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How the Army Corps of Engineers Destroyed New Orleans

After Hurricane Betsy hit New Orleans in 1965, doing severe damage, the Army Corps of Engineers was assigned to protect the city from flooding. It failed.

by Bob Adelman

In an article entitled “Life since Hurricane Katrina: 3 dramatic stories of survival,” KHOU.com chronicled the recollections of what it was like to suffer the devastation of the hurricane when it hit New Orleans in 2005, and the months afterward. About survivor Lois Thomas and her family, the article regaled, in part:

They survived by taking refuge in the attic of their four-bedroom brick house: [Lois] Thomas, [her boyfriend Doyle] Smith and all six children, huddled together: Kayleigh, 15; Kourtney, 13; Larry, 12; Annalyce, 6; Andrew, 5; and 3-year-old Angela.

After 11 hours, Smith heard a boat outside and used a hammer to break through the roof. They eventually made their way to an evacuation staging area and boarded a government plane out of town — to where they didn’t know until the pilot announced: The beautiful sun city of Phoenix, Ariz.

The family had lost most of its possessions in the flooded house in New Orleans, which was foreclosed upon, and as of 2010, they were still in Arizona.

About lawyer Rick Teissier, the story began,

What Rick Teissier remembers most about those early months after Hurricane Katrina was the scene in his neighborhood pharmacy: a long line of people with hollow stares and weary faces, all looking for relief.

Some, he says, were waiting for Xanax. Or Zoloft. Or Paxil. Or other drugs that would ease the anxiety and shell shock of living in a city still reeling from disaster. Everyone had prescriptions, Teissier included.

Almost exactly three months before Hurricane Katrina came ashore and devastated New Orleans in August 2005, Hassan Mashriqui predicted the devastation that would happen.

After doing an extensive study of the U.S. Army Corps of Engineers’ plan to protect the city from a Category 5 hurri-

The Mississippi River Gulf Outlet was a failure from the very beginning and should have been shut down decades earlier. But political interests and lack of oversight of the Corps of Engineers allowed it to remain in place.

cane, Mashriqui, a computer modeler at Louisiana State University’s Hurricane Center, warned a roomful of emergency planners of a “critical and fundamental flaw” in that plan: The Mississippi River Gulf Outlet — a 76-mile long canal from the Gulf of Mexico straight into downtown New Orleans that the Corps predicted shippers would use instead of plying up the Mississippi River, enduring all of its twists and turns — would act as a “funnel” and a “hurricane highway” that would allow a storm surge to directly access downtown New Orleans. Not only that, but the Gulf Outlet would amplify that storm surge by 20 to 40 percent, overwhelming the Corps’ pitiful, incomplete, and fatally flawed levees and flood walls.

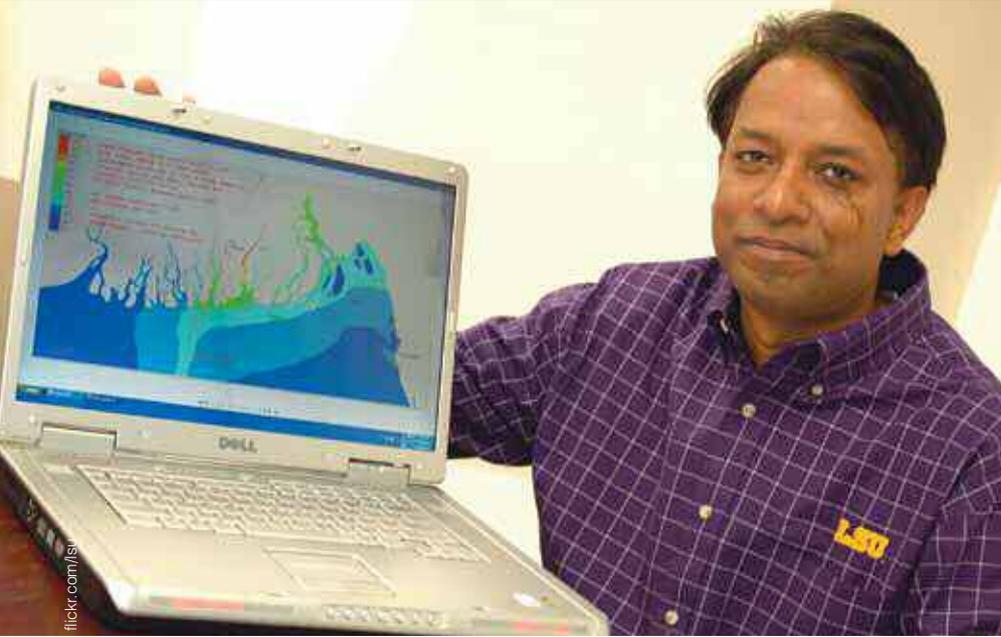
Two weeks after Katrina hit, Mashriqui painfully stated: “I showed [them] how dangerous that outlet was — there was no ambiguity — and now it’s all come true.... This was a disaster created by the Corps.”

