

# American exceptionalism or universal lesson? The implications of *Hurricane Katrina* for Australia

*John Handmer examines the extent to which the problems of Hurricane Katrina could occur elsewhere*

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## Abstract

Few events have been as well planned for as *Hurricane Katrina* in New Orleans. Yet the emergency management system appears to have failed in most respects. Media reports on many aspects of the crisis challenge existing orthodoxy in research and practice. A few months after *Katrina*, interest has waned and press and agency apologies for exaggerating aspects of the extent of the crisis are emerging, although some evidence suggests that aspects were even worse than reported. There is also a developing lower profile crisis as local economies shrink, threatening to halt recovery.

This paper examines some important questions concerning the extent to which the problems of New Orleans could occur elsewhere. To the extent that New Orleans is a special case, the implications should be limited. But where similar circumstances exist now or in the future, could we expect to find similar problems? The paper also discusses some general issues to do with the processes of emergency management.

Handmer states that although aspects of the New Orleans situation may be found in disasters everywhere, a similar situation seems unlikely to occur in Australia. This statement is qualified however, by questioning what exactly took place, uncertainty about Australian emergency management capacity for a huge event, and trends in Australia that may make us more vulnerable in future.

## The New Orleans crisis

It is too easy to be critical of emergency managers. For them in a major event, the stakes are often very high with lives and economies at immediate risk, resources inadequate and political and media scrutiny intense, interfering and unforgiving. Information will be inadequate, modelling ambiguous and rumours rife. Emergency management is often tested in public with immediate if not real-time feedback, with a constituency dedicated to locating and punishing the blameworthy. Emergency workers may save thousands of lives in the face of an extreme natural phenomenon and vulnerable population, but enquiries and lawsuits for the few unfortunate victims may drag on for years, consuming resources in a fruitless search for zero risk.

However, the crisis in New Orleans, and the apparent multiple failures of emergency management are astonishing. The global media focus has, naturally enough, been on the immediate post-impact phase with the chaos and inadequacies of the emergency response providing plenty of media fodder. There was a determined search for the guilty and suggestions by both local and foreign media, that this was a unique event. But was it really such a surprise?

A month or so later media interest has waned and there have now even been press and agency apologies for exaggerating aspects of the extent of the crisis (eg Rosenblatt and Rainey, 2005; Smith-Spark, 2005). Most attention has turned to the ongoing political credibility crisis for the US President and FEMA (the Federal Emergency Management Agency), and its parent agency, the Department of Homeland Security – a leviathan of 170,000 employees speaking unconvincingly about shortages of resources and expertise. No emergency manager, politician, or anyone else, has emerged as a public leader or hero.

The crisis challenges more than the careers of those senior US emergency managers with responsibility for response. It raises questions about emergency management, disaster myths and the research supporting much contemporary practice. Through

these issues runs the broader question of to what extent New Orleans – with a contiguous urban area similar in population to Brisbane or Perth – is an exceptional event, or is it a warning of what emergency managers have to look forward to? Could it happen in Australia?

### The apparent impact – no surprise

*“The Federal Emergency Management Agency lists a hurricane strike on New Orleans as one of the most dire threats to the nation, up there with a large earthquake in California or a terrorist attack in New York City.” (Bourne, 2004).*

With days of warning *Hurricane Katrina* headed towards New Orleans creating a storm surge which raised the level of Lake Pontchartrain – itself attached to the Caribbean – breaching and/or overtopping levees protecting the city. The majority of those at risk evacuated in some chaos as a normally short drive took most of a day. However, over 100 000 did not evacuate. Many of these people did not have the means to do so, including many tourists. Others decided to stay.

In New Orleans you walk uphill to the Mississippi River held in place by dykes that would serve well on the Dutch coast. The city is well below sea level with the Mississippi on one side and the Caribbean via Lake Pontchartrain on the other. The history of settlement there is that of extending into increasingly hazardous areas. On two visits to the city local people made it plain to me that the threat was from the sea rather than the river.

Neither the hurricane striking the city, nor the inability of over 100 000 people to evacuate was a surprise. The whole event down to many of the details was thoroughly well predicted and rehearsed. This is a reasonable conclusion whether we consider the popular culture world of *National Geographic*, the emergency management profession, peer reviewed science, numerous articles and analyses in mass media, or a near miss from *Hurricane Ivan* in 2004 (Laska, 2004). It was not knowledge that was restricted to academics as suggested by a recent report in *Nature* (Reichhardt et al 2005). In addition, the people of the city were well aware of the threat from living below sea and river level. The fact that a scenario paralleling the actual event was used as a FEMA training exercise seems almost satirical – *Hurricane Pam* a category 3 storm. A report in *Nature* (Reichhardt et al 2005:175) soon after the event observes that “The similarities between *Katrina* and the *Pam* simulation are eerie.”

However, while the event was expected, the outcomes were surprising. The predictions, scenarios and rehearsals did predict more than the 1200 or so deaths, but did not deal with the following paralysis of local and state government, collapse of essential services (which



*After a natural phenomenon the situation for disaster victims improves steadily, however this is not yet the case for Southern Louisiana.*

appears to have continued to worsen as the entities run into financial problems), apparent breakdown of law and order, abandonment of many of the more vulnerable people, and the seeming inability of the federal government to get to grips with the disaster. There was also the large number of children separated from parents – over 1000 cases, and so on. It was assumed, and in many cases asserted, that planning and preparations were thorough and would be effective.

On Sunday 28 August, as the hurricane approached, President Bush was among those urging people to leave, “We cannot stress enough the dangers this hurricane poses...” (BBC 2005 (III)). He urged the State Governor to order a mandatory evacuation. Michael Brown, the director of FEMA was more relaxed urging residents to take “precautions immediately”. It was well known from the various scenarios that a car based evacuation would leave over 100 000 stranded. Yet the provisions made were the focus of much negative media attention and seemed to underscore the overall failure in response management. For the first time since the 1960s the US mainstream media right across the political spectrum used race and class to critique the US system – the “outrage factor” was high.

The stranded were eventually evacuated to points scattered throughout the conterminous USA (Carroll, 2005) – in the view of one US disaster specialist, to reduce the chance of civil unrest or organised political pressure from the displaced.

### An emerging crisis in recovery – local economic collapse

*“About 81,000 of Louisiana’s 197,000 businesses have either shut down or scaled back operations because of Hurricane Katrina” (LA Times, 2005).*



Over 100 000 people failed to evacuate before Katrina. Many of these people did not have the means to self evacuate.

