

The Role of the National Flood Insurance Program in Reducing Losses and Promoting Wise Use of Floodplains

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The National Flood Insurance Program (NFIP) was established to promote wise use of floodplains in the United States and to reduce the public burden from floods. Evidence from insurance coverage, land use, and disaster relief payments since the enactment of the Federal program 26 years ago suggests there are challenges which the program faces in dealing with future floods. There now are opportunities to capitalize on some of the positive effects of the program on subsequent construction and to come to grips with questions raised by its effects on pre-existing construction. Some, but not all, of these are addressed in the current Congressional proposals to revise Federal legislation. (S.1405 and alternative bills). Sound action on those and other possible initiatives to improve current programs rests upon a deepened understanding of the role that insurance has played and could play in the future in reducing flood losses.

This paper discusses the objectives of the NFIP and experience with it to date. The body of information on what has happened is unfortunately weak, but it seems to warrant a few observations on changes before and after the issuance of official flood insurance rate maps (FIRMs) showing one-percent Special Flood Hazard Areas (SFHAs) and floodways. After analyzing why the program has had different effects on Pre-FIRM and Post-FIRM occupancy, we propose several ways that the NFIP could be improved that would enable it to come closer to satisfying its original goals. The paper concludes with a set of open research questions deserving further investigation.

Objectives of Flood Insurance

Following an abortive effort in 1956 to set up a national program for flood insurance, the NFIP was created in 1968, based on the recommendations of two independent Federal task forces. The first one had been appointed in 1965 by the Bureau of the Budget to appraise Federal flood control policy. The Task Force's report was communicated to the Congress by the President in August, 1966 (89th Congress, 2d Session, House Document No. 465) and was accompanied by an Executive Order directing the heads of executive agencies to "provide leadership in encouraging a broad and unified effort to prevent uneconomic uses and development of the Nation's flood plains". The effort was to encompass a variety of Federal agency activities, including construc-

tion of buildings, grant and loan programs, disposal of Federal properties, and land use planning. The report recommended six lines of action: a) improving basic knowledge about floods and flood hazards; b) coordinating and planning new developments in the floodplain; c) providing improved technical services to managers of floodplain property; d) establishing a national program for flood insurance; e) changing Federal policy for flood control project survey and cost sharing; and f) changing Federal policy with regard to funding Federal, State, and local planning for flood loss abatement.

The report recognized that "if misapplied an insurance program could aggravate rather than ameliorate the flood problem" (p. 38, H.Doc. 465). Accordingly, it recommended a five-stage study of the feasibility of insurance under various conditions before a national program was formally established. The five stages would permit: hydrological and statistical studies; a limited experimental test program; trial of the experimental program in a wide range of areas with different rates and different participation by occupants; and evaluation of those experiments. A roughly parallel study was undertaken by a Task Force under the Department of Housing and Urban Development to look into alternative programs to provide financial assistance to flood victims. The Budget Task Force urged that the Congress provide for continuing appraisal of all aspects of an insurance program, and warned that, "An incomplete study would raise false hopes, invite hasty decisions, and perhaps subvert the long-range potential of the insurance concept" (p. 39, H.Doc.465).

The Congress, however, in 1968 proceeded to enact the present flood insurance authorization for a Federal Insurance Administration (FIA) without requiring the suggested experimentation. The newly appointed administrators moved with great dispatch to offer flood insurance nation-wide with uniform and untried specifications of premiums and conditions. Although there have been subsequent revisions in operating procedures and authorizations, the Congress resisted a number of FIA suggestions for further improvements, and to date there has not been a careful evaluation of the full effects of the program on floodplain use and loss vulnerability (FIA, 1992).

The Practical Experience

In cooperating communities the program subsidized insurance on Pre-FIRM buildings, encouraged the location and elevation of Post-FIRM buildings above the estimated one-percent flow elevation, and prohibited further constriction of floodways. The National Flood Insurance Fund has paid heavy loss and loss adjustment expenses in recent years, and although it had not used any Treasury borrowings since 1986, this year it is obliged to resort to its borrowing authority.

FEMA estimates that in the Post-FIRM era, since about 1975, 2,070,000 new buildings have been constructed out of the reach of one-percent floods and represent an average annual reduction of about \$569 million in damages that would have been experienced if they had been built at low elevations.

The 25th anniversary celebration of the NFIP in 1993 gave only limited attention to the role that insurance has played in reducing future losses on the floodplain. Instead, interest focused on the raw program statistics, such as number of policies sold, claims paid, and the changes in the dollar surplus or deficit over time. It was noted that 80% of all flood coverage under the NFIP was sold by private insurance companies, thereby highlighting the "success" of the "Write Your Own" (WYO) program. The NFIP was seen as "self-supporting for the historical average year loss", but it was believed the existing premium base needed to be expanded so that the federal government does not have to subsidize claims in years where the losses are somewhat above average. It was recognized, too, that the Fund's solvency is affected by whether or not the Congress taps the surplus.

