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## Hurricane Katrina

### After the flood

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### Hurricane Katrina has devastated New Orleans. Picking up the pieces will not be cheap or easy

"WHAT I saw today is equivalent to what I saw flying over the tsunami in Indonesia. There are places that are no longer there." That is how Mary Landrieu, one of Louisiana's senators, described the scenes she saw below her on August 30th. She was flying by helicopter over the aftermath of Hurricane Katrina, a devastating hurricane that had swept in from the Gulf of Mexico. The storm hit land near New Orleans on August 29th at a speed of some 145mph, and then went on to pummel parts of Mississippi before ultimately fading further north.

Though not on the vast scale of the tsunami, the human and economic costs of Katrina are serious and still mounting. The mayor of New Orleans, Ray Nagin, thinks the death toll will be "minimum hundreds, most likely thousands". Tens of thousands have been displaced. "This recovery will take a long time", George Bush warned the nation after he flew over the carnage. "This recovery will take years."

Unlike most hurricanes, which are over in a relatively brief burst of fury, this one continued to get worse. For two days after the storm had passed, floodwaters continued to rise around the Big Easy. Those waters swept away the joy of many who thought they had narrowly escaped. The floods brought with them poisonous snakes, water-borne diseases and the grotesque carcasses of dead neighbours and abandoned pets.

It was unclear when the waters would recede, never mind when life would return to normal. Power may not be restored for weeks. Looting, too, began to spiral out of control. Mr Nagin, who said the city might be

uninhabitable for three months, was forced to order police to concentrate on stopping crime, not saving people.

Already a series of questions appear behind the tragedy. What is the cost to the area and the national economy? What can be done with the displaced people? But begin with the one that matters most: was part of this unfolding tragedy preventable?

Of course, hurricanes themselves are not preventable. Though global warming may increase the intensity of storms like hurricanes, abandoning fossil fuels in favour of windmills and bicycles would not make the world safe from cyclones. Historical records show that hurricanes were devastating the coast of the Gulf of Mexico long before sport-utility vehicles ever hit America's roads.

Experts have stressed for quite some time that New Orleans is exceptionally vulnerable to a killer storm such as Hurricane Katrina. Fred Caver, of the Army Corps of Engineers, recently urged officials to shore up their defences: "You're living on borrowed time today. You have until the next big storm zeroes in on coastal Louisiana directly." There is an irony, however, in this warning coming from the Corps of Engineers. Just as with the Everglades in Florida, New Orleans's vulnerability has been exacerbated by the corps' excellence in reshaping nature's waterways to suit mankind's whims. In the middle of the last century, engineers succeeded in re-plumbing the great Mississippi river to make shipping easier and to control floods.

Alas, those same measures also hastened erosion of the coastal marshes that used to buffer New Orleans, leaving the city needlessly exposed. Most of the metropolitan area lies below sea level on drained swamp land. Levees normally hold back the Mississippi and Lake Pontchartrain, but those were not designed to handle the waters that would come with such a powerful hurricane.

America's Geological Survey has estimated that if nothing is done by 2050, Louisiana will lose another 700 square miles of coastal wetlands. Various local groups have long called for reconstruction of the marshes along the lines of the troubled \$10 billion Everglades rejuvenation project. The New Orleans version, which would cost \$4 billion more, would divert some 200,000 cubic feet of water each second from the Mississippi 60 miles through a channel to feed the existing marsh and to build two new deltas. The plan, which would also shut canals and locks to keep out salt water and would build artificial barrier islands, may find more adherents.



Even if New Orleans had not been protected by such a grand scheme, it seems that much more could have been done to make the city a little less vulnerable to water and wind. When Hurricane Katrina made landfall, it flooded the streets, ruined the power grid, tore roofs and walls off historic buildings and brought down many of the majestic trees that provide shade in the scorching summer weather.

