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The Failures of Success

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Katrina thundered into New Orleans on energy accumulated from a superheated Gulf of Mexico. The superheating was no surprise. It has been building for the last century as we have accelerated the accumulation of heat-trapping gases in the atmosphere and steadily watched and measured the consequences. The process continues as we compete to burn the last of the easily accessible oil in the world, struggle to find the least obnoxious ways of burning massive quantities of coal, and transform the last of the primary forest into agricultural land or to other purposes, releasing at each step more heat-trapping carbon dioxide into the atmosphere.

Meanwhile, the polar regions have warmed differentially, glaciers have melted and contributed to a rise in sea level, and storms have grown in size and strength as energy has accumulated in the atmosphere. As though conspiring to flood New Orleans, we have pumped water and oil out from under the Mississippi Delta, and New Orleans has sunk. To protect New Orleans and other lowlands along the Mississippi River, we have built extensive dikes to keep the water that drains from half a continent in ever-narrower channels. The dikes confine the flow, and the level of the river rises further above the city in times of flood. Safety requires still higher dikes. The once-extensive marshes of the Delta that served as a buffer against storm surges and floodwater have been cut again and again for access to oil, and have eroded away. These and other changes have made the city more vulnerable year by year to storms, tidal surges, and floods.

The disaster was predicted. The dikes were widely recognized as inadequate against a major storm. Safety in this case depended on a regulatory function of government, the very purpose of government. The failure was inexcusable, but it existed at multiple levels: Congress failed to produce the necessary funds and the U.S. Army Corps of Engineers tolerated the inadequacy of its dikes. Local governments and the public also ignored the inadequacy and took no action. Oil and water were pumped from the sediments and the city sank.

The disaster was also a product, albeit less predictable, of climatic disruption. Storms are getting larger as energy builds in the atmosphere, so the hazards of wind and flood and erosion are rising. Coastal cities are vulnerable, and one already below sea level is especially vulnerable. As the climatic disruption continues—and storms strengthen, sea level rises, the land sinks, coastal marshes disappear, the dikes are raised, and the further-constricted river reaches new heights—the hazards soar.

And not just for New Orleans. There is enough water stored in the glaciers of Greenland and the West Antarctic Ice Sheet to raise average sea level 12 meters or more. Glaciers are melting now more rapidly than anyone had anticipated or thought possible. Three meters of sea level rise puts virtually all coastal cities, and their hundreds of millions of people, at hazard. The probability of such flooding over the next century, as the climactic disruption feeds on itself and accelerates, is high enough to warrant immediate action to stabilize the composition of the atmosphere. We might hope to learn that much from Katrina.

But there is more. We have now, many months later, a devastated city. While the dikes may have been rebuilt and the water pumped out, the city remains ravaged, physically disrupted with broken houses and misplaced buildings, hundred-ton boats among the trees, and dysfunctional electrical and plumbing systems. The whole of it is covered inside and out with silt and clay from the flooding, which as it dries becomes dust to be carried further by the wind. The dust is mainly the fine mineral material of normal river sediments, but it also contains an admixture of industrial wastes mobilized by the flood from hundreds of scattered dumps and local businesses and carried far and wide. Now, added to this noxious mix is a further dollop of mold spores from the decaying buildings and trash rotting in the subtropical heat. The entire city is toxic.

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A river of toxic flood water flows around a church, August 31, 2005.

Have we lost New Orleans? There is no tax base, no effective government capable of rebuilding the city from within. If there is to be repair and reconstruction, the resources, including the money and materials, will come from outside, not from insurance, not from speculative industrial interests, not from confidence in governmental integrity and competence. Any rebuilding is in a new city that is obviously vulnerable to a series of biophysical threats that are already entrained, inevitable, and overwhelming. The locale is on a delta that, because of the presence of the city, has been substantially destroyed and will decay further if the city continues to attempt to protect itself in the established pattern. The decay of the delta only makes the city more vulnerable despite all efforts with levees and artificial channels and expensive diversions. No governmental program, no matter how ambitious, can assure safety for a city on that site.

Will people come? Some will, just as they come to populate the slopes of a smoking volcano, driven by population pressures, short-term opportunity, and longer-term hopes. And they will ask for help, even demand it, from government and others, despite the prospects. They will call forth memories of a vibrant city of humble origins, of another time and another size, before the city had outgrown its place. But they are, unfortunately, wrong. The restoration dreamed of by some can never occur. And it should not.

We have lost a city to biophysical forces we knew of, anticipated—and denied. Now it is clear that we need the Mississippi Delta, not for the city, but for the region. We need the Delta as a delta, feeding and sustaining the river and the gulf, absorbing nitrogen and sediments from the continent the river drains, stabilizing the coast and the quality of water on it, protecting the region from the inevitable storm surges of the future, maintaining the coastal fisheries, and performing its myriad functions on an Earth we are struggling to keep habitable for humans. Habitability now hinges, not on rebuilding against the forces that destroyed the city, but on yielding to those forces, accommodating them, and allowing them to restore the stability and wealth that we exploited and destroyed.

With that objective, we might ask whether the withdrawal must be complete or partial. From a biophysical standpoint, obviously, a total withdrawal would be desirable, but it is probably politically impossible, and certainly impossible in a short time. A partial withdrawal—abandonment of the most vulnerable segments of the city—raises all kinds of economic and social and political issues, as well as economic issues that are no less firmly entrained, at least in the minds of some, than the biophysical fate of the region. No simple answer exists, but the biophysical facts have again established the context if not the details of the rules at the moment.

Any transition will be subsidized by the nation. Is it better to subsidize a reoccupation with the certainty of ultimate failure, or a systematic abandonment and restoration of the Delta as the rich and useful adjunct to the Gulf coast that it is?

We have much to learn from losing this city. The big lesson is that global biophysics, ecology writ large, is biting into the economic and political systems that have dominated our free enterprise dreams and is setting new rules. Suddenly global climate matters, sea level matters, glacial ice is important, the global budget of carbon and nitrogen are issues before town and state and national governments, and must be before the world. The cost of ignorance is now to be measured, not in esoteric deaths in far-off impoverished lands (caused in fact by overpopulation but ascribed to traitorous politics), but in landscape units, cities, island nations, coastal regions, or continental centers as arid zones expand, predictably, into the centers of the continental masses and drive us off the land.

There is another lesson, also writ large. That is the importance of competence in government as use of our small world intensifies. Contrary to conservative dogma of the moment, the free market system offers no solution to major environmental crises. Intensification requires new rules, new laws, and a competent and evolving governmental system in which science, as well as economic and political interests, has a guiding hand. Those rules, the rules we live by, are in fact the core purpose of government. Denial of that purpose is the antithesis of government. Progress from here, as biophysical issues force themselves into the political system, requires superior competence worthy of public confidence in government.

As I write these words, front-page news reports the rapid development of the dust bowl of central China, today's new, immediate, regional biophysical catastrophe—also predictable and predicted, a product of over-exploitation combined with the warming and drying of the continental centers as we continue to allow our activities to warm the Earth, disrupt the climate, and drive our environment and our society into impoverishment.

Does losing a city teach anything?

Sources and resources for each article are available at www.worldwatch.org/ww/katrina/.