Satellite images and videos from helicopter flyovers confirmed that the storm surge, estimated to be between 20 and 25 feet above normal, simply overwhelmed those defenses as easily as beach waves on a seashore wash away a boy’s sand castle.

The surges were amplified when they joined with the waters of the Gulf Intracoastal Waterway, part of an inland canal system meant for barges that runs approximately 1,050 miles from Florida to Texas. When the storm surges hit the Industrial Canal, a five-and-half-mile-long navigation canal separating New Orleans East from the rest of New Orleans, they met virtually no resistance, knocking out or toppling over more than 50 levees in the process. When the water finally receded and the damage was counted, 80 percent of New Orleans was flooded, more than 850,000 homes were either severely damaged or totally destroyed, 4,081 people were dead, and more than \$110 billion in losses were sustained.

The Environment and Logic Lose Out
In the aftermath of the hurricane, there was no getting away from the facts that New

RECENT HISTORY



He told them: Just months before Katrina unleashed her fury, Hassan Mashriqui told all who would listen that the Mississippi River Gulf Outlet would act as a “funnel” that would send Katrina’s storm surge right into downtown New Orleans.

Orlean’s citizens were dealt a devastating blow and that a combination of political infighting, self-serving local politicians, and bungling by the Corps of Engineers — the federal entity “responsible for investigating, developing and maintaining the nation’s water and related environmental resources” — left the citizens sitting ducks just waiting for Katrina, even as it destroyed large and vital segments of the environment.

The Mississippi River Gulf Outlet epitomizes the Corps’ grand failures. Almost from the beginning, the Gulf Outlet made little sense. Local groups organized against it, protesting that it was a waste of taxpayers’ money and would cause irreparable damage to the coastal floodplain of the Mississippi River. But the Corps proceeded with the project nevertheless, ignoring their complaints, instead listening to the pleas of local and state politicians, as well as the Port of New Orleans, which pushed for the project. The attitude of the Corps was itself typical: Let’s build it, regardless. As Walter Boasso, a Louisiana state senator representing one of the

districts that was flooded, put it: “You had the people of [my parish] against the Port of New Orleans. [But] the Port of New Orleans had the clout.”

The Gulf Outlet had its genesis in the 1956 Rivers and Harbors Act under then-President Eisenhower, and the project was completed 10 years later. And it never lived up to its projections. In 1997, the Competitive Enterprise Institute summed up the failure:

The promised economic development along the 76-mile channel in St. Bernard Parish has yet to materialize. What the MRGO [Mississippi River Gulf Outlet] has delivered is an \$8-plus million [now \$13 million plus] yearly maintenance plan for commercial and recreational waterborne traffic.

The nearly \$1 billion price tag for the less than two large container ships a day that use the channel is baffling, especially considering that the channel only shaved 37 miles off the original route. Worse, the MRGO

has created numerous environmental problems. The rate of bank erosion is estimated at 15 feet (4.6 m) per year.