Hurricane Katrina's path cut just to the east of New Orleans at the last minute, thereby sparing the city the storm's most intense winds and rain. The immediate effects were devastating in coastal cities to the east, such as Gulfport, Mississippi. Early reports suggested that 100 or more had died in Biloxi, Mississippi. The number of dead in and around New Orleans is as yet undetermined, but one thing is sure: the suffering is likely to continue for

some time, because the city is uniquely ill-equipped to withstand a severe hurricane.

The region was probably not helped by planning regulations either. Put simply, too many homes on the Gulf coast have been built in areas that are susceptible to flooding; and the developers who put them up did not contribute enough to flood-control systems. In most other catastrophes of this sort, there is usually a paper trail of building permits given rather too easily by local authorities to favoured builders. It is hard to believe that the Big Easy—no stranger to political graft—will be any different.

## Looters and more

Hurricane Katrina may also have torn a breach in the city's fragile social fabric. It was notable that many of those left behind in the city were from its poorest neighbourhoods; notable too that those poor neighbourhoods were among those worst hit by the storm. (And the same could be said for many of the other communities farther up the coast.)

Even before the storm had passed, there were sporadic reports of looting. In one flooded area inaccessible to police, thieves pulled a boat through waist-deep water toward a convenience store, and then went in to raid the shelves. At a Wal-Mart Super Centre the next day, an apparent attempt by government agencies to get essential supplies turned into a free-for-all. Residents of surrounding neighbourhoods streamed to the store to cart off food, water and nappies—but also DVD players, computers, refrigerators and guns. Some police officers stood powerlessly, while others appeared to be helping themselves to TVs. “The police were in there with us,” gloated one man as he pushed a loaded trolley up Tchoupitoulas Street.

Worries about looting, as well as health dangers arising from fallen power lines and sewage-filled water, prompted Louisiana's governor Kathleen Blanco to order the mandatory evacuation of people stranded in New Orleans. Some 25,000 of them were inside the Superdome, a football stadium with a roof (albeit a leaky one). Texas has now begun to take some of them by bus to Houston's Astrodome.

## The after math

As the human tragedy wrought by Katrina became depressingly clear, the hurricane's economic consequences remained uncertain. Instant estimates from insurers suggested the storm had caused insured damage worth around \$26 billion. That would make it the industry's single most serious event since the attacks of September 2001, and make it more costly than Hurricane Andrew, which hit Florida in 1992. As usual, reinsurers may end up taking the hardest hits. Swiss Re, the world's second-largest reinsurer, has put its estimated exposure at about \$500m.

The broader question is what impact, if any, Katrina will have on America's overall economy. History suggests not much. Hurricanes—even big and expensive ones, such as Andrew or Charley and Ivan, which pounded Florida last year—tend to have a fleeting impact. In the short term, the disruption caused by a big storm can depress output; over the longer term economic growth is boosted by reconstruction. For all their devastating force, natural disasters tend to be economic weaklings.

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Katrina, however, may cast a longer shadow, thanks both to the storm's geography and its timing. The hurricane pounded an area vital to America's oil-and-gas industry at a time when soaring global demand and low inventory levels had already sent oil and petrol prices to record nominal levels. Economists were fretting about the impact of higher fuel prices on America's consumers long before Katrina struck. Now they are puzzling over two riddles: how big will the energy-supply shock be? And how will consumers react to sudden leaps in energy prices?

