

## What is the State of the Art in Preparing for Extreme Weather Events?

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Today I would like to say a few words about the effect of environmental law on preparations for extreme weather events.

There is a long history in the United States of disasters helping to spark the enactment of environmental statutes, although this only happens if there is already a general sentiment supporting such legislation. The 1967 Torrey Canyon oil spill and the 1969 Santa Barbara oil spill helped to spark the Clean Water Act of 1972. The 1973 crash of a cargo plane at Logan Airport in Boston, a plane loaded with hazardous materials, inspired the Hazardous Materials Transportation Act of 1975. The Love Canal disaster of 1978 helped lead to the Superfund Law, and most terribly the 1984 Bhopal, India, explosion of the Union Carbide plant led to the Emergency Planning and Community Right-to-Know Act of 1986. The Exxon Valdez oil spill led to the Oil Pollution Act of 1990, and 1990 also saw major amendments to the Clean Air Act, including Section 112(r) requiring chemical plants to have plans to respond to disasters.

Unfortunately, these two 1990 laws were the last major pieces of environmental legislation to be passed by the United States Congress. Political paralysis since then has disabled the U.S. Congress from playing a constructive role in addressing emerging environmental problems, so the Administration has been required to work with 30-40 year old laws – to work with the best they have.

There is a federal statute meant to design the reaction to disasters, the Robert T. Stafford Disaster Relief and Emergency Assistance Act that governs the Federal Emergency Management Agency (FEMA), but as its name implies, the law addresses the immediate reaction to a disaster but few of the preparatory and cautionary actions we have talked about today.

There is no comprehensive or specific law in the United States dealing with adaptation to climate change. Part of this is because there is a political perception that adaptation is a concession of defeat, a recognition that climate change is going to happen and there is therefore no reason to engage in further mitigation measures. But we now know that we absolutely must do both. We must reduce greenhouse gases and also adapt to climate change.

The uncertainties surrounding adaptation are so great that it can be difficult to choose what to do. Reducing greenhouse gases at least has a measurable goal and a clear standard -- reduce by this much to see this result. Adaptation is so broad that it is hard to get a handle on, and frankly, some of the projected future conditions are so terrible that it is hard to accept them. Earlier during the presentations of Klaus Jacob and Shaw Chen Liu, it was hard not to have a reaction of

either despair or disbelief upon hearing the projections. And the danger is that we will have a reaction of paralysis and not do anything.

Rahm Emmanuel is known for the phrase, “Never let a good crisis go to waste.” And now we have the opportunity to see if there is some way that Sandy, having hit the media and financial center of the world, can get the attention of at least this country in a way that will yield the results that we need.

There are some statutes that could help. First is the National Environmental Policy Act (NEPA) of 1970 that requires environmental impact statements (EISs) to be created before the federal government undertakes any major construction projects. The initial regulations under NEPA required the preparation of a worst case analysis – what are the plausible worst cases that could be associated with a project and how do you prepare for them. But in 1986 under President Reagan, that provision was narrowed and softened so that kind of worst case analysis is no longer required, and a greater degree of certainty is required before a scenario must be addressed. There is of discussion of using NEPA to conduct reverse impact analyses. A conventional analysis is to identify how the project will harm the environment; a reverse impact analysis examines how the environment will affect the project. The legal tools are there to conduct this analysis under NEPA and under equivalent laws that exist in many states, including New York. But we need to move more aggressively to do this so that when we build infrastructure we are aware of the projections we heard this morning.

There are a handful of guidelines that call for an examination of this sort. A 2009 US Army Corps of Engineers guideline required an analysis of sea level rise for water resource projects conducted by the Corps. The guidelines also require looking at certain studies by the National Research Council about what that sea level rise will be when considering transportation and other infrastructure. However, these guidelines are not broadly applicable or well-known.

At the international level, the United Nations Development Program (UNDP) has developed a program to promote climate resilient infrastructure. The UNDP Green and Low-emission and Climate Resilient Development Strategies (LECRDS) and associated guidance documents provide advice and guidelines on how to incorporate climate change in building plans. But these are just advisory documents.

The World Bank is a key player in financing climate change projects, and it has developed a number of non-binding guidelines on infrastructure projects so that developers at least think about these type of issues. They have released their own climate screening tool to assist with assessment: Assessment & Design for Adaptation to Climate Change: A Prototype Tool – it is an awkward name, but the acronym is ADAPT. There is a possibility for funding to some projects from this, but there is not nearly enough funding for all the projects that might be eligible.

Two countries have developed systematic methods for dealing with these issues. The first is the Netherlands, which is especially vulnerable to climate change and sea level rise. The

Netherlands has a ministry devoted to Infrastructure and the Environment, and within that ministry there is a Directorate-General for Public Works and Water Management – including territorial seas, rivers, navigable waterways, etc. – and policies are implemented by local water boards. There is an additional Directorate-General for sustainable planning as a way of ensuring that the Netherlands incorporates sustainable development. The Netherlands wants to focus on land use before technical fixes. There is also the National Water Assessment Test with mandatory review requirements on construction to see the effects of construction on water ways and water systems. The Netherlands also has a National Adaptation Strategy and they are beginning to develop – which might be the first in the world – a 200 year plan to prepare for a drastically different future. As part of this, they have pledged 1.5 billion Euros to broaden river channels to allow for higher water flows, raised storm gates to protect against surge, and undertaken other projects and are beginning to make projects on what life might look like in the future.

The other country is New Zealand, which in 2004 enacted a law to account for climate impacts on their national highway system. The Transit New Zealand department has a process to evaluate roads to make sure they are prepared for climate change, and for bridges they have updated the design metrics to require climate change to be included in the design. The courts in New Zealand have also taken an active role, and the New Zealand High Court held that climate change should be considered in planning decisions. This has led to further litigation on how climate change impacts are considered by agencies.

This is all well ahead of where we are in the United States. We have no comprehensive national strategy for adaptation to climate change. The Department of the Interior has some plans for federally owned lands to address climate change, so there is movement in that direction. But the House of Representatives has tried to halt that, under the theory that climate change is a myth. Legislation passed the House but was thankfully stopped in the Senate that would prohibit the federal government from preparing for climate change.

In New York, we face decisions on whether and where we should rebuild. Do we want to spend public money on areas that have been devastated and will be devastated again? These are difficult decisions to make. New Orleans rebuilt the areas that were flooded – they were vulnerable and they continue to be vulnerable. This is movement in the wrong direction. I hope that the terrible event of Hurricane Sandy can be a wake-up call so that serious planning can proceed.