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‘The Day After the Hurricane’

Infrastructure, Order, and the New Orleans Police Department’s Response to Hurricane Katrina

Benjamin Sims

Keywords disasters, emergency response, organizations, risk, security

A disaster on the scale of Hurricane Katrina presents so many chains of cause and effect that it will take years before they are fully understood. Here, I shall discuss one of those chains, which runs from the infrastructure collapse to the problematic emergency response. I believe this is an important story, for two reasons. First, infrastructural technologies are of key importance for the field of science and technology studies and for the social sciences in general. The design of infrastructure takes into account complex sets of local and global social settings and goals, and in use, infrastructure is both a ubiquitous and often invisible element of culture and social life.¹ I do not think its significance is understood well enough in the social sciences. Because Katrina had such a dramatic effect on infrastructure, it provides an opportunity to better understand exactly how, and to what extent, infrastructure plays a role in social institutions.²

This brings me to my second reason for studying the infrastructure–emergency response nexus: I believe that this connection has not been given the kind of attention it deserves in policy studies. ‘Human and social issues’ remain a relatively small and underdeveloped element within the US government research agenda on infrastructure protection.³ However, Hurricane Katrina demonstrates that we really do not have a good understanding of the role infrastructure plays in institutions designed to protect the public in the event of disaster or attack. The dramatic collapse of local emergency services in New Orleans, along with the difficulties leaders in Washington, DC had in comprehending the disaster, suggests that this connection was not thoroughly considered at local, state, or federal levels of government. In order to effectively upgrade and protect infrastructure, we need a better understanding of the role it plays in key institutions.⁴

Hurricane Katrina had an astonishingly swift and devastating impact on infrastructure along the US Gulf Coast. Here, I narrow my focus on the

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New Orleans area, because the impact was especially dramatic and more information is available on what happened there. What happened was quite dramatic. It appears that by the morning of 29 August, as the hurricane eye passed near New Orleans, the electrical system, the telephone system – both wired and wireless – and Internet connections were destroyed or severely damaged. Some radio towers used for emergency response radio systems were also knocked out by the storm (Warrick, 2005). Also that morning, levees and floodwalls surrounding New Orleans began to fail, and the city started to slowly fill with water (McQuaid, 2005). By the next morning, the city was inundated, making most roads impassable and sewers non-functional; at some point, running water was shut off (Glasser & Grunwald, 2005). Homes, hospitals, and police precinct buildings were flooded. In a final terrible blow, as the water rose it swamped the backup generators powering many of the remaining radio towers used by local agencies, causing them to shut down (Warrick, 2005). At this point, local emergency responders were essentially without remote communications of any kind, and had severely limited mobility and supplies.

This swift collapse of essentially the entire infrastructure of the city of New Orleans exposed an uncomfortable truth: existing infrastructure, even in a relatively wealthy and highly technological society such as the USA, is surprisingly vulnerable to destruction – not only because specific systems are not robust, but also because these systems are thoroughly and often perversely interdependent.

Infrastructure and Social Order

I would like to distinguish two different levels at which infrastructure and social order are interdependent (though these are not meant to be exhaustive). ‘First order’ dependency can be described in terms of socio-technical systems, in which infrastructure and social organization each depend on the other.⁵ Accordingly, infrastructure technology takes part in social interactions, and the destruction of critical infrastructure can make coordinated action very difficult. ‘Second order’ dependency can be described from the anthropological perspective of Mary Douglas: because infrastructure participates in social interactions, and more specifically because it plays a key role in structuring the space and time of social action, it also shapes our fundamental sense of what is normal, possible, or moral.⁶ For example, communications technology facilitates coordination of social action across wide geographical areas on very short time scales, thereby creating social expectations about how individuals and institutions should respond to circumstances – for example, how quickly we should be able to contact someone far away, or how effectively government should respond to a natural disaster. More fundamentally, infrastructure shapes how we derive knowledge and meaning from experience, both because it serves as an agent for creating and connecting information sources, and because it is an important part of the nonhuman environment in which cultures and communities are embedded.⁷