The Corps’ decision — that surely “if we build it, they will come” — encapsulates most of what was wrong, and remains wrong today, with any government entity, not just the Corps of Engineers, deciding in its infinite wisdom what should be done to make things better. Prior to Katrina, the canal’s daily rate of use was less than one ocean-going container ship, less than three percent of the port’s cargo. And yet, rather than close it and write it off as one more failed effort to change people’s habits and behaviors, the Corps continued to spend \$13 million a year keeping it open with its dredging operations, despite what should have been obvious dangers to downtown New Orleans.

The environmental impact of building the Gulf Outlet was almost incomprehensible. It involved moving more dirt than did the building of the Panama Canal, and damaged or destroyed more than 20,000 acres of wetlands, which, had they been there, would likely have neutralized some of Katrina’s ferocity as it came ashore in August 2005. According to Mashriqui, the preserving of just 100 yards of cypress trees can reduce a hurricane’s wave energy by 95 percent, and wetlands and marshes, if left in place, can knock down storm surges greatly.

Today, due to erosion the canal is now nearly three times wider than when it was originally constructed, with the area negatively impacted by the Gulf Outlet reaching nearly *1,000 square miles*. Also, owing to storm surges from Katrina, it has turned parts of Lake Pontchartrain’s fresh water to salt, creating a dead zone.

Defense Undone

About the only defense the Corps could put forth to ward against accusations of gross incompetence is to retail the myth still promulgated today that Katrina was the worst hurricane in U.S. history and that, consequently, no amount of defense planning would have been able to contain the beast and keep her from destroying New Orleans. However, the facts are different: Katrina originated over the Bahamas on August 23 as a tropical storm, which then developed into a hurricane before hitting

When the water finally receded and the damage was counted, 80 percent of New Orleans was flooded, more than 850,000 homes were either severely damaged or totally destroyed, 4,081 people were dead, and more than \$110 billion in losses were sustained.

Florida two days later. Back over the Gulf of Mexico, it regained strength, reaching Category 5. But by the time it touched the coast of Louisiana, it had weakened to a Category 3 storm. When the eye of the hurricane passed over eastern New Orleans, it was down to a Category 2.

Historically Katrina is only fifth in the U.S. Hurricane Severity Index, ranking behind Carla, Hugo, Betsy, and Camille. Had the levees and floodwalls held, the enormous damage and loss of life would have been mitigated, it is estimated by experts, by at least two-thirds. Put another way, thanks to the Corps, Katrina inflicted three times as much damage as she otherwise would have.

And the damage was severe: Afterward, the city that had been home to over a million people had no electrical service, no telephone service, and no communications service. The five-mile-long I-10 Twin Span Bridge taking traffic east out of downtown New Orleans over southeastern Lake Pontchartrain suffered mightily, with 473 of its spans being separated from their supports and 64 of them dropping entirely into the lake.

With no electrical service, the pumps that were built as part of the defense system didn't work. And when power was eventually restored, debris (dead animals, trees, pieces of cars and houses, etc.) made it impossible to treat the water before being pumped into Lake Ponchartrain, causing contamination and eutrophication of the lake. What the long-term effects from that contamination, not to mention mold, will be remain even to this day to be determined.

Five different studies followed the Katrina disaster. Every one of them claimed categorically and in painful and alarming detail that the primary blame for the disaster should be placed on the Corps of Engineers. Faulty design and improper construction were named even by the Corps' own study of the disaster. In June 2006, its "Performance Evaluation" of what it euphemistically called the "New Orleans and Southeast Louisiana Hurricane Protection System" was astonishingly blunt:

The System did not perform as a system; the hurricane protection in New Orleans and Southeast Louisiana was a system in name only....

The pumping stations [were] not

designed to operate in major hurricane conditions. The system's performance was compromised by the incompleteness of the system, the inconsistency in levels of protection, and the lack of redundancy....

