



## ANSI Student Paper Competition 2013 First Place Winner

### The Role of Standards in Disaster Recovery and Business Continuity

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#### Abstract

This paper will attempt to demonstrate the role that standards play in both preparing for and responding to natural disasters to facilitate recovery operations and minimize disruption of business services. The author draws from his own experience relating to disaster preparedness and response, most recently serving as an environmental, health, and safety (EHS) manager for the Hurricane Sandy recovery effort. At the time of the writing of this paper, organizations lack the technological capacity to prevent a natural disaster. But the impact that a disaster has on an organization can be lessened provided that an organization is adequately prepared and can adapt to a disaster's operational risks.

For the purposes of this paper, the term "organization" can be applied to any entity regardless of size or scope. Examples include, but are not limited to, private businesses, public agencies, nongovernmental organizations (NGOs), and communities. Natural disasters are not selective in what types of organizations are affected by their destruction, nor should standards be in providing guidance for their recovery.

#### Introduction

A standard is a document that provides requirements, specifications, or guidelines that can be used to consistently ensure products, operations, and services are fit for their purpose<sup>1</sup>. Rarely should their impact be more vital than following a natural disaster, when many are in need of the essential services that bring normalcy to their lives. Clean and safe drinking water, a reliable transit system, and heat to stay warm through a wintry night are just a few examples of those essential services.

The importance of business continuity following a natural disaster is not limited to the impact from an economic standpoint; rather, the safe and continued operation of a wastewater treatment plant or a hospital can be a matter of public health and safety. The ability of a local utility to quickly restore essential services can be the difference between life and death. How an organization both prepares for

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<sup>1</sup> Paraphrased from the International Organization for Standardization (ISO)

and responds to a disaster can have an immediate and direct effect on minimizing economic, environmental, and social impacts.

Often, an organization or one of its operational units will attempt to set itself apart from its competitors with certification of conformance to a widely accepted management system standard, such as the International Organization of Standardization's (ISO) 14001, *Environmental Management Systems – Requirements with Guidance for Use*<sup>2</sup>. The intent of this standard is to assist organizations in developing a system for managing its environmental policy to ideally minimize environmental impact and continually improve environmental performance. A major element of this standard requires organizations to prepare for the types of environmental emergencies that can be reasonably expected to occur, and that may significantly impact their operations.

“Murphy’s Law” suggests that what *can* go wrong, *will*. The better an organization is prepared for a disaster and controls its risks, the better it will be able to minimize resources dedicated to recovery operations and resume conducting business as usual.

### **When Uncertainty Becomes Risk**

At its core, the most critical component to an effective disaster preparedness and recovery strategy is an effective risk assessment. It is vital that an organization identifies its hazards, the likelihood of their occurrence, and the vulnerability of people, property, the environment, and the entity itself to those hazards<sup>3</sup>.

Uncertainty is hard to measure, whereas *risk* is an exposure to which a probability of occurrence can reasonably be assigned<sup>4</sup>. Risks evolve. Few organizations likely addressed terrorist threats as part of their disaster preparedness strategy prior to 2001. Similarly, the effects of anthropogenic climate change were not perceived as being much of a risk to the business continuity of most organizations as recently as a decade ago. However, climate change is no longer an uncertainty; its impact can be quantified, and the likelihood of occurrence for climate-related disasters can be anticipated.

And as risks evolve, standards must evolve, too. Flood maps need updating; building codes need revising; assets need protecting. Long before Hurricane Sandy made its landfall upon the East Coast’s shores, the hazards associated with coastal flooding and sea level rise were being identified. From a 2011 report from the New York State Energy Research and Development Authority (NYSERDA)<sup>5</sup>:

*“Coastal flooding due to sea level rise and storm surge will increasingly put lives and property at risk. Health, water quality, energy, infrastructure, and coastal ecosystems are all affected.”*

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<sup>2</sup> From Cascio’s *ISO 14000 Guide: The New International Environmental Management Standards*

<sup>3</sup> From NFPA’s *Standard on Disaster/Emergency Management and Business*

<sup>4</sup> Paraphrased from Silver’s *The Signal and the Noise*

<sup>5</sup> NYSERDA’s *Responding to Climate Change in New York State*

Fortunately, most risks can be controlled. An organization's ability to adapt and become more resilient can have a great impact on its ability to sustain operations through a disaster event. And it is imperative that organizations continually assess their exposures to risk and address what is most likely to have the greatest impact on their ability to operate and provide services to their stakeholders.

As previously mentioned, since risks evolve, standards must evolve, too. For instance, there are many organizations that presumably lack the technical or managerial capacity to effectively evaluate their risk and exposure to natural phenomena or a changing climate. Standards should play a critical role in how an organization identifies and evaluates these business continuity risks and the impact associated with their disruption.

