

## OPINION

# Japan and the Next Step for Disaster Preparedness

By JULIAN HUNT  
AND SIMON DAY

The 8.9 magnitude earthquake that struck Japan on Friday is the largest to hit the country in recorded history. It has numerous similarities, in both type and scale, to the 8.5 magnitude quake which struck Japan in 1896. Around 27,000 people are estimated to have been killed by that quake and the subsequent tsunami, which was some 25 meters high. In this case, the death toll could far exceed 1,000, most of those victims to the tsunami.

**Modern technology saved thousands of lives Friday. Now we need to improve care for urban survivors.**

While that toll is tragically high, it is worth noting the scientific, technological and institutional developments that will have kept Friday's earthquake and tsunami from claiming as many victims as previous disasters did. We now have a better understanding of the linkage between geophysical processes and detection technology, and have improved the education of, and communication to, at-risk communities.

All this is an undeniable mercy in allowing so many more people to survive such disasters than would have been possible before. But it also poses a new challenge

for policy makers, one that came into focus over the weekend in Japan and that ought to be on the minds of disaster planners elsewhere: how best to care for hundreds of thousands, or even millions, of survivors who are dislocated by a severe natural disaster.

Japan shows how complex this question has become. Providing drinking water, food and shelter to those affected has become a major logistical challenge. Hundreds of thousands of Tokyo residents who live miles away from their houses and depend on modern urban transportation systems to get home each evening found themselves stuck in office buildings ill equipped to handle them.

This is a significant consequence of modern urbanization. The proportion of the world's population living in urban areas is expected to reach between 60% and 70% later this century, from around 50% now. Japan is the epitome of this: Only 5% of the population works in agriculture (a proxy for rural residence), and around 80 million of Japan's 127 million people are concentrated on the Pacific shore of Honshu island—the region that includes Tokyo.

Simultaneously, there is a movement toward very large cities with populations exceeding one million. In 1950, there were only 83 cities in the world of such a size, whereas this number had risen to 468 by 2007. There are now some 21 "mega cities" of greater than 10 million inhabit-



Commuters take shelter in Tokyo International Forum, a convention center.

ants—Tokyo is one of those.

The high concentration of people per square meter in urban areas, anywhere from 100 to 1,000 times the global average, can make populations more vulnerable to extreme natural hazards ranging from earthquakes to heat waves and floods. Even a localized disaster in a city can affect exponentially more people than a disaster hitting a similar land area in the countryside; the effect is magnified further for a region-wide disaster such as Friday's earthquake.

The growing size of many urban areas also means that people sometimes cannot physically escape in the event of extreme hazards, as recent hurricanes and tsunamis in the United States and Indonesia have shown. Where attempts have been made to evacu-

ate multi-million populations, lives have sometimes been lost in the transport systems as they seized up.

This means policy makers and architects face the question of how to provide refuge for those people during and after a disaster, and how those refuges should be integrated into the design of structures. The problem is much more difficult than simply building a bunker in the basement. Refuges have different roles for different types of disaster. For tsunamis, a shelter is usually only needed for a short period, as with high winds, tropical cyclones and landslides. For longer lasting disasters, such as volcanic eruptions, people have longer warning, and behave differently (for instance, bringing goods and even animals to the

shelters in rural areas).

Regulators and engineers are only starting to grapple with this kind of question, but already some points are clear. Increasingly, communities in urban areas will have to understand and be prepared for risks of hazards and need to be involved in addressing them, in partnership with local and national government. This will involve training communities to deal with a range of potential natural disasters relevant to their local areas.

Structural engineers, planners and social scientists will also need to consider more urgently the design of appropriate shelters in urban and also in rural areas (for instance, parks and open areas may also act as refuges). This will require intensive study and resources to ensure good design and effectiveness. Careful study of unfolding events in Japan could help this effort over the long run.

The complexity of policies that are needed for dealing with these issues may be hard to envisage, and even harder to carry out. However, change is urgently needed and the longer we wait, the harder it will become to achieve and the more lives that will be lost.

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## The Case for Backing Libya's Rebels

By PAUL WOLFOWITZ

One has to be morally blind not to be moved by the spectacle of brave Libyans standing up to Moammar Gadhafi's tanks and bombs and mercenaries. But moral outrage is an inadequate guide for U.S. action, particularly action that might put the lives of Americans at risk. Serious questions need to be asked and answered. Proponents of inaction need to ask and answer some questions as well, since doing nothing is a choice.

There are three important U.S. actions that could speed up Gadhafi's demise and stop the killing in Libya: recognize the newly formed national council in Benghazi as the government of Libya, provide assistance to the new Libyan authorities, and support the imposition of a no-fly zone over Libya.

