

IN FOCUS

Responding to Hurricane Isaac: assessing evacuations and federal levee seven years after Katrina

Tania Boulot

Hurricane Isaac originated near the Lesser Antilles on the 21 August 2012 and was quickly upgraded to a tropical storm. On its way across the Atlantic, Hurricane Isaac caused significant damage and flooding in Haiti and the Dominican Republic. The Gulf Coasts of Florida, Alabama and Mississippi had been affected as well. Isaac reached Louisiana on the morning of the 28 August, hitting the coast seven years to the day after Hurricane Katrina. Even though Hurricane Isaac had been predicted as a Category 2 hurricane, it was downgraded to a Category 1 hurricane shortly before reaching the Gulf Coast, due to decreasing winds. However, this downgrading proved to be treacherous, because it led to an underestimation of the effects of Isaac's weak forward momentum, namely longer exposure, higher rainfalls and flooding totals. Additionally, this downgrading considerably reduced the willingness of the population in high-risk parishes to evacuate.

Measures of Evacuation

The mayor of New Orleans, Mitch Landrieu, had not ordered mandatory evacuations but had strongly encouraged those outside the levees to evacuate, making therefore the choice not to "err on the side of caution"¹, thus saving a definite amount of chaos. On the contrary, the Louisiana Government ordered mandatory evacuations for a number of communities in parishes likely to be the most affected, which to a large extent included those living in low-lying and sparsely populated areas. Overall, the emergency status was declared in 41 parishes, 7 of which were at least partially evacuated. Thousands of citizens were put in shelters across the State of Louisiana. The State government, with the help of the Department of Education, provided approximately 350 buses, evacuating those in need of shelter in large parts to the Jewella Shelter in Shreveport, or to a building close to Louisiana State University at Alexandria².

Nevertheless, a considerable amount of people stayed in their homes, often due to a lack of possibilities for fleeing and very limited financial resources. This demonstrates the insufficiencies of the evacuation and sheltering plans. Even though the mandatory evacuations were proclaimed in advance, and the evacuation measures had

strongly improved since Katrina, the practical access to evacuation was not provided to all. In some parishes, such as Terrebonne and Lafourche, inaccurate predictions caused hasty last minute evacuations. Thousands of residents who had not evacuated needed to be searched for and rescued.

Reality check for the federal levee

Hurricane Isaac is an especially noteworthy case, due to the fact that it was the first real test for the newly reconstructed federal levee system protecting New Orleans. As a consequence of Hurricane Katrina, U.S. Congress approved plans for upgrades to the federal levee system in the value of approximately 14.5 billion dollars, now called the 2012 greater New Orleans area 100-year Hurricane and Storm Damage Risk Reduction System (HSDRRS). The major complex includes one of the most extensive storm surge barriers in the world and is today 133 miles long. Many had been anxious about the levees being able to hold back Isaac's storm surge, but it successfully withstood the test and shielded the inner parts of the New Orleans.

However, Isaac revealed that the protection of those inside the levees inflates the risks for those living outside the levees. As the U.S. Army Corps of Engineers confirmed, "in many areas outside the 100-year HSDRRS, water levels exceeded those from Hurricane Katrina and Gustav"³. Isaac inundated some parts of greater New Orleans, such as Laplace in St. John the Baptist Parish, which had previously experienced little to no flooding. For many in those places, the extent of Isaac's effects came as an unprecedented surprise, and demonstrated the lack of preparation in the region. The increased exposure of the areas outside of the federal levee disproportionately affects those citizens who are already disadvantaged, socially and economically.

Lessons learned

Isaac showed that the future of people living in these low-lying areas outside of the federal levee system is hardly predictable and sustainable if no decision is taken soon to extend the federal levee or to implement efficient and extensive mitigation and adaptation measures. Louisiana's low elevational coastal zone is becoming increasingly vulnerable in the face of constant sea level rise, leading to an erosion of the soil and a thus increased frequency of floods and storms. Considering the risks and costs of living these low-lying delta regions, it is essential that changing residence or migrating be considered and proposed as an adaptation strategy.

1. Campanella, Richard: "What the Nation's best-educated Amateur Planners Learned from Hurricane Isaac. And Gustav. And Rita and Katrina. And Cindy, Ivan, Lili, Isidore, and Georges." The Design Observer Group, Nov. 2012. <http://places.designobserver.com/feature/what-we-learned-from-hurricane-katrina-new-orleans/36148/>

2. Governor's Office of Homeland Security and Emergency Preparedness: "Hurricane Isaac after Action Report and Improvement Plan". State of Louisiana, December 2012. https://www.lis.dhs.gov/sites/default/files/Hurricane_Isaac_After_Action_Report_1_0_v8_1.pdf

3. U.S. Army Corps of Engineers: "Modeling Hurricane Isaac with and without 2012 100-year HSDRRS". 9 November 2012. <http://www.slfpaec.com/presentations/2012%2011%2015%20-%20USACE%20Post-Hurricane%20Isaac%20Assessment.pdf>