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**Andrew Curtis** is in the Department of Geography and affiliated faculty with American Studies and Ethnicity at the University of Southern California. Prior to this he was Director of the *World Health Organization's Collaborating Center for Remote Sensing and GIS for Public Health* (WHOCC) at Louisiana State University. His research interests are centered around the geography of health and hazards, with a particular emphasis on vulnerability, spatial analysis and developing new methods of fine-scale (neighborhood) geospatial data collection. In 2005 after the landfall of Hurricane Katrina, he and his WHOCC lab helped with geospatial support for search and rescue operations in the Louisiana State Emergency Operation Center. He continues to work on various Hurricane Katrina recovery projects, including developing new geospatial approaches that can empower the communities of Orleans Parish as they attempt to reestablish their neighborhoods. These methods have also been applied to other post-disaster landscapes, such as the Tornadoes in Tennessee in 2008, and the San Diego County Wildfires of 2007. In 2007 he was part of a team who received the Meredith F. Burrill Award by the Association of American Geographers for the development of a Katrina-related GIS Clearinghouse Cooperative.

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## The Need to Plan for Recovery

The most under-investigated aspect of a disaster is the recovery phase. Unfortunately for many disasters in the United States the same impediments to recovery are faced time-and-again, and yet so many aspects are translational. This is especially true from a spatial perspective where the processes of mitigation and exposure are likely to reveal patterns on the landscape that will impact recovery. For example, consider the following recovery focused questions:

How can cities work through the “recovery gap”, the difference between accessible funds to rebuild and the actual money required – *at a community / street / individual building scale*? If there is an underlying social process then these recovery gaps should reveal spatial patterns. Can these patterns be used to predict recovery impediments even before a disaster?

How does urban health vulnerability influence recovery, either directly or indirectly through reduced mitigation and increased exposure? Again, can mapped patterns of health vulnerability be used to reduce both exposure and recovery impediments?

Is there a spatial pattern of recovery at the finest scale that influences return or subsequent abandonment? For example, should government funded recovery only occur in clusters, and if so, what is the minimum number of residences required to be successful?

Are there lessons to be learned from past disasters in terms of how communities react, how disparate wishes at town hall meetings can be reconciled, and how different recovery funds can be accessed? One would think so even though evidence suggests most disasters result in the reinventing of the wheel.

A common theme to these problems is one of geographic scale – although recovery plans for a megacity will obviously involve city, state and federal oversight, it could be

argued that equally important is the understanding and empowerment of neighborhoods. Recovery cannot be evenly distributed – a prioritization of resources is required. How does that prioritization occur? Should there be a spatial frame to this organization based on the three previously mentioned recovery impediments?

In order to answer these questions academics need to be more fully involved in studying the recovery process. Unfortunately there are challenges to such work. Fine-scale data are required in order to assess recovery patterns, and make comparisons to pre-event baselines. These data may not be available or the researcher faces data release impediments. Fine-scale post-event infrastructure and building data are also hard to acquire, either originating from the immediate post-disaster period or as an assessment of building level recovery through time. New forms of fine scale spatial post-disaster data collection have been developed, yet many “academically-important” data sets are collected by FEMA and their contracting companies – the majority of which will never be accessible by academics.