Typically, after the impact of a natural phenomenon the situation for disaster victims improves steadily – at least in wealthy countries. However, as of the end of November 2005, this is not yet the case in southern Louisiana. Another serious set of crises is emerging as the area struggles to recover. This is the apparent partial collapse of local economies. The proximate cause of this partial collapse is *Hurricane Katrina* of course, but the sources of finance for the city and other areas affected by the hurricane have dried up leaving the local authorities with little option but to lay off staff (including those in the emergency services), in turn exacerbating the local economic downturn. The area was very poor before the disaster with massive chronic unemployment. This has serious implications for disaster recovery and highlights an issue that may be fundamental to recovery from most disasters – local economic vitality. Analysis is complicated as many of the Cajuns in the bayous supplement their cash incomes with subsistence fishing, and in New Orleans itself there is a very substantial criminal economy around drug addiction and trading.

Disasters have considerable economic impacts often halting local enterprises for a period. But this is generally made up by other economic activity especially that connected with disaster recovery and flows of aid. It may also be made up by increased activity later on.

The US national economy has not been severely affected by the hurricanes although unemployment grew for the first time in two years. The big issue for the national picture is the potential impact on the US budget deficit now running at about US\$333 billion well down from last year's record. The hurricane could cost up to \$200 billion. Analysts argue that this cannot be simply absorbed given the size of the current deficit (BBC, 2005, (i)).

The initial signs from New Orleans however are worrying. Some 80 000 worked in the local tourist industry and another 14 000 in floating casinos – these are scarcely functioning at all. The city's port is at 25 per cent capacity potentially affecting a large proportion of the 107 000 whose work is linked to port activities. The city itself has had to lay off thousands (BBC, 2005 (iii)). The Louisiana Labor Department indicated that New Orleans lost 237 200 jobs in September. A local economist argues that the current unemployment level is artificially low as much has been exported to other states (*The Times Picayune*, 2005 (i)). The power company is bankrupt, all three local universities are effectively closed and plan to downsize on re-opening, and only one in three of the city's inhabitants is back in town.

All this in a very poor area – and poor local authorities in the US have ongoing expenses unlike many of their counterparts in other rich countries. They are struggling to meet ongoing commitments to health care funds for example.

**Table 1. Employment and Hurricane Katrina**

Unemployment relief ( <i>The Times Picayune</i> , 2005 (i))		
2004	Sept 12,710;	Oct 11 946
2005	Oct 271 846 (plus another 24 519 attributed to Rita)	

President Bush and others have suggested that there may be an opportunity to redevelop the south, eliminating chronic poverty and bringing the economic dynamism that the city, if not the region, had a century ago when New Orleans was America's second port. As an economic powerhouse it was the largest and most prosperous city in the Confederacy (albeit partly as a

result of the slave trade). A plan to turn the entire area into a tax free enterprise zone with a range of incentives for small and local businesses (while handing the contacts for infrastructure repair to the multi-national

Halibuton) has been proposed (LAT 25/10/05:8) – “A chance to wipe out poverty and the remnants of racial injustice” (George W. Bush, BBC,(ii)). There are no signs of this yet. Instead the crisis is deepening.

**Table 2. Disaster myths, reality and New Orleans – preliminary observations**

<b>“MYTHS” about what happens in disaster, drawing on the research literature.</b>	<b>“REALITY” As established by research &amp; experience.</b>	<b>NEW ORLEANS What seemed to happen.</b>
Widespread looting is expected.	<i>There is no increase in criminal activity, and little or no looting.</i>	We all saw “looting”, and there were numerous media reports and reports by local officials, people in the streets, blogs, etc. Evidence of looting by officials. Some reports of looting & criminal behaviour have been withdrawn. Looting has been re-defined by some commentators to exclude much of the behaviour: so the hungry were feeding themselves, the drug addicted raiding hospitals for their needs, and so on. Criminal drug related gangs were very active.
Helplessness and abandonment of the weak. Disasters strike randomly.	<i>People help those in need. Differential impacts on the vulnerable.</i>	Over 100 000 did not have the means to evacuate, and became dependent on others to keep them alive. This help was very slow to come and seriously inadequate. Some in nursing homes and private hospitals were abandoned and died. (St Rita’s Nursing Home – pending criminal charges)
Officials experience conflict between their official duties and family demands. Some will hide from the crisis.	<i>Officials will do their job and not abandon their posts because of “role conflict”.</i>	Large scale abandonment of official posts and duties. 50 officers were fired for going AWOL, 228 are still under investigation (Perlstein, 2005). Police were also caught looting department stores. The situation seemed well beyond the capabilities of CEOs at all levels of government. First priority went to security rather than attending to those desperate for food and water, and to those dying for want of medical attention. There were no public heroes.
Large scale demand for official temporary accommodation.	<i>Little need for official emergency accommodation.</i>	About 200 000 people were being housed through official channels a month and a half after the disaster. About 120 000 needed accommodation on the day. The mass evacuation centres were overwhelmed. (There is a dispute over the actual figure with much higher numbers occasionally quoted.)
People take advantage of the vulnerable.	<i>Much behaviour is altruistic.</i>	There was no shortage of price gouging and people being evicted from private rentals creating homelessness (Hartman, 2005) adding to the burden for public authorities. The town of Gretna, across the Mississippi from New Orleans, barricaded itself and at gunpoint prevented refugees from entering the town ( <i>Khaleej Times, 2005</i> ).
Disaster plans are the solution.	<i>The process of planning is key, and should engender flexibility and adaptability.</i>	Plans, including detailed planning by FEMA, failed totally. Even the previous year’s mock ‘Hurricane Pam’ did little to prepare officials and residents. There was no evidence of adaptability other than on a small scale by agencies like the Coastguard.
Universal need for command and control.	<i>Co-ordination &amp; co-operation (always many groups). Order does not come from guns.</i>	No incident command centre established. Lack of leadership from federal and state leaders culminating in an un-coordinated response and initial recovery. This has been blamed on recent changes in roles, responsibilities and resource allocation for disaster management operations under FEMA and Homeland security.
Outside rescue teams save many lives.	<i>People next door do the saving as outside help may take too long.</i>	There are reports of people assisting each other, but the general picture is of an absence of rescue and help by neighbours.

## The challenge to existing practice and research

Given the exhaustive planning for an event like *Hurricane Katrina*, it is reasonable to ask whether the research results underpinning the planning retain their currency. An associated question concerns the validity of contemporary emergency management practice. If New Orleans is an exception, then why? To the extent that it represents contemporary reality to what extent do its lessons apply in Australia? This issue is tied in with the broader question of the applicability of overseas research to Australia.