[Failures] were caused by differences in the quality of materials used in the levees, differences in the conservativeness of floodwall designs, and variations in structure protection elevations.

The report made an amazing admission: Designed to contain a Category 3 hurricane, the "system" even failed doing that much. It went on: "The storm exceeded design criteria, but the performance was less than the design intent," adding,

The combination of record high surge and long period waves exceeded the design conditions and devastated the levees. This devastation, however, was aided by the presence of incomplete protection, lower than authorized structures, and levee sections with erodible materials.

And then came the most startling admission of all, coming from the perpetrators of the very disaster they were investigating:

While overtopping and extensive flooding from Katrina was inevitable, a complete system at authorized

elevations would have reduced the losses incurred.

Translation: We're guilty of failure to protect innocents, which was our primary mission. If we'd done our job, thousands of people wouldn't have died, and billions in property damage would have been avoided.

Making the damages and death even more egregious, Hurricane Betsy, which hit the Gulf Coast in 1965, was, or should have been, a wake-up call for Congress and the Corps that New Orleans was in danger. It resulted in the loss of 81 lives and \$1.4 billion in damages. Even the 10-foot storm surge from Betsy overwhelmed levees the Corps had built in eastern New Orleans, while the Gulf Outlet served then as the same "funnel" that it provided for Katrina 40 years later.

Some improvements *were made* following Betsy: Levees around the city and its outlying parishes were raised, but due to cost concerns (the improvements were to be funded by U.S. taxpayers while maintenance costs were to be borne locally), the planned improvements were meant only to protect against a Category 3 hurricane. And much of the work was poorly planned and substandard — very substandard.

Levees that were never topped by wave action gave way anyway, thanks to faulty design. Part of the walls weren't sunk deep enough into the Louisiana peat, and part of the walls weren't high enough to keep them from being overtopped. Some of the



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Forewarned: Hurricane Betsy should have served as a wake-up call to Congress and the Corps of Engineers that its present defenses against a storm like Katrina would prove to be grossly inadequate.

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walls leaked underneath, undermining the walls and allowing the storm surge simply to push them out of the way. Those that were overtopped had supporting material washed away from the other side, removing what support the walls might have otherwise had. And some sections hadn't yet been completed, so the storm surge just went around them.

The faulty construction could not be blamed on not having enough time to complete it. The project to protect New Orleans, authorized by Congress in the Flood Control Act of 1965 in Betsy's aftermath, was supposed to take 13 years. When Katrina hit 40 years later, the project was only 60-90 percent complete. Consequently, in its own review of the flooding and destruction in New Orleans, the American Society of Civil Engineers called it "the worst engineering catastrophe in US history." Other investigators wrote that levees on the 17th Street Canal were "destined to fail ... [and that the] miscalculation was so obvious and fundamental [that they] could not fathom how the design team of engineers from the Corps ... could have missed [it]."

No One to Hold Accountable

In Katrina's aftermath, one of the largest class-action lawsuits in U.S. history was filed against the Corps of Engineers. Of the 350,000 people who filed claims, 65,000 of them joined in the lawsuit, putting U.S. District Court Judge Stanwood Duval to work for months, which resulted in his ruling on January 30, 2008: *not guilty*.

Not guilty? How would that be possible when even the Corps itself admitted its ghastly failure to meet its primary mission? Because the Flood Control Act of 1928 grants legal immunity for such lawsuits in the event of such failures! It boggles the mind: A government that failed in its mission also exempted itself from being held responsible for its failure.

The injustice was not lost on Judge Duval, who unleashed a vitriolic excoriation of the Corps for its abject failure. Adam Nossiter of the *New York Times* read the entire 46-page ruling (as did this writer), and concluded: "The Corps — not nature, not a record-breaking storm surge and not local politics or local negligence — was to blame."