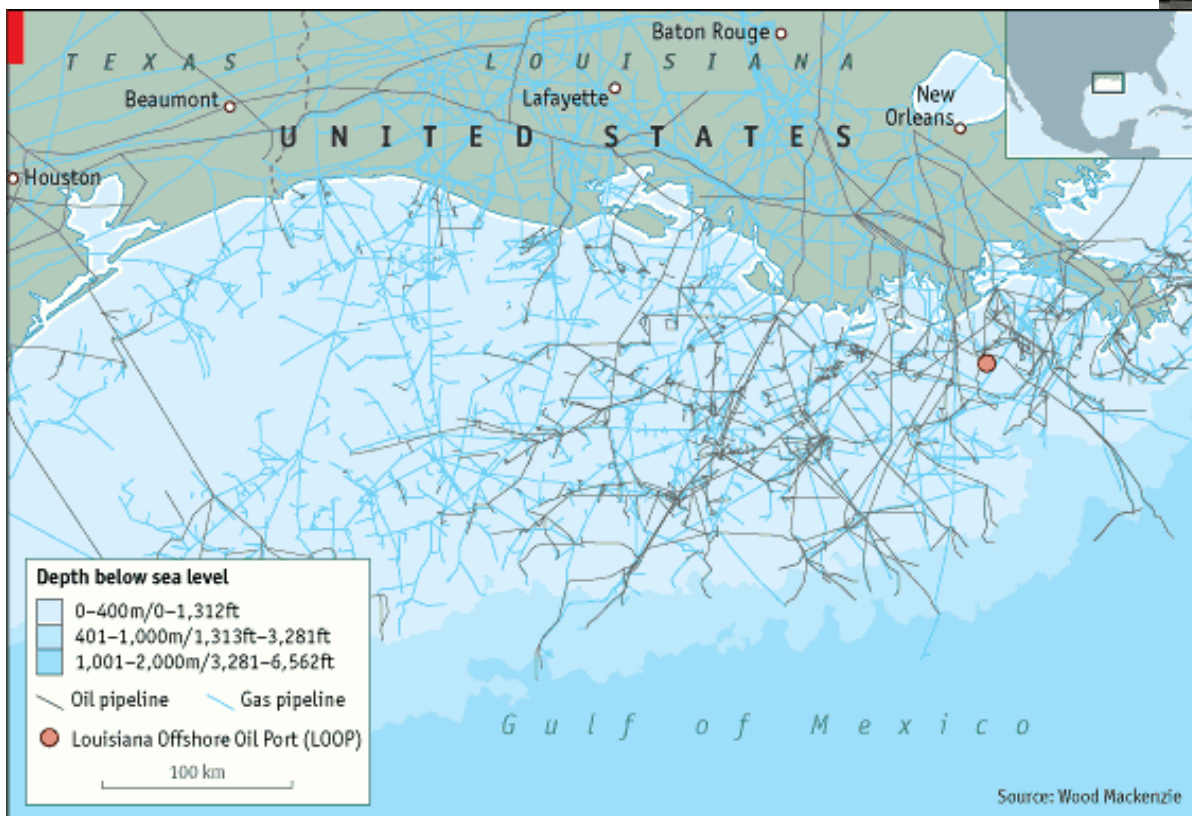
The Gulf of Mexico is clearly home to a lot of America's energy infrastructure.

About a quarter of the country's oil and gas is produced in rigs there. Over 90% of those rigs were shut down as the storm approached. On August 31st, the Coast Guard said that 20 of the rigs were missing. Several are reported to be drifting in the Gulf.

Less visible to the naked eye, but more important for energy supplies, is a latticework of underwater pipelines that brings these hydrocarbons to shore (see map). In 2004, Hurricane Ivan precipitated underwater mudslides that damaged several of these pipelines, disrupting supplies. At the worst point, one-third of the oil and a fifth of the gas produced in the Gulf was knocked out.



changed world



Initial panic sent the price of crude oil soaring to over \$70 a barrel on the New York Mercantile Exchange on August 30th. But prices subsequently fell, as the news of production damage seemed less bad than many feared. Traders were particularly pleased that the Louisiana Offshore Oil Port (LOOP), an oil terminal near New Orleans, seemed undamaged. This port unloads about 1m barrels of foreign oil a day, or more than 7% of America's total imports. It is also the only port in the Gulf of Mexico that can handle the very biggest tankers.

Crude oil prices were also dampened by Mr Bush's decision on August 30th to make oil from America's strategic reserve available, on loan, for refiners stuck with short supplies. Unfortunately, stabilising crude-oil supplies may not do much to minimise Katrina's economic clout. That is because markets are tighter—and the risks of a debilitating supply shock are higher—in refined petroleum products.