It is normal for the mass media and some other groups and individuals to portray disasters in ways that research, primarily from the US but also from Europe and Australia, has long shown to be misleading (eg. Quarantelli and Dynes, 1973; Wenger et al. 1975; Drabek, 1986; Dynes, 1994; Morgan, 2004; Eberwine, 2005; Schoch–Spana, 2005; WHO 2005). Apart from encouraging ineffective policies, the problem can be that these media misperceptions lead to allocation of scarce management and recovery resources, and can cause needless anxiety among those impacted by the disaster. For example, the threat of epidemics from the dead is a persistent myth, leading to pressure for mass burials. Another is the need for goods of all kinds including medical supplies. Unfortunately, these generally simply absorb resources for sorting and checking items that are often of no use to the affected areas – hence the emphasis on “needs assessment” (PAHO, 2001). Another myth concerns looting, which research has long argued does not occur (Auf der Heide, 2004). Fear of looting is an important reason often given for reluctance to evacuate.

Drawing on this literature, Table 2 sets out some myths, the research understanding of reality, and what appears to have occurred in New Orleans. The most striking feature of the Table is that the New Orleans experience appears to call into question the relevance of long standing research results, and the assumptions they generate for practice. In summary, does it contradict decades of disaster research findings? Or is it simply an exceptional event or one reported with exceptional exaggeration?

To this partial and preliminary list we could add a firmly held belief that technology will solve many of the problems (Wood et al, 2005). However, reflecting on New Orleans it is difficult to see where technology alone would have made a significant difference. New Orleans also draws attention to a gap in the disaster literature – it is almost silent on dealing with major disaster in an environment of organised crime, poverty, high levels of drug addiction, and weak government.

## Disasters highlight existing attributes

An orthodoxy discussed more among researchers than practitioners, is that disasters tend to highlight or sometimes exacerbate existing trends, rather than create entirely new circumstances. Given the ‘normal’ circumstances in New Orleans, what was seen and the fallout does not seem so surprising. However, an earlier New Orleans flood, that of 1927, is drawn on by historians rather than disaster researchers to illustrate the opposite – that a major disaster can lead to substantial and lasting social change. The management of the 1927 Mississippi River flood left many African Americans destitute and seemed to dramatise the rigidity and lack of concern for Americans of the Hoover presidency. It is credited with paving the way for the huge expansion of central government’s role in US disasters and more generally with Roosevelt’s ‘New Deal’ (Barry, 1997). Within Louisiana it helped bring the populist Huey Long to power – and a dynasty that ended in 1960. The Ninth Ward of the city was the first area flooded in 1927 as was the case in 2005.

## Is US disaster research applicable to Australia?

Examining overseas experience raises an obvious issue which is far too often ignored – that is the question concerning the applicability of lessons and experience from elsewhere. This is quite distinct from the concerns raised when the information from elsewhere would be embarrassing or show the inadequacy of local thinking and practice. It is also distinct from concerns about the limits of generalising from case study research.

If the national – let alone regional or local – contexts of the research are very different to where it is being applied, then research results may not be automatically transferable. New Orleans appears to be entirely different in almost every respect from any Australian city. A large question mark must hang over the applicability of its experience elsewhere.

This simply highlights a problem with most research results – that is the extent to which they can be regarded as universal. But most research is quoted as if it was perfectly transferable across national boundaries, even if a ritualistic footnote suggests that caution be exercised in interpreting results across cultures. A similar comment may be made about the uncritical transfer of results within countries to rather different contexts, for example, the results of risk research conducted in rural towns in the US and Australia have been applied to metropolitan areas without consideration of the differences.

The output from US based researchers dominates the published and accessible literature. Issues of scale, resource availability, institutional differences, and the multiple cultures of American society should make us cautious about transferring US research results and

practice. Unlike Australian states, each of the 50 US states is quite distinct, and the three US mainstream “cultures” of Anglo–Celtic, African American and Hispanic (in addition to Indigenous groups) (each consisting of many sub-groups) are separated by language, popular culture, and economic, political and health issues.

Most of us know America through the media portrayal of California and New York even if we have visited other areas for tourism or business. Most non-Americans know little of the distinctive societies and economies of the other 48 states, including Louisiana. New Orleans and Louisiana have their unique history, political, economic and cultural experience which sets them apart from the rest of the US, let alone the rest of the world. At a minimum, we should be conscious of this, while not using the differences as an excuse for dismissing challenging implications.

### Could it happen here now?

The scale of *Hurricane Katrina*’s impact suggest that it could not happen in Australia. However, as it is too easy to simply dismiss the possibility, three fundamental elements of the New Orleans situation are examined here: the physical exposure; the vulnerability of the people; and the emergency response and initial recovery. Trends in Australia that might increase the risk of a similar event are then examined.

#### The hazard – the delta, the city and sea level

*“An acre [of the delta] disappears every 24 minutes. Each loss gives a storm surge a clearer path... into [New Orleans].” “The Mississippi delta is the posterchild for... the world’s degrading deltas, coastal wetlands and cities on the sea”*  
(Fischetti, 2001).

Australia does not have significant deltas and does not have either the original or the evolving exposure of New Orleans as its protective delta is eroded away. It is easily overlooked but there are also thousands of people living precariously around the bayous throughout the delta. An initial analysis by the Louisiana State University has found that a major shipping channel cut through the delta wetlands in the 1960s exacerbated the storm surge. It appears that the channel may have made the surge 20 per cent higher and much faster (BBC, 2005, (iv)). Their analysis also reported that trees provided some protection for the levee against surge – this is well established and was also noted by investigators into other coastal ecosystems and the 2004 Asian tsunami (Harakunarak and Aksornkoe, 2005). The damage from *Katrina* appears to have made the whole area much more vulnerable by washing away some 80 square kilometres of delta land.

But parts of Australian towns lie at or near sea level with little or no barrier between development and the sea, for

example, some towns on the Queensland coast such as Cairns, Townsville, Mackay, and the rapidly expanding Gold Coast canal estates, are just above sea level and are vulnerable to quite minor storm surges. The north and north-west of Australia is also vulnerable but the large tidal range there reduces the probability of a surge going inland as it would need to arrive at or near high tide.

The dykes protecting New Orleans from the waters of Lake Pontchartrain have been found to be poorly designed, built and maintained in one of the at least three initial investigations. A number of the breaches were the result of faults in design and construction – investigators say they were not as strong as expected and it is clear that sections failed without overtopping, others failed after the foundations were eroded (Washington Post, 2005). It has been claimed that the poor soil conditions had been drawn to the attention of the responsible agency, the US Corps of Engineers (LA Times, 2005). It also appears that gaps in the levees may have been left open for railway tracks.

