, “[T]hese properties routinely flood every two to three years.”¹⁹⁵ The cost of continually repairing and mitigating flood damage eventually outweighs its benefits.¹⁹⁶ Instead of purchasing at-risk flood homes, FEMA allocates more of its funds toward repairs.¹⁹⁷ Since 2000, FEMA has spent an estimated \$46.6 billion on flood repairs, while only providing \$804 million to purchase flood-risk properties.¹⁹⁸ FEMA should seize the opportunity to buy severe repetitive loss properties from willing property owners.¹⁹⁹ By purchasing these properties, FEMA would not only offer property owners the chance to move out of flood risk homes,

189. U.S. DEP’T OF HOMELAND SEC., *FEMA IS NOT EFFECTIVELY ADMINISTERING A PROGRAM TO REDUCE OR ELIMINATE DAMAGE TO SEVERE REPETITIVE LOSS PROPERTIES* (2020) [hereinafter *NOT EFFECTIVELY ADMINISTERING*], <https://www.oig.dhs.gov/sites/default/files/assets/2020-09/OIG-20-68-Sep20.pdf> (analyzing FEMA’s management of severe repetitive loss properties).

190. *Id.* (discussing audit’s findings).

191. *Id.* at 2 (highlighting lack of flood-mitigation efforts for severe repetitive loss properties).

192. *Id.* at 15 (recommending severe repetitive loss property solutions).

193. *Id.* (endorsing further mitigation strategies).

194. Rob Moore, *Seeking Higher Ground: How to Break the Cycle of Repeated Flooding With Climate-Smart Flood Insurance Reforms*, NAT’L RES. DEF. COUNCIL 1 (July 25, 2017), <https://www.nrdc.org/sites/default/files/climate-smart-flood-insurance-ib.pdf> (analyzing effective means of reducing repetitive loss property risk).

195. *Id.* at 3 (discussing rate of flooding).

196. *See id.* (analyzing economics of continually repairing flood-prone properties).

197. *Id.* at 4 (observing FEMA’s routine practice).

198. *Id.* (comparing fund distribution).

199. *See Moore, supra* note 194, at 3 (discussing need to purchase more at-risk repetitive loss properties); *see also Walsh, supra* note 16 (noting need of FEMA buyout programs).

but it would also save money in the long run over claims on repetitive loss properties that it does not have to pay to repair.²⁰⁰

V. THE IMPACT OF THE NFIP

Millions of property owners rely on the NFIP for affordable flood insurance coverage that would not exist otherwise.²⁰¹ The current program appears to be on the verge of unsustainability.²⁰² Poor management, an increase in powerful tropical storms, and rising sea levels have left the program with over twenty billion dollars in debt.²⁰³ Immediate changes to the NFIP will not only lower its debts, but will continue to offer affordable flood insurance to property owners who rely on the program.²⁰⁴

The increasing frequency of strong hurricanes and tropical storms due to climate change may leave the NFIP one major hurricane away from requiring another multi-billion-dollar bailout.²⁰⁵ Although natural disasters are beyond its control, FEMA can immediately implement various measures to make the NFIP a more comprehensive and cost-effective government program.²⁰⁶ By updating flood maps to reflect flood risk more accurately in the United States, FEMA can better inform property owners and increase the NFIP's policy base.²⁰⁷ Moreover, FEMA may address flood damage actively through mitigation measures to reduce the overall cost of the program in the long run.²⁰⁸

200. See Moore, *supra* note 194, at 4 (explaining benefits of buyout program).

201. See THE WATERMARK, *supra* note 88 (noting millions of NFIP policies in force).

202. See Walsh, *supra* note 16 (describing NFIP as “broke and broken”).

203. See *id.* (explaining main issues facing NFIP); see also INTRODUCTION, *supra* note 17, at 27 (noting impossibility of NFIP, as currently structured, to pay off its debt in ten years).

204. For a further discussion of issues faced by the NFIP, see *supra* notes 163-200 and accompanying text.

205. For a further discussion of the role of climate change on the NFIP's future, see *supra* notes 49-71 and accompanying text.

206. See FLOOD MAPPING, *supra* note 166, at 11 (noting necessary changes to FEMA's flood map updating procedure); see also NOT EFFECTIVELY ADMINISTERING, *supra* note 189, at 15 (advocating for changes to FEMA's severe repetitive loss property policies).

207. See Scata, *supra* note 169 (demonstrating benefits of current flood maps). For a further discussion on the benefits of up-to-date flood maps, see *supra* notes 166-81 and accompanying text.

208. See Moore, *supra* note 194, at 2 (observing benefits of proactive flood mitigation policies).

Flood-risk management is not an issue that will simply fade away if ignored.²⁰⁹ As climate change persists, flood disasters will affect more property owners.²¹⁰ If Congress discontinued the NFIP in favor of ad hoc disaster relief bills or a private insurance takeover, millions of property owners would lose affordable flood insurance.²¹¹ Although the NFIP may never be profitable, it certainly serves an important function.²¹² The future efficacy of the NFIP requires immediate changes to shed its outstanding debt.²¹³

*Louis Masi**

209. See Flavelle et al., *supra* note 169 (noting flood risks are much more widespread than currently reported).

210. See *Risky Business*, *supra* note 7, at 4 (assessing increasing threat of coastal storm flooding); see also Lindsey, *supra* note 59 (discussing future projections of rising sea levels).

211. See INTRODUCTION, *supra* note 17, at 2 (observing NFIP legislative intent to protect property owners and reduce financial burden of disaster relief).

212. See *id.* at 26 (noting NFIP's ability to cover its own costs prior to 2005).

213. See Walsh, *supra* note 16 (discussing importance of NFIP reform).

* J.D., 2020, Villanova University Charles Widger School of Law; B.A., Marketing, 2017, Fordham University.