



# NTS ALERT

## Managing Disasters: Challenges & Responses

*This edition of NTS Alert examines the responses taken by the United States and China in dealing with the impact of Hurricane Gustav and the earthquake in Xinjiang, respectively. Analysis is also given to the extent to which these states have improved their disaster management capacities, in light of previous national disasters- namely Hurricane Katrina in the US and the Sichuan earthquake in China.*

### Disaster Management during the Xinjiang Earthquake

China was hit by another serious earthquake of 6.1 magnitude in the Southwest region on 30 August, just four months into the recovery period of the May 12 earthquake that killed more than 80,000 people. The impact of the quake was worsened by a strong after-shock measuring 5.6 on the Richter scale on 31 August. As of 5 September, the death toll had risen to 40 with 675 casualties. The quake affected areas were Panzhihua and Huili in Sichuan, and the autonomous prefectures of Chuxiong Dali, Lijiang and Zhaotong cities, as well as Kunming capital, all in the Yunnan province. Huili, Chuxiong and Panzhihua cities which sit on the southern end of the fault line of the May 12 quake were worst-hit.

According to the Panzhihua City Quake Control and Relief Headquarters, 70,000 people in the city were affected, while more than 32,000 people were displaced. In total, 38,425 residences were damaged in the quake, amongst which 363 were completely destroyed. Seven reservoirs, 22 highways and three bridges and some 100 schools were also damaged. Further south, 600,000 people in five regions of Yunnan were also affected by the earthquake. This included five deaths, more than 170 injured people and the destruction of 130,000 residences, according to the Yunnan Provincial Bureau of Civil Affairs. The worst hit was Chuxiong, where the incident destroyed 111,448 homes, 656 school buildings and 213 buildings totalling 65,554 square metres of floor space. The direct economic loss was estimated to be US\$73 million, according to the office for the quake control and relief headquarters of Chuxiong.

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### *Emergency responses*

Immediately after the quake, China Earthquake Administration, Ministry of Civil Affairs and its departments in Panzhihua and Yunnan launched emergency responses by sending various assessment teams to the earthquake affected areas. An inter-ministerial command post was also set up in the quake zone to coordinate communications as well as rescue and relief



work. According to the China Earthquake Administration, more than 8,000 soldiers were deployed to help search and rescue efforts and transport emergency relief supplies to the area. The quake areas in Sichuan were allocated more than 15,120 tents, 20,000 quilts and 15 million Yuan (about US\$2.2 million) in aid, while the Yunnan provincial government set aside 30 million Yuan for quake relief. Non-governmental organisations such as the Jet Li One Foundation, initiated by Chinese film star Jet Li, contributed 2.5 million Yuan and donated materials worth 250,000 Yuan to the affected areas in the two provinces. In addition, the Red Cross Society of China and provincial Red Cross branches responded to the disaster immediately by sending relief items including 5,000 blankets, 1,000 family kits and 4,000 clothes, 3,500 mosquito nets, 400 boxes of water purifications to the affected areas.

### ***Assessment of disaster preparation and responses***

#### ***Inadequate pre-disaster preparation***

Although the authorities responded relatively swiftly to the quake in many affected areas, it was apparent that the government had not anticipated the quake and was mostly unprepared, especially with most of the attention placed on the recently concluded Beijing Olympics. The affected areas received no warning before the quake occurred and there was little awareness of evacuation procedures despite the fact that the affected areas laid along the same fault line as the May 12 quake. According to Cheng Wanzheng, a researcher with the Sichuan provincial seismological bureau, the quake that hit Panzhihua was caused by high crustal stress in the Wenchuan region following the May 12 quake. Despite knowledge of high susceptibility to the Panzhihua city, little was done to prepare for the disaster, as indicated by the use of leftover relief supplies from the May 12 quake that only provided sufficient tents to accommodate half of the 200,000 displaced people in Panzhihua city.

Further, many of the affected mountainous regions in Sichuan received little assistance from the authorities until the arrival of humanitarian

organisations such as Mercy Corps. As a result of poor road conditions and general isolation from the cities, villages such as Xi Chang in Sichuan were unable to communicate with the provincial authorities until the arrival of the Mercy Corps response team and experienced delay in the receiving emergency relief. Further, due to the mountainous terrain, there was limited space to set up tents for temporary shelter.