Some disaster experts have asserted since the crisis that the design level of 1:250 flood or so was as much as could be economically justified. Unfortunately, this sort of analysis ignores the fact that this is not a normal river dyke the failure of which admits some water for a time which will drain away. Instead it is a dyke keeping the sea at bay, and not simply seawater but seawater seriously contaminated by sewage and chemicals from 31 “superfund” sites (contaminated sites identified for national priority clean-up), as well as hundreds of major additional sources of chemical and biological contamination. Failure threatens the future of the entire city and perhaps region of nearly two million people. By way of contrast (following the 1953 disaster) the current Dutch sea dykes are designed for a legislated return period storm of about 10 000 years and the river dykes running through the same areas lying well below river water level are designed to over 1000 years. These probabilistic risk analyses ignore the problems with the standard as constructed and maintained rather than as designed on paper. It is worth noting that in the past, similar issues concerning the standard of construction, operation and maintenance or major river levees, but not sea walls, have been observed in Australia for example, the 1991 NSW Levee Audit.

#### The people

*“Poverty in New Orleans is pervasive and systemic. Approximately 27%... live below the federal poverty line.” Systemic poverty hampers, if not cripples, virtually every aspect of New Orleans... Education, economic development, housing, crime – all these and more are deeply influenced by the severe poverty of the city.”* (TCA, 2004).

Many cities around the world have significant areas of deprivation, some like New Orleans, may have

a near majority in that situation. The population of New Orleans is predominantly African American distinguished by high levels of chronic unemployment, poverty, poor health and homelessness. While the great majority were able to evacuate the city voluntarily, over 100 000 did not. These people did not have the means to leave and in many cases did not appear to have personal networks to help them. The city has the highest murder rate in the US (with a local entrepreneur selling tee-shirt images of the dead), very high levels of drug related crime, with consequent “no-go” areas (ONDCP, 2004). Those without private health insurance have very limited access to medical facilities.

The per centage of disabled over the age of 65 years is 48.1 per cent, and 22.1 per cent for those aged 21–64 years for the state of Louisiana. Life expectancy for African American men is about 63 years (US Census Office, 2000). City governance is of limited effectiveness, and the state has a long history of political violence and corruption. The city is in the US south and some aspects of the crisis reflect this – something not readily acknowledged by all commentators – strong support for a pervasive gun culture, long established poverty in large sections of society, and a very weak public sector in terms of essential service provision other than law and order (Frymer, 2005). In common with other US disasters many of the poorest are renters who found themselves facing eviction in the immediate aftermath of the event (see also Miller and Simile, 1992). Many outside the city live in small French speaking Cajun communities with a partly subsistence base. Adjacent towns were not all helpful.

In summary, by almost any criteria many of the people of New Orleans are very vulnerable to disaster.

Nowhere do major Australian cities or towns sit within cultures of governance, established poverty and crime like some major US cities. But many of these features and issues exist on a smaller scale within our metropolitan cities and in remote rural areas. They also exist in cities outside Australia but within our immediate neighbourhood.

### **The emergency response – Katrina brought the water, but officials organised the chaos**

*“Katrina exposed serious problems in our response capability at all levels of government, and to the extent that the federal government didn’t fully do its job, I take responsibility.”* President Bush (BBC, 2005 (v)).

As discussed above, the event was well anticipated, planned and rehearsed. The attributes and vulnerabilities of the population were, or should have been, well known. So it would be reasonable to expect that the emergency response was at least adequate if not exemplary. As is now well established, this was far from the reality with all levels of government failing.

After a couple of weeks New Orleans had possibly more troops on the streets than Baghdad, but their priorities did not align with those in the city for some time as they patrolled the streets in armoured cars. Their primary task was not rescue or assistance for the stranded population. It was property protection and law and order. It is clear from now released FEMA email correspondence that there was a continuing desperate shortage of food, water and medical equipment and expertise which was simply nowhere near being met (with as little as 5 per cent of what was requested) even when requests were made days ahead (Melancon, 2005).

The media focus has been, and continues to be, on FEMA (the US Federal Emergency Management Agency) whose mission is to co-ordinate response and provide resources as required. Some commentators have argued that FEMA cannot act on its own volition – it must be asked to assist by the affected area’s mayor or state governor. However, this was not raised as an issue even as the Director of FEMA lost his job. Before the hurricane hit, George W Bush declared a state of emergency for the region under *Title V* of the *Stafford Act*. To quote from the White House statement of August 27: “The President’s action authorizes... FEMA... to coordinate all disaster relief efforts... to save lives, protect property and public health and safety...”

Nevertheless, local and state emergency planners and responders have largely escaped public scrutiny so far. When they have been interviewed they seemed overwhelmed by the situation, and appeared to be unprepared in every way. It is easy to blame these managers, but emergency management was not a high political priority in the state of Louisiana despite its location and opportunities for predicted and rehearsed catastrophe. Resources made available for the purpose appear to have been token. Nevertheless, the performance of the police was poor and possibly counter-productive with a range of looting, violence, and other allegations, such as preventing the entry of relief teams and supplies, made against them (and other paramilitary forces). Some 50 resigned during the event and many others, perhaps as many as 250, failed to report for duty (Times Picayune, 2005). Some other services such as the local fire service and national Coast Guard appear to have worked well.

It appears that co-ordination between authorities – and in the US there are typically many emergency management groups involved at the state and local levels of government – was limited. The absence of the American Red Cross due to lack of communication by authorities led to a statement answering the question: “why is the Red Cross not in New Orleans?” (American Red Cross, 2005). In at least some areas there was an absence of integrated incident command or management systems. A key emergency management capability for



After a couple of weeks, New Orleans had possibly more troops on the streets than Baghdad.

evolving complex disasters is an ability to adapt to surprises, and to be flexible in the face of changing circumstances and demands. There was little evidence of this (Wachtendorf and Kendra, 2005).

In fact, it is quite possible that the response was even worse than portrayed by the media, rather than better as represented by some media apologies and researchers. An analysis of Michael Brown's (then Director of FEMA) emails suggests this. An example of one of many emails he received:

*"Sir, I know you know the situation is past critical... Hotels are kicking people out, thousands gathering on the streets with no food or water. Hundreds still being rescued from their homes. The dying patients at the DMAT tent being medivac... Estimates are many will die within hours... We are out of food and running out of water at the dome... [where there were 20,000+ people]... DMAT staff working in deplorable conditions... Phone connectivity impossible."*  
(Marty Bahamonde, quoted in Melancon, 2005)

Michael Brown's full response:

*"Thanks for the update. Anything specific I need to do or tweak?"*

There are worse examples.

The city's medical facilities fared badly, especially as their emergency power failed (Dalton, 2005), and patients at some nursing homes were abandoned and died resulting in legal action against the managers.

A lot of NGO aid groups are very active but largely invisible to the foreign media, in particular faith based groups such as the Mennonites and Islamic Relief.