Some of the major problems identified at the 25th anniversary meeting were the relatively few numbers of structures insured in the NFIP, which was partially attributed to the failure of lenders to enforce mandatory insurance purchase requirements for homes with federally-insured mortgages. It was noted that many real estate agents do not disclose information on the location of property in relation to flood hazard.

Special mention was made of the large number of structures that seem to suffer repetitive losses. Under Section 1362 of the NFIP, the FIA has authority to purchase flood-damaged insured property, thus providing owners the opportunity to relocate if the structure has been damaged three times in five years or damaged to at least 50% of value or is irreparable. To date, about 1,000 properties had been purchased at a cost of \$36 million, 400 in the Midwest flood area alone. During 1989-90 almost one-third of all insurance claims were associated with structures that had suffered damages exceeding \$1,000 for at least the second time.

Accurate data on repetitive losses are difficult to obtain: one handicap is that some homeowners experiencing heavy losses refrain from reporting as much as 50% of value in damages. (FEMA, 1993).

Other difficulties associated with the NFIP were released to the public through an assessment by an interagency group in 1992, (Federal Interagency Floodplain Management Task Force, 1992). To date, however, the report has not received concerted attention and a new Unified National Program has not yet been completed by the Federal agencies. For example, when several hundred representatives of insurance companies met last year to discuss the NFIP, only a handful had heard of this report even though in theory it had a bearing on insurance. In practice flood insurance is viewed as an accommodation line, and any loss is born by the NFIP, not the writer. Some of the problems mentioned in the Interagency report include the limited premium reduction incentives, as well as lack of advice given to policy holders to encourage them to mitigate future flood losses by either emergency or anticipatory measures, such as retrofitting. The rates are filed by FIA but must be approved by Congress. To date, the rate structure has not provided incentives for mitigation. Land use regulations and building codes might help in this connection, but they are often not enforced and in most communities do not apply to structures in areas where the chances of a flood are estimated to be less than 1 in 100. (See paper in this volume by William Lord.) There is generally no linkage made between the decision *not* to purchase insurance and the property owner's eligibility for later public disaster assistance.

Why Hasn't the NFIP Met Its Original Objectives?

The paucity of detailed evaluative studies makes it difficult to recognize the full significance of major factors affecting the lackluster performance of the NFIP. Rather than offer premature conclusions, we feel it is prudent to list a set of hypotheses that should be tested and examined more rigorously before a revised insurance program is instituted. Some of the information required to test these hypotheses may be available from relevant federal agencies or field surveys but they need to be presented in a form that will enable the design of meaningful administrative policy and legislation. A current review was undertaken by the St. Louis Dispatch (Special Report, November 21, 1993).

Demand for Insurance. Today, on the basis of the available incomplete data, the number of families nationwide living in flood prone areas is estimated to be between 9 and 11 million. Approximately 2.5 million flood insurance policies are actually in force. The proportion of homeowners who continue their policies beyond one-to-three years is estimated to be less than a tenth. Fewer than one in 10 homeowners in flood prone areas affected by the Midwest floods of 1993 were reported to be insured against damage: in a few communities virtually all homeowners were insured

while in others the proportion ranged from zero to 5-10% (FEMA, 1993, and St. Louis Post Dispatch, 1993).

Hypothesis 1: The failure of most floodplain dwellers to purchase insurance voluntarily when not required to do so is due primarily to their belief that a damaging flood will not occur during their occupancy of the structure. That may be reinforced by the belief that if a serious flood occurs they will receive generous disaster assistance if they do suffer flood damage. Although field surveys have been undertaken on people's decision processes regarding hazards insurance we are still uncertain as to why so few people purchase flood coverage voluntarily (Kunreuther, et al., 1978). One theory is that individuals initially focus on their perceived probability of a flood (p) and unconsciously set a threshold level (p^*) below which they do not worry about the consequences. If their estimate of $p < p^*$ then they assume that the event "cannot happen to me" and do not consider the need to specify the hazard, get information about insurance availability, or find out its cost.

Hypothesis 2: Limited Enforcement of Required Coverage. Many structures in floodplains are uninsured because banks and other lending institutions who are directed to require coverage do not choose to enforce the regulations.