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The Corps is rotten: Faulty design and incomplete installation of levees by the Corps allowed the storm surge from Katrina to overtop them, undermine them, or just simply push them out of the way.

That's not exactly or completely true: There is plenty of blame to go around, to be shared by the Port of New Orleans, which sought federal money to accomplish its own interests, and by local and state politicians, who saw the Corps as a taxpayer-funded punch bowl with little oversight into which they could dip their ladles in order to enhance and extend their careers. But Duval focused on the Corps as the primary cause of the Katrina disaster in New Orleans:

It is the court's opinion that the negligence of the Corps, in this instance by failing to maintain the MRGO properly, was not policy, but insouciance, myopia and short-sightedness.

For over 40 years, the Corps was aware that the levee ... protecting [two parishes] was going to be compromised by continued deterioration of the MRGO....

The Corps had an opportunity to take a myriad of actions to alleviate this deterioration or rehabilitate this deterioration and failed to do so. Clearly, the expression "talk is cheap" applies here.

The judge did his best to condense the long, twisted and convoluted story of conflicting and concurrent interests as the Corps and its allies fiddled, delayed, obfuscated, and otherwise stalled decisions that would have prevented, or at the very least, minimized the Katrina catastrophe:

The tortured tale of [the Gulf Outlet's] construction is among the most convoluted stories [ever] told. To outline every twist and turn and decision made in the building of the specific levees and floodwalls involved ... would take more space and time than is appropriate.... Nonetheless ... it demonstrates how this catastrophic failure of the Corps to fulfill its mission occurred.

First, he critiqued the Corps' failure to learn very much from Hurricane Betsy in 1965. For various reasons, some legitimate and some self-serving, the Corps decided to build its hurricane protection system based upon the threat from a Category 3 hurricane, even though, as Judge Duval pointed out, "There was an increased likelihood of a large storm surge occurring that would exceed" that system's abilities to fend it off.

Once the Corps decided on its building goals, for 22 years it dithered, dawdled, and delayed, trying to balance political interests with its own interest. Quoting from an internal review document authored by the Corps, Duval noted that "a requirement to recommend the *least cost solution* as the federally preferred alternative ... combined with the federal policy defining interior damage as a non-federal responsibility [was] the basis for the ... position." (Emphasis added.) In other words, the Corps decided to take the least-cost solution and, at the same time, push to make sure the Corps could not be sued and held

legally liable if the system failed — any payments sought by residents would have to be garnered through the National Flood Insurance program.

Thus, the Corps of Engineers was free to make its own decisions, knowing that even if they were proven wrong, even catastrophically wrong (as they were in August 2005), they wouldn't be held responsible. Someone else would. Noted Judge Duval:

The obvious irony of this ordering of priorities is that with the passage of the National Flood Insurance Act of 1968, one federal agency — the Corps — was taking action that would impact and require payment from [another] federal government [agency] for flood damage.

The failure of our national government — whether Congress or the Executive Branch — to recognize such a short-sighted approach to risk management boggles the mind.

The fiddling and dawdling delayed any significant action for 15 long years, just betting against the odds of another Betsy (or worse) coming ashore. As Duval wrote:

It must be emphasized that at this point in time [1980], not a single barrier had been constructed — no significant constructions to protect New Orleans from catastrophic flooding had begun — after 15 years from the passage of the 1965 Flood Control Act.

By that time the estimated costs of building the hurricane protection system for New Orleans had increased *by a factor of 10*, requiring the Corps to go back to Congress for more money.

Four years later the Corps began construction, using a half-baked, poorly engineered plan that “was not inclusive of the most vulnerable waterways ... used outmoded data in the process, and arguably shifted a significant amount of the cost onto the local sponsors.”

Duval wrote about the Corps using outdated reports in designing and building the floodwalls:

From the court's perspective, this decision was yet another in the monumental miscalculations of the Corps, for there is strong evidence that the reduced penetration requirements were another cause for the failures [of the floodwalls] experienced along the ... canals.

