

Limitations of Non-Structural Measures

Flood Warning System

Flood warnings are an important means of adapting to growing flood risk and learning to live with it by avoiding damage, loss of life, and injury. Given that lives may well depend on effective flood warnings and appropriate warning responses, it is crucial that the warnings perform satisfactorily, particularly by being accurate, reliable, and timely. However, flood warnings are heavily dependent on the other components of flood forecasting, warning, and response systems of which they are a central part. These other components form a system that is characterized as a chain, each link of which depends on the other links for effective outcomes. Flood forecasting and warning systems fail because links in the chain perform poorly or fail completely. A single weak point in a system that otherwise contains excellent components may render the overall system performance unsatisfactory. Possible concerns with a flood warning system: (1) It is vital for a technical flood warning to be translated into terms that are readily understandable by those directly at risk. Within this process the design of warning messages, including their wording and presentation, is critically important. (2) Lack of public awareness of flood risk and lack of understanding of flood warnings is needed for adequate response to flood warnings. If public awareness is too low then flood warning recipients may not know how to respond appropriately.

Home Buyout Program

Buyouts have been seen as a cornerstone of disaster mitigation. A solution that takes the most chronically flooded homes and turn them into open space so they can improve drainage and lower flood risk for the surrounding area. But thanks to a decades-long trend of increased flooding in Houston, caused by a combination of urban sprawl, lax building regulations and intense rainstorms, buyouts haven't kept up with the destruction. At the rate Harris County has been going, it would take more than three decades to acquire the 3,300-or-so homes on the district's priority buyout list — a drop in the bucket compared to the number of properties that flooded these past three years alone. Despite the obvious need and high demand, the county is plagued by challenges endemic to buyout programs: limited funds, competing priorities, strict criteria that place buyouts out of reach of willing participants, and the snail's pace of bureaucracy, which puts homeowners in limbo while creating opportunities for private developers to buy and flip flooded homes, perpetuating the problem.

Flood Insurance

The National Flood Insurance Program (NFIP) is failing in two main ways. Too few of the property owners who need flood insurance are actually buying it, in Harris County only about 15% of homes have flood insurance. Losing a home without insurance compensation is financially devastating, a home is the most valuable financial asset that many middle-class Americans have. Without insurance homeowners have little financial help when they're trying to rebuild. Under NFIP, homes that are in high-risk flood zones, usually homes within the 100-year floodplain, are required to have flood insurance but that rule isn't strongly enforced. Additionally, most of the homes in Harris County that got flooded during Harvey were outside of the 100-year

<https://www.texastribune.org/2017/11/02/harvey-flooding-buyouts-frequent-flooding-victims-texas/>

<https://www.houstonchronicle.com/local/gray-matters/article/The-four-major-failures-of-flood-insurance-12215326.php>

<https://www.forbes.com/sites/omribenshahar/2017/08/30/lessons-from-hurricane-harvey-federal-flood-insurance-is-the-problem-not-the-solution/#60161d6a5013>

floodplain. It was not a requirement for these properties to have flood insurance and many chose not to. Unfortunately, being outside of a designated flood zone is no guarantee that a home is safe from flooding, especially when a natural disaster like Harvey is concerned.

The second problem with the NFIP is that it doesn't charge premiums high enough to cover its costs. The government subsidizes about one in five homeowner flood insurance policies. These subsidies tend to help the people who need it least, affluent homeowners living in waterfront properties, at taxpayer expense. These subsidies distort the incentive to develop real estate in devastation-prone areas. If property owners do not have to pay the full cost of living with extreme weather, they flock to such regions, passing on much of the disaster risk to unwitting taxpayers. Subsidized property insurance made it so attractive for so many people to move to waterfront communities. And it is this artificially cheap flood insurance that drives people everywhere (particularly the affluent) to build and rebuild so close to the water. Overdevelopment of floodplains and frequent large storms regularly leave the federal flood insurance program with big deficits.