#### ***Seismic danger maps inaccurate***

According to a group of geologists from the Massachusetts Institute of Technology and the Chengdu Institute of Geology and Mineral Resources, the criteria used to assess the likelihood of earthquakes should be re-evaluated after the unexpected May 12 quake occurred in a region that was perceivably of low risk. The need to re-examine the danger of earthquakes was also supported by scientific models that modelled movements of the Earth crust using historical and geological records which showed a gradual compression of one millimetre a year over the past 1,500 years. It is likely that other mountainous regions in the region may be in danger of a major earthquake and thus the existing seismic hazard maps should be redrawn.

#### ***Challenge of frequent natural catastrophes***

The attention of the authorities has been diverted by the focus on the reconstruction effort in Sichuan province in the aftermath of May 12, as seen from the overall lack of preparedness, including a serious shortfall of stockpiled emergency supplies. Power had been restored in most parts of Sichuan, telecommunications and traffic had also resumed normal operations. According to Premier Wen Jiabao, despite tens of thousands of aftershocks since May 12, more than 3,000 reservoirs and 800 hydropower stations have operated smoothly. Although the rebuilding of homes in Qingchuan, Sichuan, has not begun, the government has assured residents that it is working on a subsidy policy for survivors and in the midst of developing a rehabilitation plan.

Indeed, by most accounts, the government has made much progress in rehabilitation and

reconstruction. Even though there is some criticism that the rebuilding process has been relatively slow, this might be inevitable because of massive damage. Further, according to an economist in La Trobe University, Sisira Jayasuriya, who studied the economics of reconstruction in Aceh, Thailand and Sri Lanka post-tsunami, it is wise to prioritise and stagger the rebuilding process as rapid reconstruction would cause a sharp rise in building costs due to excess demand and limited supply of building materials.

However, it is unavoidable that state and provincial resources have been heavily taxed by the exigencies of the May 12 quake. The urgency of the problem is underscored by the admission by provincial authorities in Sichuan that many school buildings had been hastily built with low-quality materials and the high frequency of natural catastrophes in recent years that ranged from heavy floods to earthquakes. Hence, in order to address the serious threat of natural catastrophes, it might be in the interest of the Chinese government and the people to seek assistance from the international community or from China's strategic partners.

### ***Toward a multilateral disaster preparedness mechanism***

Instead of seeking assistance from the international community in the aftermath of a disaster, a regional multilateral disaster preparedness framework could be established to address the challenge of preparing and responding to natural disasters. Countries in Asia and the Asia-Pacific could pool their resources and contribute a team of emergency preparedness and disaster management experts to train rescue personnel and build up disaster management capacity in individual countries. For instance, Japan could share its technical expertise and the use of sophisticated rescue equipment with the

region, while logistical experts from Australia or South Korea could train regional emergency relief personnel in effective distribution of aid. An institutionalised disaster management framework could be proposed by disaster-stricken countries such as China, Indonesia and the Philippines at the ASEAN Regional Forum. The framework is also relevant for countries that do not experience a high frequency of natural catastrophes as it would help minimise an outflow of irregular migrants due to displacement.

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## *Disaster Management for Hurricane Gustav*

***"Our state is better prepared than it has been before to respond to a major disaster," he said. "But I want to emphasize that our citizens have a personal responsibility."***

- Bobby Jindal, Louisiana Governor

On the first September 2008, Hurricane Gustav hit the US state of Louisiana with winds of 110 mph. The hurricane's path steered the storm right through the heart of the region's biggest concentration of oil and gasoline producers. The Gulf is home to 25 percent of U.S. oil production. Measuring as a Category 2 hurricane, much of the southern part of the state – namely New Orleans and Barton Rouge – felt the brunt of Gustav. It was only three years ago when the state was faced with Hurricane Katrina. Nevertheless, the damage from Gustav was minimised, not only because it was less potent than Katrina but also because the latter provided some vital lessons for the US Disaster Management mechanisms in dealing with Gustav.

Needless to say, Hurricane Gustav did cause a fair bit of damage. The official death toll as a result of hurricane (including fatalities caused by evacuations, deaths from the storm itself such as falling trees, flooding and landslides or deaths reported in recovery efforts) was 24. This was fortunately lower compared to the toll during Hurricane Katrina where an estimated 1800 lives were lost. The unofficial toll however during Hurricane Katrina was thought to be much more, with some analysts estimating it to be 4000.