Good examples of some of the second-order effects of infrastructure destruction are found in Kai Erikson's (1976) classic sociological study of the destruction of community in the Buffalo Creek Flood, a flash flood that obliterated several entire coal-mining communities in West Virginia. The sense of community that was lost was largely embedded in the physical environment of the town: its houses, streets, yards, neighborhoods – the infrastructure that enabled residents to interact with their neighbors and to establish appropriate social boundaries. With this infrastructure erased, many people were unable to make sense of the disaster and felt that moral and social order were disintegrating.⁸ No doubt many residents (and former residents) of New Orleans are experiencing some of these feelings as I write. Here, I will discuss how the collapse of infrastructure and social order affected one particular group of New Orleans residents: the New Orleans Police Department (NOPD).

The New Orleans Police Department after Katrina⁹

The near-collapse of local law enforcement was one of the most dismaying aspects of the Katrina disaster. While some agencies – notably the US Coast Guard – were able to respond quickly and effectively to the hurricane despite the widespread destruction of infrastructure (Wachtendorf & Kendra, 2005), the NOPD was quickly overwhelmed. In large part, this was due to the dependence of the police department on local infrastructure that was destroyed. At the time of the hurricane, New Orleans police officers were required by law to live within the city of New Orleans. As a result, up to 80% of their homes were destroyed, some officers were caught in the floodwaters, and many were worried about their families (Foster, 2005). The flooding also inundated police stations and vehicles, leaving the police short of supplies, ammunition, and transportation.

Police officers had to improvise transportation and meeting places: for one district, a command center was set up in the parking lot of a Wal-Mart store (Cha, 2005). Some police officers took Cadillacs from a dealership downtown, reportedly to use as patrol cars, although this was under investigation as a possible case of looting by police (Barry & Longman, 2005).

The police, like other local agencies, also had to make do with almost nonexistent communications when local radio antennas were shut down. The batteries for individual radios also began to fail. As Police Superintendent P. Edwin Compass III (who resigned a few weeks after the hurricane) described the situation: 'We had no juice to charge the batteries. We had to physically stay on the street to keep in touch' (Filosa, 2005). It is hard to imagine that staying out on the street, in a city the size of New Orleans, is a very efficient way for a police department to communicate. Lack of communication likely put a particular burden on the police because police departments typically are expected to work and solve problems on a distributed geographical basis, patrolling streets and neighbourhoods, rather than conducting targeted search and rescue or relief operations. And we can assume that none of the officers was old enough to remember how communications were accomplished in the days before radio.

Consider also the extent to which patrol work requires mobility – patrolling an area in a police car or on foot, responding to situations as they occur. Since many police cars were destroyed – and, in any case, they had no special capability to operate in deep water – patrolling by automobile was out of the question in most areas of the city. It soon became impossible to obtain gasoline. Foot patrol was nearly as difficult in the deep water. Some boats were available: in many cases, officers borrowed them or used their own boats. This enabled some police teams to patrol and to participate in search and rescue efforts (Filosa, 2005).

Clearly, the collapse of local infrastructure had the first-order effect of imposing crippling constraints on the ability of the NOPD to carry out even basic policing functions. Although some reports of violence turned out to be exaggerated, police were essentially powerless to respond to gunfire and looting (Dwyer & Drew, 2005). Most New Orleans police officers stayed on the job, and were able to rescue some people and to control some criminal activity. But a sizeable minority did not respond as well. Some 250 officers, out of approximately 1400, abandoned the police force following the storm: some may have been stranded by the flooding or busy taking care of family members, but many simply walked off the job or turned in their badges (Barry & Longman, 2005; Cha, 2005). More tragically, at least two officers were reported to have committed suicide (Filosa, 2005; Treaster, 2005). These were clear signs of breakdown, not only of organizational routines, but also of the moral and social order of police work – secondary impacts of the collapse of infrastructure.