### **From Preparation to Response**

There is often a moment during a natural disaster when an organization realizes its planning efforts or resources are not fully capable of preventing or controlling the impact of the disaster. For example, emergency action procedures may have accounted for an explosion or severe weather event, but not the release of a highly hazardous substance. Perhaps a building's roof was designed to tolerate 150-mile-per-hour winds, but a tornado's were 165. An organization must be aware of its vulnerabilities and capabilities of both internal and external resources. And this is an area where standards can, and should, play a critical role.

Rarely can an organization recover from the impacts of a natural disaster relying solely on its own resources. Typically, an organization will require assistance from external authorities that possess the requisite competencies and situational awareness specific to the disaster scenario. A good standard for organizations to use in identifying not only their vulnerabilities but also for guidance in establishing mutual aid and assistance programs is the National Fire Protection Association's national preparedness standard, NFPA 1600, *Standard on Disaster/Emergency Management and Business Continuity Programs*. NFPA 1600 provides basic criteria for a comprehensive program that addresses every area involved with disaster/emergency management including mitigation, preparedness, response, and recovery, and was endorsed by the U.S. Department of Homeland Security (DHS). As any disaster preparedness/business continuity standard should, NFPA 1600 provides specific guidance on essential components of a disaster preparedness program such as risk assessment, communication, training and exercises, evaluations, and corrective actions.

Standards are also important to disaster recovery efforts because they can transcend organizational and geographical boundaries. For example, the Federal Emergency Management Agency (FEMA) of the DHS has published a National Incident Management System (NIMS) to provide:

*"...a consistent nationwide template to enable federal, state, tribal, and local governments, nongovernmental organizations (NGOs), and the private sector to work together to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity."*

These guidelines allow for a uniform and coordinated response in the collection and allocation of necessary resources for a disaster recovery strategy – regardless of where the disaster occurs. Failure to accurately identify the level of resources required – whether they be financial, labor, or material resources – can have a devastating effect on an organization’s ability to restore critical operations or services<sup>6</sup>.

### **Standards Development in the Public Sector**

Governments also play an essential role in disaster recovery operations – and for good reason. In addition to providing resources to assist in the recovery effort, governments have also adopted a large number of consensus standards as mandatory requirements that are enforced to protect the health and safety of individuals working in the recovery effort. Perhaps the most critical role standards play in a disaster recovery scenario is the protection of life. Many individuals often lack experience in recognizing and controlling hazards that are unique to a natural disaster. Standards provide individuals and organizations guidance and requirements for anticipating hazards and their failure modes.

Specifically, within the context of United States policy, the Occupational Safety and Health Administration (OSHA) has promulgated standards since its creation which have had far-reaching impact in protecting employee health and safety. For example, it can often be anticipated that individuals serving as emergency responders will encounter a hazardous substance of some sort. OSHA standards play a critical role in communicating health hazards associated with these encountered substances. These standards also provide requirements and guidance on the selection and use of personal protective equipment and its limitations. From fire protection to electrical safety, from fall protection to ladder safety, OSHA standards have prevented numerous – perhaps countless – fatalities and serious injuries during recovery operations, long after the skies clear and tides have receded<sup>7</sup>.

It should be the role of the greater standards development community to continually review these standards to ensure they effectively control the risks associated with disaster response. And if they do not, it should be their objective to develop voluntary consensus standards that provide additional protection where mandates or requirements may fall short.

### **Conclusion**

Few organizations are so well prepared for a natural disaster that they can rely solely on internal resources and institutional knowledge to prepare for and effectively recover from a disaster’s effects. Organizations must continually evaluate and adapt to the risks to which they are exposed. Relying on the knowledge embedded in standards from subject matter experts who possess experience in disaster recovery operations can facilitate this process to better prepare and recover from a natural disaster. Ultimately, how well an organization – or even a region – is prepared to respond and restore essential services following a natural disaster has a direct impact on reducing economic, environmental, and social costs.

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<sup>6</sup> From U.S. Department of Homeland Security’s *National Incident Management System*

<sup>7</sup> From the Occupational Safety and Health Administration (OSHA)

## References

Cascio, Joseph, Gayle Woodside, and Philip Mitchell. 1996. *ISO 14000 Guide: The New International Environmental Management Standards*. New York, NY: McGraw Hill.

International Organization of Standardization. 2013. *Standards*. Retrieved from:  
<http://www.iso.org/iso/home/standards.htm>

National Fire Protection Association. 2007. *NFPA 1600 Standard on Disaster/Emergency Management and Business*.

New York State Energy Research and Development Authority. 2011. *Responding to Climate Change in New York State*.

Occupational Safety and Health Administration. 2013. *Safety and Health Topics: Emergency Preparedness*. Retrieved from:  
<http://www.osha.gov/SLTC/emergencypreparedness/>

Silver, Nate. 2012. *The Signal and the Noise: Why So Many Predictions Fail – but Some Don't*. New York, NY: Penguin.

United States Department of Homeland Security, Federal Emergency Management Agency. 2008. *National Incident Management System*. Retrieved from:  
[http://www.fema.gov/pdf/emergency/nims/NIMS\\_core.pdf](http://www.fema.gov/pdf/emergency/nims/NIMS_core.pdf)