In Australia, the States play the lead role in emergency management with variable support from local government. The federal government has at best a supporting operational role except in federal territories. The emphasis – perhaps unintended – is towards a high standard of planning and management across each State and Territory characterised today by increasing interagency co-operation, communication and some innovative leadership, which has demonstrated an ability to adapt – and it appears that it was leadership above all else that may have been lacking for *Hurricane Katrina*. The reorientation towards counter-terrorism has not been as fundamental as in the US in that the core interest of most state emergency services remains natural and technological disasters.

The above suggests that Australian emergency managers would out-perform their US colleagues if faced with a New Orleans' type situation. The problem with this positive assessment is that we have not faced a very large complex event for a long time, and so it is difficult to be certain about our performance. FEMA has more resources at its disposal than any Australian agency and had planned for the event. What does this say about a reliance on centralised resources and planning?

### Could the future bring this chaos in Australia?

Based on examination of the physical hazard and exposure, vulnerability of the people and emergency management competence, it seems that Australia could not experience a New Orleans type and scale of disaster. The likelihood of it happening in a major city in our region, such as Port Moresby – where Australia would be expected to assist and perhaps help lead the response – is not considered here.

But, elements of the New Orleans experience could and do occur in microcosm. Of more concern may be the possibility that identifiable trends are increasing our risk of a larger scale disaster with some New Orleans attributes.

### Exposure – investment and global environmental change

Australians like Americans are increasingly attracted to hazardous places. Bernard Salt paints a picture of Australians streaming northwards and coastwards – to the cyclone prone areas (Salt, 2005). Despite the recent devastation, the US hurricane coast is increasing in population by about 1300 a day. The Queensland towns mentioned above are being joined by many others as development expands as close as possible to the sea.



Two aspects of predicted global environmental change: sea level rise and an increase in the number of cyclones associated with higher sea surface temperatures, will bring more storm surges and make smaller surges more dangerous. Recent work on hurricanes in the Caribbean shows that the absolute number of hurricanes has not increased, but the number of severe hurricanes has increased significantly and it is these damaging events that are of concern.

### **People, property and vulnerability**

The vulnerability of many of those stranded in New Orleans can be characterised in terms of exclusion from many of the economic, health, social and political benefits of mainstream America (Cutter 2005), as well as pervasive criminal activity, exacerbated by ineffective emergency management and city governance. There appears to also be a high level of disabilities.

Apart from the widening wealth gap (Salvation Army, 2005), Australian society does not appear to be heading that way. But major changes which reduce the legal entitlements of many Australians, for example through reduced job security, a privatised health system, or other changes which reduced political representation, could shift this assessment. Other trends of a more demographic and lifestyle nature may be making us more vulnerable – primarily that we are increasingly an aging coastal-dwelling population.

### **Emergency management**

The tendency to rely on a single supremo – one person in “control” during a major evolving multi-faceted crisis – invites weakness or failure. Similarly, structures, organisational culture and planning that discourages adaptability, appreciation of the reality on site however unpleasant, and multi-organisational (public, private and civil) co-ordination, may constrain capabilities however well resourced. To the extent that Australian emergency management follows these paths in the future, we risk New Orleans type problems in complex drawn out events. More robust arrangements can keep accountability and disperse the responsibility so that bottlenecks can be avoided, and encourage the flexibility needed to cope with very large complex problems.

Politicians allocate the resources to emergency management against many competing demands – as I was reminded recently by a Canberra politician. In quiet periods it is of course tempting to reallocate funding – setting the scene for inadequacy when performance actually counts – during a major non-routine crisis. Redundancy as in spare capacity is not something managerialism has been happy with. However, extra capacity can be found through arrangements with other public and private groups provided some prior arrangements or planning for this exists. Any trends which weaken response and consequent management

and the current building of recovery capacity, would take us in the New Orleans direction.

Australian emergency management organisations have been heading in the direction of a co-ordinating and facilitating role in major events, and continuous efforts on a flexible multi-hazard approach. But the rise in importance of counter-terrorism has the potential to reduce or reverse this.

### **Another view**

Direct comparison with New Orleans may be overly comforting as we can reassure ourselves that similar situations simply do not exist in Australia. A more realistic test may be to consider some of the generic or systemic issues. How would our major cities cope with a comprehensive collapse of most infrastructure across a significant part of their territory – with an absence of food, water, fuel, communications, transport, electricity, and medical facilities? We could add to this the need for evacuation and immediate accommodation for over 100 000 people. They might manage reasonably well for a short period, but the New Orleans experience with medical facilities for example makes for very sober reading, as back-up power failed long before the crisis was anywhere near being resolved (Dalton, 2005). The situation could be complicated by large gangs who take advantage of the situation for their own purposes. How can the possibility of decision paralysis be taken into account in planning?

### **Conclusions**

*Hurricane Katrina* presents a very complex situation made more difficult to examine because of the intense media coverage and highly political nature of the event. Something similar is most unlikely to occur in Australia as we lack the type of exposure, we do not have such a large concentrated area of poverty and associated vulnerability, and our emergency services are organised quite differently. However, at a small scale aspects of the US experience may occur and trends in Australian society may exacerbate this. As well, cities within our immediate neighbourhood where we would be expected to assist, contain elements of the New Orleans syndrome. The generic emergency management issues raised by New Orleans present more of a challenge:

- very large scale evacuations;
- the total collapse of infrastructure and unavailability of accommodation, food and water;
- an inability to make effective decisions in a major crisis; and
- dealing with large-scale organised criminal behaviour, and avoiding shrinkage of the local economy.

Plans and planning – including the use of scenarios and exercises – need re-examining for their assumptions and weaknesses which include ignoring local realities.

There has been much discussion about the circumstances when mass evacuation of large cities is viable – apart from moving people where would the hundreds of thousands go? Following in the slipstream of *Katrina*, *Hurricane Rita* shows some of the difficulties. Thousands were trapped for many hours in massive traffic jams as people headed out of Houston. Then the evacuation orders were cancelled (Blenford, 2005). Evacuation has its own risks too – 23 people died when their bus burst into flames, “at least 35 other people – many of them elderly or ill – died during the evacuation of Houston” (in the face of *Rita*) (USA Today, 2005).

The event is a challenge for the continued relevance of long standing research results, and the assumptions they generate for practice. This comment applies to both the management of the event itself and the initial recovery process, which appears to now be seriously hampered by local economic downturns. Detailed study of the event is needed to clarify what areas of practice need rethinking, and the extent to which US research and practice continues to apply to contemporary Australia.

Was New Orleans an exception? Or does it suggest that we need to rethink the currency of long established research and policy? The answer here is closely associated with the answer to the related question: did what we saw actually happen or are we suffering from some collective media induced hallucination? Disentangling the myths, mis-reporting, various sorts of self-interest and agendas, the micro experiences of individuals, and the sheer heterogeneity and complexity of the event, is necessary before we can provide definitive answers.