The Breakdown of Order

There are at least three distinct ways in which the infrastructure destruction caused by Hurricane Katrina apparently broke down moral and social boundaries for the NOPD. First, post-hurricane conditions made it nearly impossible to maintain ordinary boundaries around the human body and self. Police Superintendent Compass, defending himself and his officers in a characteristically blunt manner, told reporters: ‘If I put you out on the street and made you get into gun battles all day with no place to urinate and no place to defecate, I don’t think you would be too happy either’ (Treaster, 2005). Compass also noted that officers were walking around in wet clothes and shoes all day, leaving them vulnerable to blisters and skin infections. Without homes to return to after work, or even, in some cases, police stations to work from, many officers had no good place to sleep, rest, or bathe.

Second, police appeared to experience disorientation in space and time, much like the Buffalo Creek flood survivors. One police captain involved in search and rescue efforts described the scene with vividly unfocused imagery: ‘It was just water. That’s all you saw. Water and people, people begging for help, guys floating around on mattresses’ (Hustmyre, 2005: 3). Other officers compared the environment to foreign war zones such as Vietnam, Somalia, and Iraq (Cha, 2005; Hustmyre, 2005). A Louisiana State University psychologist who worked with the NOPD after

the storm overheard someone in an elevator ask a police officer what day it was. The officer reportedly responded, 'I know what day it is. Every day is the same day; it's the day after the hurricane' (Connolly, 2005).

A third consequence of the infrastructure damage was a sense that the moral basis of police work had been upended. The relationship between police and criminals was one source of disorder. As noted earlier, police were often powerless to stop looting as they watched it occur; in a few instances officers reportedly participated in the looting (Barry & Longman, 2005). The role of the police in helping the community was also disrupted, as officers were forced to pass by many residents needing help, simply because they did not have the resources. One of the officers who committed suicide was said to be upset because 'he couldn't help stranded women who were pleading for food and water' and could not rescue trapped animals (Associated Press, 2005). The moral order of the police force itself was also called into question, as many remaining officers were troubled by those who abandoned their posts after the hurricane, wondering how they could ever trust those officers again. The stress was unmistakable when several police officers were videotaped arresting and beating a 64-year-old man in the French Quarter; one of the officers reportedly accosted a television producer on the scene, shouting 'I've been here for six weeks trying to keep ... alive. ... Go home!' (Foster, 2005).

Conclusions

The experience of the NOPD in the wake of Hurricane Katrina reflects many of the wider themes raised by the hurricane – from the general heroism and occasional bad behavior of ordinary people, to the failure of government agencies to imagine or fully adapt to post-hurricane circumstances. Although there are many explanations for the failures in the response to Katrina, we miss one of Katrina's major lessons if we do not seriously explore the close relationship between technological infrastructure and social institutions that the hurricane so clearly revealed.

In this regard, the current policies of the US Department of Homeland Security are problematic. With regard to infrastructure, the Department has focused mainly on identifying and protecting vulnerable technological components, and on the improvement of emergency communications. These are fine goals: certainly the response to Katrina might have been better coordinated if the electrical power system, for example, had not been so heavily damaged in the storm, or if different agencies could have used common radio channels. As sociologist Kathleen Tierney (2005a: 116) notes, however, communications systems are almost always judged to be inadequate after disasters, and it is unclear if even the most robust systems can fully meet the information needs of emergency responders in such circumstances. One danger of relying too much on technological fixes is that these typically create yet more layers of infrastructure, which can make emergency response organizations even less likely to plan for contingencies in which critical infrastructure is destroyed. In addition, the expense and

complexity of making even moderate improvements in the robustness of the US infrastructure necessitates a long-term political commitment that is likely to be hard to sustain.