The NFIP has required that this insurance be purchased as a condition for a federally-backed mortgage in Special Flood Hazard Areas. Unfortunately this requirement has not been enforced routinely (U.S. General Accounting Office, 1990). A survey conducted in Texas following a major flood in 1989 revealed that 79% of the owners of damaged properties required to purchase flood coverage when taking out their mortgages were uninsured at the time of the disaster. Thus, even when the buyer purchased insurance during the first years, it was allowed to lapse without any penalty.

An interesting set of competitive pressures creates a lack of interest by banks in requiring homeowners to take flood insurance as a condition for a mortgage. Until a recent court decision in Connecticut (205 Connecticut 751, 1988), banks have not been fined if a house in the floodplain is uninsured, nor do they pay damages if the house is flooded. They have had no financial incentives to require coverage even if the law says they must do so. For similar reasons, banks have no incentive to ensure that homeowners renew flood insurance coverage purchased at the time of their mortgage.

Supply of Insurance. Not only does there appear to be limited interest in purchasing insurance by homeowners and requiring it by lending institutions, but most insurance agents do not invest large amounts of time in marketing. The economic rationale for their behavior is summarized by *Hypothesis 3: There are limited financial incentives for private insurance agents to promote flood coverage.*

The commission on a flood insurance policy is 15% of the price and an average policy normally costs less than \$300 annually. Hence, the average commission is less than \$45. If residents and businesses in hazard prone areas are not concerned with the hazard or feel "it will not happen to me" then the chances of obtaining a sale is relatively low.

A simple example illustrates the reason why an insurance agent would not devote time to selling flood insurance. Suppose that the amount of time that it takes to complete a sale of any insurance policy, including the paperwork and contacting a person, is four hours. If the agent assumes that there is a 20% chance that she or he will sell a flood insurance policy (using the national average as a guide) and that the average commission will be \$45, then the expected return per hour worked is \$2.25 (i.e., $.2(\$45)/4$), a very small return indeed.

It should be recognized that the approximately 2,000 companies - large and small - that sell insurance policies on natural hazards do not constitute a united or homogeneous industry. They differ among themselves in marketing and claims settlement practice, and in positions on government activities, but they are uniform insofar as they are obliged to conform to practices prescribed by the NFIP.

It is true that insurance agents are willing to incur a relatively high initial cost of a sale because they expect their policyholders to renew over time. However, the renewal rate for flood policies is much lower than other coverage, particularly if the homeowner doesn't experience damage for several years. In addition, flood policies require considerably more work than an average policy because of the need to utilize hard-to-decipher flood maps to determine the risk which homes face. One insurance agent, Ben Smith of Boonville, Missouri, summed up the situation straightforwardly when questioned as to why he wasn't promoting coverage: "It's not easy and it's not worth the time" (St. Louis Post Dispatch, 1993).

Modest Proposals for Improving the NFIP

The NFIP first was designed as a part of a larger floodplain management strategy to encourage beneficial floodplain use and reduce uneconomic losses from future disasters while at the same time providing assistance to those suffering losses. Those purposes were obscured in its initial organization. The current Congressional proposals are intended to correct some of the deficiencies but do not cover all the needs.

There has been a distinct shift in public attitude toward disasters in recent years. Following the San Angelo tornado in 1953, federal representatives advised local school officials to call for federal funds to repair a school damaged

by the twister. They were reluctant to even make a request for the repair cost that was not covered by insurance. Eventually they did and it was promptly granted. One year later they returned the money in an act of conscience. (Moore, 1958). It is hard for us to imagine such behavior today. In fact, there is now an expectation from taxpayers and hard-hit communities that the Federal government will come to the rescue with grants and low interest loans.

The implementation of any assistance program may make some individuals or groups worse off relative to others. Once these equity issues are introduced it may be necessary to provide special measures to satisfy these concerns. These aspects of any program who benefits and who loses are normally responsible for policies that provide uninsured disaster victims with liberal relief. In taking this action the Congress determines that this special group should be aided by all U.S. taxpayers.

We offer five tentative recommendations for utilizing flood insurance more effectively to further the goals of floodplain management. These assume the validity of the foregoing hypotheses, and would be subject to revision as those are explored further.

Recommendation 1: Evaluate the Community Rating System

The Community Rating System is designed to encourage communities to establish comprehensive floodplain management programs (e.g., adopt and enforce building codes and land use regulations that exceed the minimum NFIP requirements) so that individuals may benefit from reduced insurance premiums in the community. The lower premiums are precisely in the spirit of the role that insurance is expected to play encouraging loss prevention in return for premium benefits, but the homeowner has no direct incentive - beyond anticipation of reduced losses - to take immediate steps.