Unlike Hurricane Ivan, which bashed the Gulf's underwater pipes but barely affected the region's refining capacity, this week's storm, and the subsequent flooding, has hit refining capacity. Nine refineries in the Gulf region are shut or underwater. A further three or four are running at low levels. Together they make up about 10% of America's total refining capacity. Several pipelines that send fuel up to the north-east and mid-west are out of action.

The timing was poor. Thanks to tight global supplies and the peak summer driving season, America's petrol stocks, at 194m barrels, were close to record lows before Katrina struck. That figure is now falling by more than 1m barrels a day—and that problem could be exacerbated if Americans rush to fill up their cars in anticipation of a shortage. Not surprisingly, petrol-futures prices have skyrocketed even as crude-oil prices have stabilised. On

August 30th, petroleum futures rose 40% and they hit a record high the next day.

Higher wholesale prices usually take a couple of weeks to filter through to the pump, but some oil companies are already rationing the petrol they distribute to wholesalers. Dry petrol pumps have been spotted in parts of the country. Prices have reached \$4 a gallon in Chicago and nearly \$5 in Atlanta. Traders have begun to talk about scarcity and hoarding.

The economic fallout of this supply shock depends both on its severity and how long it lasts. Philip Verleger, an energy economist affiliated to the Institute for International Economics, predicts that petrol and heating-oil prices could soar in coming weeks, and that parts of the country, especially the east coast, where refining shortages are now more acute, could face temporary shortages. Long lines at the pump, which have not been seen in America since the oil crises of the 1970s, could have a bigger effect on consumer confidence than high prices alone. Mr Verleger believes this kind of supply shock could push America's economy into recession.

Most Wall Streeters were more optimistic—at least at first. The consensus immediately after the storm was that there would be a dent in third-quarter output growth that would be recouped in the fourth quarter or early in 2005. But by mid-week economists were busy downgrading their forecasts. On August 31st, Ben Bernanke, chairman of Mr Bush's Council of Economic Advisers, insisted that the hurricane's impact on America's economy would be modest, providing that the energy impact was only temporary.

And there is a case for optimism. With Labour Day approaching, America's summer driving season comes to an end. Environmental regulators relaxed pollution standards on petrol this week. Oil companies will do everything they can to get refineries running as soon as possible (though Edward Morse, an analyst at HETCO, an oil-trading firm, thinks that may take four months). And America will doubtless import more refined product to make up for some domestic supply constraints—though that will push up international prices, broadening Katrina's effect.

Even if petrol prices do stay higher for a while, that does not necessarily imply recession. After all, America's consumers have put up with huge rises in fuel prices over the past two years—and not stopped spending, preferring to save ever less instead. Lower interest rates may also help: long-term rates have fallen back towards 4% as bond markets have fretted about a slowing economy. All the same, at some point, something will persuade America's debt-laden consumers to keep their money in their pockets.

## Over to you, George

A recession is only one of several ways in which Katrina could hurt Mr Bush. The president, who cut short his fishing-and-biking holiday and rushed back to Washington, DC, generally does well in such crises, but this one looks taxing.

Difficulties in Iraq have dragged down his popularity ratings—and his critics have spotted an Iraq angle to the disaster. The force that usually responds to natural disasters, the National Guard, has been depleted by deployments overseas. Meanwhile, Katrina pinpoints two of Mr Bush's weaker suits—energy and the environment. Just a few weeks ago, the former oilman signed a pork-stuffed energy bill doling out billions to the industry. In a *Washington Post* poll, taken just before Katrina struck, two-thirds of the respondents complained that petrol prices were causing financial hardship to their families.

Before his address to the nation, there had been rumours that Mr Bush would call on Americans to conserve energy. That plea—always risky, because it can cause a run on the pumps—may yet have to be made. But Mr Bush instead took the high road, praising the emergency workers and asking for patience. "Right now the days seem awfully dark for those affected," but in time "the great city of New Orleans will be back on its feet."

In that at least he is right. One of the city's greatest allures has always been its sense of danger and the unusual.

Reuters



**Refined danger**

But it will take a long time before it can live up again to its hedonistic Cajun motto, "Laissez les bons temps rouler."

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