Unfortunately, the debate focuses too quickly on the last of these actions, even though the first two entail fewer problems and might well have greater immediate impact. A no-fly zone is a tactic, not a strategy, and its impact depends on the larger policy context—particularly whether the U.S. continues to apply the U.N. arms embargo to Gadhafi's opponents.

Recognizing the new National Council would affect the psychology of both Gadhafi's cronies and his brave opponents. Ending the mixed signals sent by U.S. hesita-

tion over recognition would end any possibility of rehabilitating Gadhafi if he wins. Absurd as that may sound to us—particularly after President Obama has declared that Gadhafi must go—this is probably the outcome that Gadhafi's cronies hope for, and that his opponents most fear.

The more likely outcome if Gadhafi manages to survive—and honest proponents of inaction acknowledge this—would be a long-term isolation of Libya, with asset freezes, arms embargoes, and threatened prosecutions for war crimes. It would also be a crushing defeat for the U.S. in the eyes of the Arabs and the world.

Preventing that may not rise to the level of a "vital" U.S. interest, but it is certainly important if we can do so without risking American lives. It is a sound principle to support those who are willing to fight for themselves before sending Americans to fight for them.

If we do recognize the new National Council—as France and Portugal have done—how do we respond to their requests for help? What would we supply and to whom? How would we deliver supplies? Could we control the eventual use of lethal assistance?

The answer to the first of these questions can only come after establishing direct contact with the new authorities, but the delivery of supplies should not be such a problem, either through the many ports along the Libyan coast or

across the Egyptian border. Nonlethal assistance could be important, including basic supplies such as food and medicine. So could broadcasting assistance to discourage Gadhafi's forces from fighting. The concern that American weapons might end up in the wrong hands must definitely be considered before supplying shoulder-fired surface-to-air missiles, but other weapons pose less

**The U.S. has a strategic and moral interest in helping Libyans fight for themselves.**

of a risk—particularly accurate antitank weapons. In any case, forcing the Libyans to turn to other countries for arms would repeat the mistakes of Afghanistan in the 1980s and Bosnia in the 1990s.

It is only in the context of a larger assistance strategy that a no-fly zone should be considered. It would be different from the prolonged and largely futile zones imposed over southern Iraq from 1991-2003 or over Bosnia from 1992-1995. Intended to stop the genocides of the Marsh Arabs in Iraq and of the Muslim population of Bosnia, they did neither. Critics accurately point out that the massacre of 11,000 Muslims in Srebrenica took place under a NATO-

imposed no-fly zone. But the situation in Libya would be very different if the Libyan people are properly armed.

Moreover, a no-fly zone, though not decisive, would have a much greater impact in Libya because of the nature of the fighting and character of the terrain. Gadhafi's air force is critical to him for preventing the opposition from advancing across miles of open country. Removing that advantage would do much to even the odds. Helicopters—which are more important than air planes in urban areas—can be destroyed on the ground if it is too difficult to intercept them in the air.

If there is a no-fly zone, some of the Arab countries of the Persian Gulf that have already called for one should be asked to join. We should try to minimize the use of force—by encouraging Libyan pilots to defect or not to fly at all—but it should be made clear from the outset that the goal is to neutralize Gadhafi's air force, if necessary by destroying it.

Secretary of Defense Robert Gates is right that a no-fly zone will require bombing an Arab country, but it should not involve protracted patrolling of Libyan air space. With the support of the Arab Gulf states and other countries, it may be easier to get a U.N. resolution forbidding the Libyan air force from flying than to get a consensus in NATO. Politically, that would be the preferred outcome.

What happens if the fighting becomes stalemated, with the opposition holding Benghazi and some other cities but Tripoli still under Gadhafi's fearful grip? Given how much Gadhafi's subjects hate him, such a stalemate seems unlikely to last for long if the opposition is properly supplied and Gadhafi's grip of fear is broken. But such an outcome is still preferable to a Gadhafi victory.

Some advocates of inaction are afraid that anything the U.S. might do could slip down a disastrous slippery slope toward American participation in an international occupation of Libya. Understandably, no American wants Libya to become a repetition of the wars in Afghanistan or Iraq. But neither does anyone in the Arab world appear to want it, least of all the Libyan people. What they are asking for is assistance from the international community so that they can fight for their own freedom on equal terms with Gadhafi's forces.

It is both morally right and in America's strategic interest to enable the Libyans to fight for themselves—precisely so that we are not faced with the terrible choice of seeing them crushed or intervening directly to liberate them.

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