

SELECT BACKGROUND AND HISTORY ON THE NATIONAL FLOOD INSURANCE PROGRAM

By: Thomas Ruppert, October 2013

Flooding has always affected rivers; the impact on people has varied depending on where and how they live. During the flood of 1927, the Mississippi River reached 50 to 100 miles wide as it spilled over levees; the river formed a “chocolate sea” that stretched from Illinois to the Gulf of Mexico—over 1,000 miles of flooding that left 700,000 homeless and damaged or destroyed 137,000 buildings. Then, as now, flooding resulted in major federal expenditures for disaster relief. Over the next eight decades, the pattern was repeated over and over, despite billions of dollars of federal expenditures on flood control measures: a major flood kills many, destroys property, and the federal government provides millions in disaster relief.

Even as the federal government increased its role and investment in flood protection, flood damages continued to increase because more and more people and development continued to move into flood plains. In 1891, W.J. McGee wrote in “The Floodplains of Rivers” that “as population has increased, men have not only failed to devise means for suppressing or escaping this evil [flood], but have with singular short-sightedness, rushed into its chosen paths.” In fact, some observed that federal flood control measures encouraged development in areas subject to flooding because if a flood problem developed, certainly the federal government would have to build something to decrease the flood risk. To battle this counter-productive dynamic, a movement developed to promote land-use planning that discouraged development in floodplains. One problem with this model was a lack of good information about flood risk. Thus, on a regional scale beginning in the 1950s and nationally in the 1960s, the federal government funded studies to delineate flood hazard areas around the country.

Even as flood risks were growing, private insurers were dropping flood risk from their policies. This occurred for various related reasons. First, insurers realized that their payouts for flood loss were far higher than the premium income they received relative to flood risk. Second, insurers lacked sufficient information to accurately price flood risk. Third, the flood insurance market was subject to “adverse selection,” or the phenomenon whereby only those most likely to flood would buy the insurance, thus making it harder to lower premiums and make coverage affordable by effectively spreading the risk broadly.

In response to continually increasing federal outlays for flooding disaster relief, the lack of a private insurance market offering flood coverage, and a desire to promote better development practices, Congress established the National Flood Insurance Program (NFIP) in 1968. The program offered communities the option of participating in the program so that the community’s

Florida A & M University, Florida Atlantic University, Florida Gulf Coast University, Florida Institute of Technology, Florida International University, Florida State University, New College of Florida, University of Central Florida, University of Florida, University of Miami, University of North Florida, University of South Florida, University of West Florida, Nova Southeastern University, Mote Marine Laboratory, Harbor Branch Oceanographic Institution

residents could have flood insurance. In exchange, participating communities had to agree to minimum regulations for floodplain management, including limitations on development in floodplains. Through the NFIP, the federal government sought to protect taxpayers' interests and put the risk and cost of development in floodplains back onto the local government and property owner by providing flood risk information through maps and insurance premiums. Many argue that the NFIP failed in this mission and, in fact, encouraged further development in floodplains, but a comprehensive review of the literature on the NFIP failed to either clearly support or contradict this view (Evatt, Dixie Shipp, National Flood Insurance Program: Issues Assessment, A Report to the Federal Insurance Administration, 31 January 1999.).

Since its inception, the premiums for many policies in the NFIP have not been based on any sort of calculation of flood risk. Rather, many policies were clearly "subsidized." In part this was done out of political necessity: if pre-existing development that was built in floodplains prior to the first NFIP Flood Insurance Rate Maps (FIRMS) had not been offered lower, subsidized rates, the program would not have garnered sufficient political support. Additionally, it was hoped that temporarily offering subsidies would encourage more properties to purchase flood insurance. Finally, it was assumed that eventually, subsidized properties would "go away," but that has not been the case.

Because rates were not always set to reflect risk and because of the high cost of creating flood maps, for much of its history the NFIP has been supported by general taxpayer revenues. Then, starting in about 1985, the NFIP was actually more or less self-supporting for several years. In other words, the premiums being collected were, on average, sufficient to pay for administration and claims. This was clearly no longer the case beginning in 2005 with Hurricane Katrina. With extensive loss of life and billions in damage, the disaster cost the NFIP over \$16 billion in payments, or more than eight times as much as it had ever paid out in a year. The NFIP had not made much headway on repaying the U.S. Treasury for the approximately \$18 billion it had borrowed before Superstorm Sandy ravaged the NE Atlantic coast. Sandy resulted in \$37 billion of damages in New Jersey alone and about \$7 billion in total NFIP-insured losses in the affected region. Again, the NFIP had to borrow money to pay these claims, so the NFIP is now about \$26 billion in debt.

This dynamic of low-probability but extremely high-loss events—also known in the insurance industry as "black swans"—demonstrates a challenging dynamic: it is very difficult to accurately calculate both the probability of such events and their actual cost as such events occur so infrequently that we have insufficient data. The life insurance industry's opposite situation can put this in perspective. Life insurance pays when you die. Everyone dies eventually, and many people die every day, so the life insurance industry has a vast amount of data that allows extremely accurate calculation of the statistical probability that a given person will die at a certain age. In the insurance industry, this is called an "actuarial calculation" and insurers have actuarial tables for all kinds of risk they insure against. These actuarial tables help insurers understand the likelihood of an event and the cost of the event so that insurers can set a price on insuring against that event. Actuarial tables do not work well with "black swans" like catastrophic flooding and extremely large hurricane events due to their inherent infrequency.

On the topic of risk, a consistent challenge for the NFIP has been the mapping of flood risk and delineation of flood plains. The federal government has spent billions of dollars and mapped thousands of miles of floodways along streams and rivers. Nonetheless, mapping of flood plains is often fraught with technical challenges, especially when being done on such a large scale. This inevitably results in maps that are not perfect representations of what actually occurs in a flood. Because these maps have regulatory and economic impact, this has led to many challenges to the Flood Insurance Rate Maps (FIRMS) used by the NFIP.