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PRESS RELEASE

Seven Rules for Building a New New Orleans

Hurricane Katrina was the largest natural disaster ever to strike the United States. The US Government has pledged over \$100 billion to New Orleans and the Gulf Coast after this terrible (but predictable) tragedy. The question is: how should it be rebuilt?

In an editorial published today in the international journal *Ecological Engineering*, three of the nation's lead environmental scientists pointed out a strategy of seven rules that need to be followed to restore a sustainable New Orleans and Louisiana Delta. The article, written by **Robert Costanza**, Director of the Gund Institute of Ecological Economics, University of Vermont, **William J. Mitsch**, Director of the Schiermeier Olentangy River Wetland Research Park, The Ohio State University, and **John W. Day, Jr.**, Professor Emeritus at the Coastal Ecology Institute, Louisiana State University, suggest that while what was there can simply be replaced, this would merely be setting the pins up to be knocked down again by a future hurricane, the destructive powers of which are increasing worldwide, probably due to global warming. In addition, sea level is rising and New Orleans continues to sink, making the city even more vulnerable.

Wetlands and barrier islands are the only thing between New Orleans and the Gulf of Mexico. But 1800 square miles (4700 square kilometers) of wetlands have been lost since the 1930s. The blanket of freshwater, sediments, and nutrients from the Mississippi River Basin that used to spread across the Louisiana delta no longer does, as the heavily managed river is forced to dump most of its load into the deep waters of the Gulf.

This river management allowed deepwater shipping in New Orleans and stopped flooding of developed areas, but it ultimately will lead to the city's destruction. Up until the first quarter of the 20th century, the city was mostly above sea level. It was the drainage of wetlands that exposed the soil and caused it to sink.

A well-conceived plan called the Louisiana Coastal Area Project for the restoration of wetlands surrounding New Orleans would have reversed the trend of continuing wetland loss. This plan may now be in jeopardy if priorities shift to simply replacing levees and pumps instead of wetland restoration and sensible human settlements.

What would a truly new New Orleans look like? Here are seven rules proposed by Drs. Costanza, Mitsch, and Day:

1. **Let the water decide.** Building a city below sea level is always a dangerous proposition. While parts of New Orleans are still above sea level, much of it has sunk below. It is not sustainable to rebuild these areas the way they were before. They should be either replaced with coastal wetlands, which are allowed to trap sediments to rebuild the land, or replaced with buildings on pilings or floats that are adapted to flooding.

2. **Avoid abrupt boundaries between deepwater systems and uplands.** Gentle slopes with wetlands are the best division, and avoid putting humans, particularly those who have few resources to avoid the next hurricane, in harm's way. Of course the abrupt boundaries of the levees are necessary, since wetlands alone cannot protect the city, but we need both.

3. **Restore natural capital.** Coastal wetlands in Louisiana have been estimated to provide US\$ 375 per acre (\$925 per hectare) each year in storm and flood protection services. Hurricane Katrina has shown this to be a large underestimate. Restoring Louisiana's coastal wetlands and New Orleans levees has been estimated to cost US\$ 25 billion. Had the original wetlands been intact and levees in better shape, a substantial portion of the \$100 billion in damages from this hurricane probably could have been avoided. Prevention is much cheaper and more effective than reconstruction.

4. **Use the resources of the Mississippi River to rebuild the coast,** by changing the current system that constrains the river between levees and allows it to simply dump into the deeper waters of the Gulf. Diversion of water, nutrients, and sediments from the Mississippi should be greatly expanded beyond what current plans call for, to allow rapid restoration of the coastal wetlands. Where possible, levees should be breached in a controlled way to allow marsh rebuilding.

5. **Restore the built capital of New Orleans with green buildings and a car-limited urban environment with high mobility for everyone.** New Orleans has abundant renewable energy sources in solar, wind, and water. What better message than to build a 21st century city running on renewable energy on the rubble of a 20th century oil and gas production hub? Imagine neighborhoods of New Orleans with strong, multistory, multifamily buildings surrounded by green space, each with enough water and fuel storage for several weeks, and operating on wind and solar energy.

6. **Rebuild the social capital** of New Orleans to 21st century standards of diversity, tolerance, fairness, and justice. New Orleans has suffered long enough with an unjust social system dating from the 18th (or even the 15th) century. The envisioning and rebuilding must include participation by the entire community.

7. **Restore the Mississippi River Basin** to minimize coastal pollution and the threats of river flooding in New Orleans. Upstream changes in the drainage basin have changed nutrient and sediment delivery patterns to the delta. Changes in levees and farming practices upstream and the establishment of 5 million acres (20,000 square kilometers) of wetlands and riverine forests can improve not only the coastal restoration process, but also improve the nation's agricultural economy by promoting sustainable farming practices in the entire basin.

The author's point out that we must not let the restoration of New Orleans and the rest of the Mississippi delta become another disaster waiting to happen. #

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