There is a need to better understand how well the Community Rating System has worked to date in terms of its effect upon land use and building design to sample areas. What are the impediments to its satisfying the objectives of the NFIP, and what additional measures are needed for it to work more effectively? For example, some consideration might be given in new Congressional legislation for providing low interest loans to those who want to adopt cost-effective measures but are reluctant to incur the up front cost of mitigation measures.

Recommendation 2: Impose Fines or other Penalties on Lenders Who Don't Require Flood Insurance

Under S.1405, lenders would be obliged to comply with the mandate to require the purchase of flood insurance in Special Flood Hazard Areas by notifying purchasers, informing them of ways to obtain insurance, using standard

hazard determination forms, and being subject to penalties of not more than \$350 for each violation. The institutions are authorized to purchase insurance for borrowers who fail to do so. These provisions presumably would continue to apply throughout the period of the mortgage or loan. In our opinion, a stronger incentive would be to hold banks and financial institutions responsible for the costs of repair on any uninsured home which had been required to have coverage, with the maximum amount based on the amount of insurance that the structure would have under required coverage.

Recommendation 3: Provide Incentives to Property Owners to Take Steps to Mitigate Prospective Damages

In theory, one of the advantages of insurance as a policy tool is that it encourages cost-effective loss prevention measures by reducing premiums on homes that are at lower risk. This approach has theoretical merit but does not work well in practice if individuals do not know of possible mitigation measures or are reluctant to adopt mitigation measures for reasons outlined previously. There was recognition of this problem when the Flood Insurance Act of 1968 was passed. Flood insurance was made available *only* to residents of communities that voluntarily regulated new development in flood prone areas on the basis of FIRMs. Provisions of the subsequent Flood Disaster Protection Act of 1973 made it difficult for communities to not regulate development in some fashion if they wished to have their citizens qualify to purchase insurance. Hence, most new homes in these communities satisfy these requirements and are designed to avoid damage from the one-percent flood and to avoid increasing flood heights. However, the current rate structure provides no incentive to insurance companies to offer premium reductions for homeowners to undertake other measures such as retrofitting and floodproofing, which would reduce their future losses even further, and it has not encouraged experimentation along those lines.

A principal challenge is how to increase the number of substantially damaged buildings from a flood that are restored so that they meet the standards specified by the NFIP. Most homeowners do not have the funds to comply with these regulations and there is limited enforcement by local permit officials.

Recommendation 4: Restore Substantially Damaged and Repetitive Loss Buildings to Meet NFIP Requirements

To change the current situation it may be necessary to use a carrot and stick approach. Homeowners could be provided with financial assistance in the form of low interest loans and grants which could be offered by a federal agency such as FEMA (the carrot). Under S.1405, states and communities would be given (75%-25%) grant assistance for mitigation planning and for support of technical mitigation measures, including acquisition, demolition, or floodproofing

of substantially damaged properties. The economic rationale for such assistance would be the savings in federal disaster assistance following the next flood. At the same time, local communities would have to strictly enforce the NFIP standards by only issuing permits to buildings that meet these requirements, (the stick), and homeowners would understand that they could not benefit from public assistance unless they were insured. Buy out and relocation assistance already is underway with selected communities in the Midwest.

Recommendation 5: Complete Mapping of all Sectors of the Coastline Eligible for Flood Insurance

Until those areas have been covered by FIRMs it will be impracticable to make adequate estimates of the aggregate national effects of proposed changes in policy and procedure.

Open Research Questions

While some deficiencies of current legislation can be corrected by the amendments now proposed, it will be impossible to design fully effective action until careful community studies are undertaken and completed. Understanding is still inadequate for at least four sections of the current program.

1. Basic to an expanded NFIP is analysis of the specific factors that interact in different physical, economic, and social conditions to affect the decisions of, a) individuals to purchase insurance, b) insurance companies to market coverage and offer mitigation information, and c) FIA and Congress to set rates. These should be explicated.
2. At the same time, analysis should be made of the national fiscal and social implications of altering the policies affecting the offering of subsidized or market-oriented insurance for all sectors of potential purchasers. This would include its relationship to public disaster relief policies and programs.
3. Whatever the detailed studies preparatory to new legislation, the actual effects should be appraised in experimental situations before the new programs are extended nation-wide.
4. A further study of the role that insurance can play in providing protection against public buildings and infrastructures should be undertaken. Currently, there is no incentive for local communities and municipalities to purchase insurance given that they will receive at least a 75% subsidy (which often becomes 90% or 100% following a major disaster such as Hurricane Andrew, the Midwest floods or the Northridge earthquake). If municipalities knew that they would be held

financially responsible for such losses they might want to purchase insurance, and coverage would have to be available.

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