Howard Kunreuther is the James G. Dinan professor of decision sciences and public policy and co-director of Risk Management and Decision Processes Center at the Wharton School.

Many homeowners in areas inundated by Hurricane Irene presumably did not have flood insurance. Some of them were not able to buy a policy from the federal government because they live in a community that was not enrolled in the National Flood Insurance Program. Others did not think their homes would be flooded and chose to be uninsured.

There is extensive empirical evidence that individuals residing in flood-prone areas, many of whom are required to buy coverage as a condition for obtaining a mortgage, do not have flood insurance. It is very common for property owners to buy coverage after they suffer losses from a disaster but then to cancel their policies several years later if they have not had any further damage. Rather than concluding that insurance is a poor investment, these people should recognize their good fortune: the best return on their policy is no return at all.

Today there is an opportunity to revise the National Flood Insurance Program so it helps reduce losses from future floods while at the same time providing protection to those who suffer damage from these disasters. As a first step in the process, insurance premiums need to reflect risk so that individuals are aware of the hazards they face.

The Federal Emergency Management Agency is now updating its flood maps to more accurately estimate the likelihood and potential consequences of future flooding to property at risk. Premiums in some areas are likely to be higher than they currently are, in which case insurance vouchers (similar in concept to food stamps) should be provided by FEMA to people living in these areas who require special treatment, like low-income households.

A further important step would be to require multi-year insurance policies in flood-prone areas, and the policies should be tied to the property rather than the current owner so that coverage does not lapse. Building codes should be well enforced through third-party audits by certified building inspectors.

Banks could offer loans so homeowners can make improvements that minimize flood damage, and after such projects the cost of insurance should be lowered to reflect the lower risk. In many cases the reduction in annual premiums would be greater than the annual loan payments — making such investments financially attractive even if there is never a flood.

By modifying the National Flood Insurance Program in these ways, we would avoid many of the problems homeowners in the Northeast have faced since Hurricane Irene.