Given these political and technological circumstances, it is very important to have a clear understanding of the role that different elements of infrastructure play in various social institutions – both first-order effects on emergency response, and second-order effects on institutional stability. Such understanding is crucial to identifying the most critical systems to protect. Perhaps more importantly, if policymakers are more conscious of the potential impact of infrastructure failure on social order, they can make more realistic judgments about what functions they expect emergency response agencies to perform in the aftermath of disaster or attack. Responders can also use this understanding to plan for the true challenges of operating in a post-infrastructure environment. Given these needs, the lack of an adequate social science research component in US government infrastructure protection and disaster response programs is a problem. However, it is unlikely to be remedied soon, due to the scarcity of social science expertise among officials setting the research agenda.¹⁰

I think the truly disturbing aspect of Hurricane Katrina is that it reveals how deeply held beliefs about social order presuppose functioning technological systems, and how truly fragile those systems are. This is a particularly difficult realization for a wealthy, powerful nation such as the USA, where people have learned to depend on vast, expensive infrastructures whose reliability is taken for granted. These infrastructures, and the capabilities they enable, generate very high expectations of government and other social institutions. When these institutions fail to meet such expectations, as in Hurricane Katrina, the surprise is correspondingly greater and the anger is more bitter. Modern technological infrastructure has enabled the development of unprecedented wealth, comfort, power, and other advantages for those individuals and nations lucky enough to fully benefit from it. But to a large extent, the more fully infrastructure is woven into social life, the more difficult it is for human beings to anticipate and prepare for the day when it may come crashing down.

Notes

1. Hayes (2005) makes a commendable effort to rescue industrial infrastructure from obscurity.
2. I use the term 'infrastructure' as an unproblematic category for the purposes of this comment.
3. For a general overview of the US government research agenda on infrastructure protection, see US Office of the President & Department of Homeland Security (2004); 'Human and Social Issues' are covered on pp. 62–67.
4. We also clearly need to better understand the role of institutions in maintaining infrastructure we care about; see Henke (2007), Mukerji (2007), and Wetmore (2007).
5. Clear examples of this perspective include Perrow (1984) and Hughes (1983). 'Actor network' (Latour, 1996) and 'social construction' (Bijker, 1995) approaches incorporate aspects of a socio-technical systems perspective, but are more interested in problematizing the components, boundaries, and meanings of systems.

6. See Douglas (1966) for the classic anthropological analysis of the relationship between material order and social order. In science and technology studies, some recent adaptations of Douglas's ideas include Mody (2001) and Sims (2005).
7. On infrastructure as part of the fabric of community, see Hommels (2005) and Sims (2000: 253–78).
8. Erikson does not directly make his argument in terms of infrastructure, but this theme is implicit in much of his book.
9. The analysis I present here is necessarily provisional, based on newspaper accounts and online information sources; however, at the time of writing, these were the best available accounts of the experience of the NOPD following Hurricane Katrina.
10. This conclusion is based on my experience and review of US Department of Homeland Security programs; Tierney (2005b) draws similar conclusions.

References

Note: References labeled (Newsbank) were accessed between 17 January and 9 February 2006 on the NewsBank NewsFile Collection database at <<http://infoweb.newsbank.com>>.