The lack of electricity was also a major impediment to not only daily life but also relief operations. Hurricane Gustav essentially removed the entire south Louisiana region from the national electricity grid, with all but one of the regional high-tension transmission lines damaged due to the storm. Power was cut from more than 1.8 million homes and businesses and more than a dozen oil refineries and numerous oil and natural gas pipelines and other energy facilities were forced to cease operations. According to Entergy, the company providing most of the power to Louisiana, its power outages peaked at 850,000, which counts as the second-worst incident in the company's 95-year history. The

only larger number of Entergy outages was 1.1 million in 2005 during Hurricane Katrina. Louisiana Governor Bobby Jindal and US President Bush have noted that restoring power in Louisiana was the top priority. Nevertheless, government officials have estimated that the restoring services would take at least three weeks.

Estimates of economic losses due to business disruptions for tourism, chemicals, oil refining and extraction, and other industries are in the \$35 billion range. Preliminary estimates of property insurance claims are about \$10 billion. Fortunately, early assessment of the damage done to Gulf Coast refineries and offshore platforms seem to suggest that the industry weathered the storm well. According to Cathy Landry, a spokeswoman for the American Petroleum Institute, the status looks positive as flooding at refineries has not been reported as yet, which was one of the big problems during Hurricane Katrina and Rita. Estimates of personal outlays for refugee shelter in hotels and motels hundreds of miles outside New Orleans will only add to those figures. Adding Gustav to the losses incurred in the Midwestern floods earlier in the summer therefore adds to a growing list of real shocks that currently affect economic growth.

### ***Emergency Responses***

Despite the damage inflicted by Gustav, there was an overall sentiment that the disaster was managed in an efficient manner as best as possible. President Bush noted that government response to Hurricane Gustav has been better than the response to Hurricane Katrina, the 2005 storm for which federal efforts were widely criticised. He credited much of the improved response to the Governors of Louisiana, Texas, Mississippi and Alabama, which have worked closely with the federal government in the Emergency Operations Centre in Texas to coordinate their disaster responses.

According to US Homeland Security Secretary Michael Chertoff, evacuations and preparation prevented a repeat of Katrina, which flooded New Orleans and killed more than 1,800 people in 2005. "The only reason we don't have more tales of people in grave danger and more loss of life is because everybody heeded the governor's instructions, the mayor's instructions, the parish president's instructions to get out of town". During Hurricane Katrina, many residents had defied evacuation orders to guard their homes and businesses from looters as law and order broke down. Others did not have the means to evacuate and were left waiting several days for help.

***"Electricity is the Achilles heel of recovery"***  
- Michael Chertoff,  
US Homeland Security Secretary

### ***Evacuation process***

In the lead up to Hurricane Gustav making its way to American soil, the US has been meticulously monitoring its movement over the Caribbean. Although the intensity of the hurricane was slowing down to a Category 2, as it headed northwards, Louisiana Governor, Bobby Jindal, took no chances and immediately declared a state of emergency, so as to allow sufficient time to mobilise the US National Guard for evacuation and recovery purposes. About 700 buses were made available for evacuating residents, especially those in without means of moving due to medical or other conditions. Trains were also on standby to move 7,000 elderly residents to safety.

Efforts have also been made to ensure a sufficient flow of electrical power to gas stations in Louisiana, as this would assist in speeding up the evacuation process, by ensuring that vehicles would be able to refuel quickly and thereby evacuate the disaster zone immediately. Power has been restored to some gasoline stations in Louisiana. Fuel trucks would also be an alternative for expediting evacuation process pending the lack of power to run gas stations as the trucks are capable of pumping gas directly into cars.

The federal government has also provided assistance in several areas. The Federal Emergency Management Agency, or FEMA - an agency of the United States Department of Homeland Security – ensured that its pre-positioned supplies are made available for distribution in Gulf Coast states, which include more than 2.4 million litres of water and more than four million meals. The agency also prepositioned 478 emergency generators, 140 truckloads of tarps and 267 truckloads of blankets and cots.

Other ministries have also provided relief efforts. The federal Department of Health and Human Services placed nine disaster medical assistance teams, 11 health strike teams and two incident command teams on alert. Nine federal medical stations, each with a 250-bed capacity, were also on alert. The U.S. Army Corps of Engineers had mobilised teams to handle planning, power, roofing, and debris removal, and a water and ice team was ready to provide these necessities as they are needed.

Non-governmental organisations have also been active, such as the American Red Cross, which moved hundreds of mobile feeding trucks into Texas, Louisiana, Mississippi, and Alabama. The organisation also transported thousands of cots and blankets, tens of thousands of comfort kits and ready-to-eat meals into the coastal US states.