## Acknowledgements

I would especially like to thank Wei Choong of the Centre for Risk and Community Safety for her assistance with this paper. Insights on the New Orleans situation came from numerous sources. Here I acknowledge some of those with whom I discussed the disaster and whose views and experiences helped me greatly: Steve Molino, Marnie Hillman, Mike Tarrant, Terry Canon, Ken Mitchell, Tricia Wachtendorf, and Anthony Oliver-Smith. I would also like to thank the Australian officials who wish to remain anonymous, and journal referees for their helpful suggestions.

## A note on sources

This paper is being prepared as the disaster continues to unfold. The New Orleans and Louisiana situation after *Hurricane Katrina* is immensely complex and political, and any conclusions are therefore tentative. I have drawn on media reports – primarily the US media, BBC World Service website (and its links to global media), and Australian media – some discussions on hazard related internet bulletin boards, discussions with colleagues who have been involved in rapid response research on the impact of *Hurricane Katrina*, initial draft results of surveys of the evacuees, papers by US colleagues posted on various websites, various press releases and commentaries, and observations from local contacts who have been involved with the emergency response and evacuee management. With a few exceptions, I have not checked original sources quoted in media – apart from those reporting high levels of violence. Numerous blogs have also provided a range of additional perspectives. Long before the hurricane I visited the city and surrounding Mississippi delta region on two occasions.



*The stranded were eventually evacuated to points scattered throughout the USA.*

## References

- American Red Cross (2005), 'FAQs Hurricane Katrina: why is the Red Cross not in New Orleans?' accessed 19 September 2005 from <[http://www.redcross.org/faq/0,1096,0\\_682\\_4524,00.html](http://www.redcross.org/faq/0,1096,0_682_4524,00.html)>
- Auf der Heide, E., (2004), 'Common Misconceptions about Disasters: Panic, the 'Disaster Syndrome,' and Looting', In *The First 72 Hours: A Community Approach to Disaster Preparedness* (M. O'Leary, ed.). Universe Press, pp. 362–364.
- Barry, J. M., (1997), *Rising Tide: The Great Mississippi Flood of 1927 and how it changed America*, Simon and Schuster, New York, NY.
- BBC News (2005)
- I. Q&A: *Can the US afford Hurricane Relief?* (2005), BBC News, UK, viewed on 15 September, 2005 from <<http://news.bbc.co.uk/1/hi/business/4248324.stm>>
  - II. *Katrina aid can fix injustices*, BBC News, UK, viewed on 16 September 2005 from <<http://news.bbc.co.uk/2/hi/americas/4253040.stm>>
  - III. *US sheds jobs in wake of Katrina*, (2005), BBC News, UK, viewed on 24 October, 2005 from <<http://news.bbc.co.uk/1/hi/business/4319508.stm>>
  - IV. *Katrina damage blamed on wetlands loss*, by Tim Hirsch, BBC News, UK, viewed on 1 November, 2005 from <<http://news.bbc.co.uk/1/hi/americas/4593852.stm>>
  - V. *Home pledges for Katrina victims*, (2005), BBC News, UK, viewed on 13 September, 2005 from <<http://news.bbc.co.uk/1/hi/world/americas/4242512.stm>>
  - VI. *Concern over urban disaster plans*, by Adam Blenford, BBC News, UK, viewed on 27 September 2005 from <<http://news.bbc.co.uk/1/hi/world/americas/4286738.stm>>
  - VII. Smith–Spark, L., (2005), 'New Orleans violence "overstated"', BBC News, UK, viewed on 29 September 2005 from <<http://news.bbc.co.uk/2/hi/americas/4292114.stm>>
- Bourne, J.K., (2004) 'Gone with the Water', *National Geographic*, October, pp 92.
- Carroll, C., (2005) 'Scattered lives' *National Geographic*. December pp.10–15.
- Cutter, S., (2005) 'The Geography of Social Vulnerability: Race, class and catastrophe', In SSRC, *Understanding Katrina: Perspectives from the Social Sciences*, accessed 29 September 2005 from. <<http://understandingkatrina.ssrc.org>>
- Dalton, R., (2005), 'Health centre and labs left reeling by Katrina', *Nature*, 8 September, vol. 437, pg. 177.
- Drabek, T. E., (1986), *Human Systems Responses to Disasters: An inventory of sociological findings*, New York, Springer–Verlag.
- Dynes, R., (1994), Community emergency planning: false assumptions and inappropriate analogies, *International Journal of Mass Emergencies and Disasters*, (12) pp.141–158.
- Eberwine, D., (2005), 'Disaster Myths that just won't die', *Perspectives in Health* 10(1). PAHO.
- Fischetti, M., (2001) 'Drowning New Orleans', *Scientific American*, October pp 76–85.
- Frymer, P et al., (2005), 'Katrina's Political Roots and Divisions: Race, class and federalism in American Politics', In SSRC, *Understanding Katrina: Perspectives from the Social Sciences*, accessed 29 September 2005 from <<http://understandingkatrina.ssrc.org>>
- Harakunarak and Aksornkoae (2005), 'Life-saving belts: Post-tsunami reassessment of mangrove ecosystem values and management in Thailand', Thailand Environment Institute, Nonthaburi, Thailand accessed from <<http://www.tei.or.th/eehrdc/pdf/Life Saving Belts.pdf>>
- Hartman, C., (2005), 'Evicted by the Storm', *New York Times*, Editorial desk, 15 October, 2005, p. 20.
- Khaleej Times Staff Journalist (2005), 'Gretna residents support decision to ban entry of blacks in wake of Katrina', *Khaleej Times*, Dubai, 6 October.
- Laska, S., (2004), 'What if Hurricane Ivan had not missed New Orleans?' *Natural Hazards Observer* vol. 29, no. 2 viewed November 2004 from <<http://www.colorado.edu/hazards/o/nov04/nov04c.html>>
- LA Times Staff Journalist, (2005), 'Little Data to Support Gulf Enterprise Zone's Promise', *LA Times*, 25 October.
- Melancon, C., (2005), 'Hurricane Katrina document analysis: the emails of Michael Brown', *Staff report for Rep Charles Melacon*, US House of Representatives, 2 November.
- Miller, K. S. and Simile, C., (1992), *They could see stars from their beds: The plight of the rural poor in the aftermath of Hurricane Hugo*, Disaster Research Center, University of Delaware, Paper presented at the Society for Applied Anthropology Annual Meetings, Memphis, TN, March, 1992.
- Morgan, Oliver (2004) 'Infectious disease risk from dead bodies following natural disasters', *Pan Am Journal of Public Health*, vol 15. no. 5, pp. 307–12.
- NSW Public Works Department (1991) Flood Levee Audit.
- ONDCP, Drug Information Clearinghouse (2004), 'Profile of Drug Indicators', New Orleans.
- PAHO, (2001) 'Humanitarian Supply Management and Logistics in the Health Sector', Washington DC, PAHO.
- Quarantelli, E.L. and Dynes, R. (1973), 'Images of disaster behaviour: Myths and Consequences' *Preliminary Paper 5*, Disaster Research Centre, University of Delaware.
- Quarantelli, E.L. (2003), 'A half century of social science disaster research: selected major findings and their applicability', *Preliminary Paper 336*, Disaster Research Centre, University of Delaware.
- Reichhardt, T., Check, E., and Marris, E. (2005), 'After the Flood – Special Report', *Nature*, 8 September, 437 pp. 174–176.
- Rosenblatt, S. and Rainey, J. (2005), 'Katrina takes toll on truth, news accuracy', *Los Angeles Times*. 27 September, <http://www.latimes.com/news/nationworld/nation/la-na-rumors27sep27,0,5492806,full.story?coll=la-home-headlines>
- Salt, B., (2005), *The big shift*, (2nd Edition) Hardie Grant Publishing.
- Salvation Army, (2005) Anti-Poverty Week 2005, News, 14 October, [http://www.salvationarmy.org.au/media/2005/051014\\_antipoverty\\_week.asp](http://www.salvationarmy.org.au/media/2005/051014_antipoverty_week.asp)
- Schoch–Spana, M., (2005), *Public responses to extreme event – Top 5 disaster myths*. Center for Biosecurity, University of Pittsburgh Medical Center, Homeland Security, the Environment, and the Public
- Total Community Action, (2004) A Working Paper on Reducing Poverty in New Orleans, Total Community Action. New Orleans. <http://www.totalcommunityaction.com/pdf/TCAPovertyReduction.pdf>
- Times Picayune* (2005)
- i. Times Picayune Staff Journalist (2005), 'Hurricane unemployment tally blitzes Louisiana economy, 26 October, accessed from <http://bizneworleans.com/109+M53af711f49a.html>
  - ii. Perstein, M (2005), '45 copes AWOL in storm are fired', 29 October, accessed from <http://www.nola.com/news/t-p/frontpage/index.ssf?base/news-4/1130573437302830.xml>