Duval concluded his survey of the Corp's incompetence:

The project to provide hurricane protection to New Orleans mandated in the Flood Protection Act of 1965 settled on a design to raise the level of protection ... 27 years after Congress first mandated the safeguards....

The engineering calculations upon which this “protection” was premised were outdated and lacking, which was known to the Corps, but ignored because of funding concerns.

Thus, the stage was set for Hur-

ricane Katrina to damage or destroy 80% of the housing stock of New Orleans, not merely by its own winds and rain, but by virtue of its effects on the ... canals.

And so she did. While being forced to rule for the defendants under the immunity clause in the Flood Control Act of 1928, Duval was free to accuse them of incompetence bordering on malfeasance:

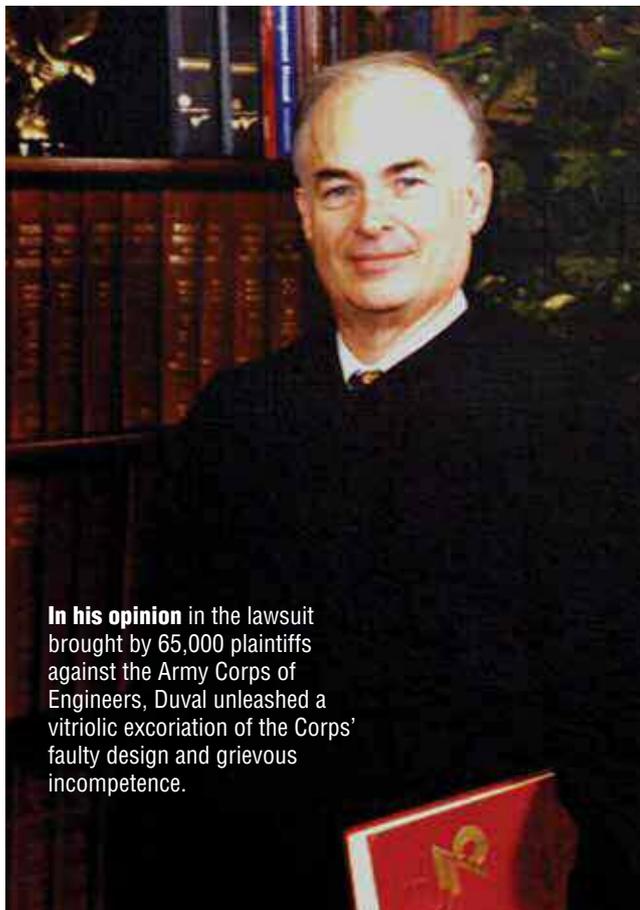
While the United States government is immune from legal liability for the defalcations alleged herein, it is not free, nor should it be, from posterity's judgment concerning its failure to accomplish what was its task.

This story — fifty years in the making — is heart-wrenching. Millions of dollars were squandered in building a levee system ... which was known to be inadequate by the Corps' own calculations....

The failure of Congress to oversee the building of [the project] and the failure to recognize that it was flawed from practically the outset — using the wrong calculations for storm surge, failing to take into account [soil] subsidence, failing to take into account issues of strength of canal walls ... while allowing the scouring out of the rest of the canal — rest with those who are charged with oversight....

Such egregious myopia is a caricature of bureaucratic inefficiency.

Unfortunately, it's no caricature, but a real-life study of how a federal agency, for decades, with precious little congressional oversight, arrogated unto itself the power to make life-or-death decisions with no accountability, certain in its myopia that its decisions best serve the public's interests. Destruction of life, property, the environment, and the wasting of many hundreds of millions of dollars of taxpayer funds is the legacy of the U.S. Army Corps of Engineers. ■



In his opinion in the lawsuit brought by 65,000 plaintiffs against the Army Corps of Engineers, Duval unleashed a vitriolic excoriation of the Corps' faulty design and grievous incompetence.