An ounce of prevention is worth a pound of cure, as the saying goes. The same is true for disasters. We are slowly getting better at mitigating disaster risks. These improvements don't generally take the form of dramatic breakthroughs. Rather they involve incremental progress on a number of fronts.

For instance, homes that were constructed after Hurricane Katrina following FEMA guidance suffered minimum harm from Hurricane Isaac seven years later. Several Gulf States adopted statewide building codes for residential construction for the first time after Katrina. Until 2000, localities dealt with flood risk only in their floodplain plans, but now local building codes are starting to include flood mitigation requirements. The federal flood insurance program requires mitigation in flood zones, such as elevating buildings in certain localities. FEMA does some funding for flood mitigation and cities can apply for funding after disasters for improvement. It has been easier for them to get funding for conventional infrastructure like drains or reservoirs, but since Katrina FEMA has tried to streamline its process for funding green infrastructure such as wetlands to absorb runoff (yet at the same time, the Trump Administration is trying to make it easier to destroy existing wetlands).

Because Florida is so exposed to hurricanes and tropical storms, it has adopted the most advanced requirements for protection against windstorms. Buildings Constructed since those requirements went into effect have been notably less prone to damage. States are also taking actions of other kinds. For instance, as part of the Hurricane Sandy recovery, New York has acquired some high-risk lands, moving people and buildings out of harm's way. In contrast, Houston has been more than happy to allow housing to move into vulnerable areas, while also destroying wetlands and prairie that could absorb storm waters, with a flood storm system that seems barely adequate to deal with routine annual rainfall. As I discussed in a previous post, the attitude of the head of the flood control system was that people just ought to expect their houses to flood now and then. If Houston had taken flood risks seriously, there still would have been major flooding from Harvey but it would not have been as extensive.

Unfortunately, the Houston's carefree attitude toward flood risk also seems to prevail at the national level today. Obama issued an order requiring more flood precautions for federally funded infrastructure, especially critical facilities like hospitals. Just days before Hurricane Harvey, Trump rolled back the order. The Obama order seems to have had three fatal flaws from a Trumpian perspective: it made construction more expensive (something no real estate mogul could like), it was issued by Obama, and it mentioned the "double-C word" (climate change.). In

the long run, American taxpayers will find themselves paying out more in disaster relief for buildings they helped pay for in the first place, because the government failed to require proper flood precautions.

Another setback involves flood insurance. The Biggert-Waters Flood Insurance Reform Act of 2012 took a big step toward modernizing the flood insurance program, revising flood maps to reflect current information and eliminating subsidies. That's important because if flood insurance is too cheap or isn't required in high risk areas, land owners aren't confronted with the true cost of the risks they're taking. But Congress panicked when landowners complained about higher premiums and rolled back most of the reform in 2014. So landowners in flood zones continue to get cheap flood insurance, leaving the federal government to bail out the insurance program when there's a hurricane or other major flood. Essentially, the Feds, and the taxpayers, are subsidizing high risk activities in flood plains, then rescuing the owners when the inevitable happens.

Improving disaster resilience is going to be a long, slow effort. But the risks are increasing all the time, due to a combination of climate change and increased growth in coastal areas and floodplains. Hopefully, as the risks become harder to ignore or deny, resilience will catch up with the escalating level of risk.