- USA Today (2005), 'Hospitals rework their disaster plans', by Appleby, J., accessed 21 October 2005, from <<http://www.usatoday.com/printedition/money/20051021/hospitals21.art.htm>>
- Wachtendorf, T. and Kendra, J. M. (2005), 'Improving Disaster in the City of Jazz: Organisational response to Hurricane Katrina' in SSRC, *Understanding Katrina: Perspectives from the Social Sciences*, accessed 29 September, 2005 from <<http://understandingkatrina.ssrc.org>>
- Washington Post staff journalist, (2005), 'Investigators link levee failures to design flaws', *Washington Post*, accessed on 24 October, 2005 from <[http://www.washingtonpost.com/wp-dyn/content/article/2005/10/23/AR2005102301200\\_pf.html](http://www.washingtonpost.com/wp-dyn/content/article/2005/10/23/AR2005102301200_pf.html)>
- Wenger, D.E., Dykes, J.D., Sebok, T.D., and Neff, JF, (1975), 'It's a Matter of Myths: An Empirical Investigation of Individual Insight into Disaster Response', *Mass Emergencies* vol 1, pp. 33-46.
- Wenger, D., (1985), 'Mass Media and Disasters', *Preliminary Paper 98*, Disaster Research Center, University of Delaware accessed (30 August 2005) from <<http://dspace.udel.edu:8080/dspace/bitstream/19716/474/3/PP98.pdf>>
- White House, (2005) 'Statement on Federal Emergency Assistance for Louisiana', Office of the Press Secretary accessed on 27 August 2005 from <<http://www.whitehouse.gov/news/releases/2005/08/20050827-1.html>>
- WHO, (Undated) Myths and realities in disaster situations accessed on (14 October 2005) from <<http://www.who.int/hac/techguidance/ems/myths/en/>>
- Wood, H. et al., (2005), 'Grand Challenges for Disaster Reduction', *Natural Hazards Observer* vol. 30, no.2 pp 1-3.
- US Census Bureau (2000), 'Profile of Selected Social Characteristics: 2000 Louisiana', accessed on (date) from <<http://factfinder.census.gov/servlet/QTTable>>

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## Other AJEM articles by John Handmer

- Are emergency services becoming private?, Vol. 15 No. 3, Spring 2000, pp. 42-45
- British authorities liable for flood warning failure, Vol. 4 No. 1, March 1989, pp. 4-6
- Can we have too much warning time?: a study of Rockhampton, Australia, Vol. 7 No. 2, Winter 1992, pp. 8-10
- The chimera of precision : inherent uncertainties in disaster loss assessment, Vol. 18 No. 2, May 2003, pp. 88-97
- Economic and financial recovery from disaster, Vol. 19 No. 4, November 2004, pp. 44-50
- Flood warning : an Australian guide, Vol. 10 No. 2, Winter 1995, pp. 31-33
- Flood warning reviews in North America and Europe: statements and silence, Vol. 17 No. 3, November 2002, pp. 17-24
- The legal rights and responsibilities of rescuers, Vol. 6 No. 4, Summer 1991-1992, pp. 14-16
- Non-destructive measures in Australian urban floodplain management : barriers and recommendations, Vol. 11 No. 2, Winter 1996, pp. 51-56
- Review of British Counter-Disaster arrangements, Vol. 6 No. 2, June 1991, pp. 5-6
- Towards a consistent approach to disaster loss assessment across Australia, Vol. 20 No. 1, February 2005, pp. 10-18
- We are all vulnerable, Vol. 18 No. 3, August 2003, pp. 55-60
- The world conference on natural disaster reduction: Yokohama, Japan, 23-27 May 1994, Vol. 9 No. 3, Spring 1994, pp. 33-35. Reprinted Vol. 10 No. 2, Winter 1995, pp. 6-8



## Appendix A: Timeline

### NOT A SURPRISE (a selection from numerous articles in popular and specialist media.)

- Oct 2001  
 – *Scientific American* – Drowning New Orleans. By Mark Fischetti  
 A major hurricane could swamp New Orleans under 20 feet of water, killing thousands. Human activities along the Mississippi River have dramatically increased the risk, and now only massive reengineering of south-eastern Louisiana can save the city  
 (<http://www.sciam.com/article.cfm?chanID=sa006&articleID=00060286-CB58-1315-8B5883414B7F0000&pageNumber=1&catID=2>)
- 23-27 Feb 2006  
 – The Times Picayune New Orleans published a 5 part special 'Washing Away' 'It's only a matter of time before south Louisiana takes a direct hit from a major hurricane. Billions have been spent to protect us, but we grow more vulnerable every day.'
- June 2004  
 – FEMA's Hypothetical Hurricane Pam scenario brought sustained winds of 120 mph, up to 20 inches of rain in parts of southeast Louisiana and storm surge that topped levees in the New Orleans area. More than one million residents evacuated. The 5 day exercise used realistic weather and damage information to develop joint response plans for a catastrophic hurricane in Louisiana.