- Associated Press (2005) 'Katrina's Devastation Reaches into the Psyches of Survivors', *Pittsburgh Tribune-Review* (7 September) (Newsbank).
- Barry, Dan & Jere Longman (2005) 'A Police Department Racked by Doubt and Accusations', *The New York Times* (30 September), National Desk: 20 (Newsbank).
- Bijker, Wiebe (1995) *Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change* (Cambridge, MA: MIT Press).
- Cha, Ariana Eunjung (2005) 'New Orleans Police Keep Public Trust, Private Pain', *The Washington Post* (12 September): A1 (Newsbank).
- Connolly, Ceci (2005) 'Katrina's Emotional Damage Lingers', *The Washington Post* (7 December): A3 (Newsbank).
- Douglas, Mary (1966) *Purity and Danger: An Analysis of Concepts of Pollution and Taboo* (London: Routledge & Kegan Paul).
- Dwyer, Jim & Christopher Drew (2005) 'Fear Exceeded Crime's Reality in New Orleans', *The New York Times* (29 September), National Desk: 1 (Newsbank).
- Erikson, Kai (1976) *Everything in its Path: Destruction of Community in the Buffalo Creek Flood* (New York: Simon and Schuster).
- Filosa, Gwen (2005) 'N.O. Police Chief Defends Force', *The Times-Picayune* (New Orleans) (5 September), Hurricane Katrina: Special Coverage (Newsbank).
- Foster, Mary (2005) 'New Orleans Police Remain on Edge', *The Houston Chronicle* (11 October): A3 (Newsbank).
- Glasser, Susan B. & Michael Grunwald (2005) 'The Steady Buildup to a City's Chaos', *The Washington Post* (11 September): A1 (Newsbank).
- Hayes, Brian (2005) *Infrastructure: A Field Guide to the Industrial Landscape* (New York & London: W.W. Norton & Company).
- Henke Christopher R. (2007) 'Situation Normal? Repairing a Risky Ecology', *Social Studies of Science* 37(1): 135–42.
- Hommels, Anique (2005) *Unbuilding Cities: Obduracy in Urban Socio-Technical Change* (Cambridge, MA: MIT Press).
- Hughes, Thomas P. (1983) *Networks of Power: Electrification in Western Society, 1880–1930* (Baltimore, MA: Johns Hopkins University Press).
- Hustmyre, Chuck (2005) 'New Orleans Cops Under Siege in Katrina', accessed 10 February 2006 at <www.crimelibrary.com/gangsters_outlaws/cops_others/nopd_katrina/1.html>.
- Latour, Bruno (1996) *Aramis, Or the Love of Technology* (Cambridge, MA: Harvard University Press).
- McQuaid, John (2005) 'Alarm Sounded Too Late as N.O. Swamped – Slow Response Left City in Lurch', *The Times-Picayune* (New Orleans), (8 September): A10 (Newsbank).
- Mody, Cyrus C.M. (2001) 'A Little Dirt Never Hurt Anyone: Knowledge-Making and Contamination in Materials Science', *Social Studies of Science* 31(1): 7–36.

- Mukerji, Chandra (2007) 'Stewardship Politics and the Control of Wild Weather: Levees, Seawalls, and State Building in 17th-Century France', *Social Studies of Science* 37(1): 127–33.
- Perrow, Charles (1984) *Normal Accidents: Living with High-Risk Technologies* (New York: Basic Books).
- Sims, Benjamin (2000) *On Shifting Ground: Earthquakes, Retrofit and Engineering Culture in California* (PhD Dissertation, University of California, San Diego).
- Sims, Benjamin (2005) 'Safe Science: Material and Social Order in Laboratory Work', *Social Studies of Science* 35 (3): 333–66.
- Tierney, Kathleen (2005a) 'The 9/11 Commission and Disaster Management: Little Depth, Less Context, Not Much Guidance', *Contemporary Sociology* 34(2):115–20.
- Tierney, Kathleen (2005b) 'The Red Pill', accessed 2 February 2006 at <<http://understandingkatrina.ssrc.org/Tierney>>.
- Treaster, Joseph B. (2005) 'Police Quitting, Overwhelmed by Chaos', *The New York Times* (4 September), National Desk: 1 (Newsbank).
- US Office of the President and Department of Homeland Security (2004) 'The National Plan for Research and Development in Support of Critical Infrastructure Protection' (Washington, DC: The Executive Office of the President of the United States, Office of Science and Technology Policy, and The United States Department of Homeland Security, Science and Technology Directorate).
- Wachtendorf, Tricia & James M. Kendra (2005) 'Improvising Disaster in the City of Jazz: Organizational Response to Hurricane Katrina', accessed 2 February 2006 at <http://understandingkatrina.ssrc.org/Wachtendorf_Kendra>.
- Warrick, Joby (2005) 'Crisis Communications Remain Flawed', *The Washington Post* (10 December):A6 (Newsbank).
- Wetmore, Jameson M. (2007) 'Distributing Risks and Responsibilities: Flood Hazard Mitigation in New Orleans', *Social Studies of Science* 37(1): 119–26.

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