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) has activated procedures under its transitional sheltering initiative that allows eligible Gustav evacuees who cannot return to their homes to stay in hotels or motels until it is safe for them go home. As congregate shelters begin to close down, this assistance is intended to provide a more appropriate extended sheltering environment to evacuees who cannot return home because their neighbourhoods are inaccessible or because their homes are so severely damaged that they cannot live in them. While the initial period of assistance is from 3 September 2008 to 3 October 2008, FEMA can extend their stay if needed. FEMA will pay for the lodging through the use of an authorisation system directly to





hotels and motels, but applicants would be responsible for their own meals and hotel expenses other than lodging, as well as for any lodging costs above the authorised allowance. FEMA has provided a list of participating hotels on a website dedicated to Hurricane Gustav relief operations ([www.gustav-evac.com](http://www.gustav-evac.com)).

### ***Relief responses***

Hospitals have also prepared for Hurricane Gustav by learning from their mistakes made during Hurricane Katrina. One such lesson would be not to overcrowd the hospital. For instance, at Tulane Medical Centre, 1,600 people were sheltered there during Hurricane Katrina. However during Hurricane Gustav, only 450 patients, staff and family members were to remain. Patients have been strictly allowed to have one family member by their side. Only patients in the most critical conditions remained in the hospital, while others were flown to hospitals outside the disaster zone. This would also allow the hospitals to conserve their limited resources - whether food, medical supplies or electricity – during the first few weeks of disaster, where access to basic necessities may be few.

To further address the lack of resources, hospitals have also stockpiled on supplies. Improvements have also been made in the event of a power shortage. The Tulane Medical Centre, for instance, has ensured that the generator systems providing them with power has been fortified with a flood wall and a sump pump to remove any water that may seep in as a result of flooding from the hurricane. This would therefore allow the generator system to generate enough to power a hospital for three weeks, including the air conditioning.

The federal government's Centre for Disease Control and Prevention (CDC) has also assisted in recovery efforts, in particular deploying environmental health experts in New Orleans to assess safety at food handling facilities that may have been damaged by the storm, monitoring handwashing practices in all Louisiana shelters and distributing educational materials on proper hygiene and health care. Additional CDC experts

have also been providing public health and medical support, assisting with local efforts, and monitoring state surveillance activities in local areas.

### ***Rehabilitation and reconstruction plans***

The remaining outages are in the hardest hit parts of Louisiana. Entergy predicted its team of 13,000 restoration workers would return power to most of the remaining customers. Some homes and businesses, however, may have to wait until the end of the month. As Entergy restores power from Hurricane Gustav, the company is monitoring Hurricane Ike and planning for the possibility of Ike impacting its territory.

The US Department of Health and Human Services (HHS) has also shown improvements in its assistance to disaster victims. According to HHS Secretary Mike Leavitt, the Disaster Case Management demonstration programme has been implemented to make it easier for disaster victims to obtain a wide range of assistance and social services. The programme will aid people from the Louisiana parishes covered under President Bush's disaster declaration related to Hurricane Gustav.

The demonstration project will assist individuals and families by linking them with a single case manager at a disaster assistance centre. The case manager will help them access the various programmes available through federal, state and local governments, and nongovernmental organisations. In essence, the programme is geared at providing "fast, one-stop shopping for those who need help". The programme draws from existing state, local and voluntary agency programmes to create a seamless system. Case managers, drawn largely from non-governmental organisations involved in disaster relief, are able to assist people quickly in creating disaster recovery plans that will help them to connect to service providers and resources. The services could include linking individuals to emergency food and shelter, temporary financial assistance, transportation, legal assistance, health care including mental health care and counselling, employment, and other public assistance. Most importantly, the programme aims to follow



clients throughout their recovery process to ensure they continue to receive the necessary assistance required. If clients need assistance beyond the disaster aid, the case manager, to the extent possible, will connect them with the social service system within the state.

While the government should be commended for the preparing these mechanisms to address the advent of future hurricanes, it is also vital to secure firm cooperation by citizens themselves in seeing these plans through. Given the increasing rate of hurricanes in the past few months (Gustav, Hanna and Ike), some US government officials have expressed their concern over the possibility of ‘hurricane fatigue’ setting in, whereby citizens may ignore public orders to evacuate or stock supplies. Louisiana Governor Bobby Jindal has encouraged his citizens to be more accustomed to evacuating more frequently than before, given the rising number of hurricanes in the state. Whether this advice actually materialises will only be ascertained once the next hurricane hits.

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