### NEAR MISS

- 4-24 Sept 2004  
 – Hurricane Ivan narrowly misses New Orleans – and leaves minimal damage.

### HURRICANE KATRINA

- 23 Aug  
 – National Hurricane Center (NHC) issued statement about tropical depression over the Bahamas.
- 25 Aug  
 – Storm is upgraded to *Hurricane Katrina* and hits land in Florida as a Category 1.
- 26 Aug  
 – Governor Kathleen Babineaux Blanco declares state of emergency in Louisiana. Threat elevated to Yellow by Homeland security.  
 – Joint Task Force Katrina – issued requests for assistance from the states of Florida, Alabama, Mississippi and Louisiana.
- 27 Aug  
 – Upgrade to Category 4.  
 – White House declares impending disaster area and orders Dept of Homeland Security and FEMA to prepare, under the Stafford Act Title V.  
 – Various mandatory and voluntary evacuations are ordered;  
 – All highways leading out of New Orleans report bumper to bumper traffic. Hotels 150 miles inland are all booked up.  
 – Mayor Nagin of New Orleans called for Voluntary Evacuation. Argues that legal liability for business closures hinders call for mandatory evacuation.
- 28 Aug  
 – Now a Category 5 hurricane at 175 mph – potentially catastrophic – NHC  
 – NOAA urgent advisory issued: '...Devastating damage expected... hurricane Katrina... most powerful hurricane with unprecedented strength... rivalling the intensity of hurricane Camille of 1969'.  
 – Director of FEMA briefed by NHC on potential levee breach. Warnings of storm surges overwhelming the levees are reported.  
 – Mayor Nagin orders Mandatory Evacuation. Those unable to evacuate start filing into the New Orleans Superdome.  
 – Governors of Louisiana and Mississippi request for additional security forces from the Federal government.

29 Aug	<ul style="list-style-type: none"> <li>- Katrina makes landfall at 0610 as a Category 4 hurricane. (Plaquemines Parish)</li> <li>- 0502 – Electricity fails at the Superdome, switch to back up power so no a/c and minimum lighting.</li> <li>- 0800 – Levee broke on the industrial canal near the St Bernard–Orleans Parish line. Water is pouring through the 17th Street canal and the city begins filling with water. Pumping stations cease operation on the lower 9th Ward.</li> <li>- 0900 – Eye of hurricane passes over NO and Lower 9th St is submerged eight–nine feet in water.</li> <li>- FEMA – Brown, dispatches 1000 employees to the region five hours after the hurricane hit and allows two days arrival time. They are requested to portray a positive image of disaster operations to government officials, community organisations and the general public. (The Guardian 9/9/05 <a href="http://www.guardian.co.uk/katrina/story/0,16441,1566278,00.html">http://www.guardian.co.uk/katrina/story/0,16441,1566278,00.html</a>)</li> <li>- Red Cross announces that it is launching the largest mobilisation of resources in its history. FEMA encourages public donations.</li> </ul>
30 Aug	<ul style="list-style-type: none"> <li>- ‘Can’t get in...’ FEMA (Brown) advises to rely upon local services and Red Cross. Refuses volunteer firefighters into the area until National Guard enters and secures the city.</li> <li>- Eighty per cent of the city is submerged – there is no electricity, no running water, no working sewage systems.</li> <li>- Superdome population houses 20,000 evacuees. Governor Blanco says the Superdome must be evacuated.</li> </ul>
31 Aug	<ul style="list-style-type: none"> <li>- New Orleans police ordered to cease SAR and turn to controlling widespread looting and enforce a curfew.</li> <li>- Telecommunications cut and conditions in Superdome reported to be deteriorating.</li> </ul>
1 Sept	<ul style="list-style-type: none"> <li>- Bush: Zero tolerance on looting, price gouging and insurance fraud declared.</li> <li>- FEMA promises still have not arrived.</li> <li>- Halliburton awarded navy contract for storm clean up – restore power, repair rooves, remove debris at the naval locations.</li> <li>- FEMA halts rescues by California swift water rescue due to security concerns.</li> <li>- Increase in national guard deployment to 30,000. Houston Astrodome refuses to take any more evacuees</li> <li>- Criticism of lack of command and control as violent unrest reported by media – anarchy, looting and chaos.</li> </ul>
2 Sept	<ul style="list-style-type: none"> <li>- Gov Blanco issues public health emergency order temporarily suspending state medical licensing regulations, allow licensing of out-of-state medical professionals to work on recovery and relief.</li> <li>- Bush administration asks Louisiana to request a federal takeover of relief efforts – this will give the federal government control over Louisiana’s National Guard and local police. But the state rejected the proposal.</li> <li>- Mayor Nagin is at breaking point and speaks frankly on radio – mentions how ‘pissed he is’ and about the junkie situation looting the area.</li> </ul>
3 Sept	<ul style="list-style-type: none"> <li>- Red Cross prevented from entering the city (<a href="http://www.redcross.org/faq/0,1096,0_682_4524,00.html">http://www.redcross.org/faq/0,1096,0_682_4524,00.html</a>)</li> <li>- Bush blames State and Local officials (Whitehouse statement)</li> <li>- Cuba and other Latin American countries as well as France offer aid.</li> </ul>
4 Sept	<ul style="list-style-type: none"> <li>- US appeals for international aid – blankets, water trucks and food. (<a href="http://news.bbc.co.uk/2/hi/americans/4211404.stm">http://news.bbc.co.uk/2/hi/americans/4211404.stm</a>)</li> </ul>
6 Sept	<ul style="list-style-type: none"> <li>- Bush announces a formal investigation into how the disaster was handled.</li> </ul>
7 Sept	<ul style="list-style-type: none"> <li>- Two Jefferson Parish Police Officers and FEMA contractors arrested for looting.</li> </ul>
9 Sept	<ul style="list-style-type: none"> <li>- Michael Brown – FEMA removed</li> <li>- US public pledges \$578 million (more than 911 and the Asian tsunami)</li> </ul>
12 Sept	<ul style="list-style-type: none"> <li>- Michael Brown formally resigns from FEMA. – R. David Paulison becomes new acting director of FEMA.</li> </ul>