Overview

Enterprise resiliency is one of the ten attributes of effectively managed water utilities. It means that in a proactive way, a utility identifies, assesses, establishes tolerances for, and effectively manages a full range of business risks consistent with industry trends. Risks include legal, regulatory, financial, water quality, environmental, safety, physical and cyber security, reputational, political, and natural disaster-related. A resilient utility ensures that utility staff and leadership work together internally, and with external partners, to anticipate, respond to, and avoid problems (EPA 2008).

Risk Governance

Good risk governance creates lasting value for a water utility. It improves employee understanding of the whole water supply system, and potentially reduces business losses and limits insurance premiums and litigation penalties (Pollard et al. 2013). All parts of the organization function as an integrated strategic enterprise.

These tools help utilities develop a systematic approach to a risk management program, and to identify gaps in desired performance.


At minimum, risk governance involves establishing a risk policy, setting out the process of risk management and the roles and responsibilities therein, providing risk reporting and review, ensuring risk managers have the necessary skills and competencies, and administering the mechanisms and structures of risk management.

Key risk management strategies include:

- Terminate the source of risk where possible
- Mitigate the effects of risk through improved management, engineered systems, or compensating impacts
- Transfer financial risks through insurance or contracting procedures
- Exploit potential benefits of avoidable risk by embracing opportunities
- Accept the risk by not intervening in new or existing situations
- Avoid the risk by not embarking on activities with potential negative consequences (Pollard et al. 2013)

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**Figure 1. Organizational governance structure, adapted from the international risk management standard ISO 31000:2009**

Source: Pollard et al. 2013
Water utilities serving greater than 3,300 customers were required to complete vulnerability assessments as part of the Bioterrorism Act of 2002. A number of different tools were created to help utilities identify vulnerabilities, particularly for terrorism threats. To create consistency, the AWWA J-100 standard was developed. It provides consistent and technically sound methodology to identify, analyze, quantify, and communicate the risk of manmade and natural hazards to water systems (AWWA 2010, Morley 2010).


### Risk Mitigation, Emergency Response and Recovery Planning

Once a utility completes a vulnerability assessment, the results should be incorporated into other activities, beginning with risk mitigation. With each risk identified, the utility needs to determine the appropriate action to lower or eliminate those risks. Some risks may be mitigated through operational or facility changes. For those

<table>
<thead>
<tr>
<th>Table 1. Emergency response and planning resources</th>
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</thead>
<tbody>
<tr>
<td>Resource</td>
</tr>
<tr>
<td>EPA Website, “Emergency Response for Drinking Water and Wastewater Utilities” (2016)</td>
</tr>
<tr>
<td>• Large Water System Emergency Response Plan Outline (EPA 2003)</td>
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<tr>
<td>Water/Wastewater Utilities and Extreme Climate and Weather Events (Beller-Simms 2014)</td>
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<tr>
<td>Water Utility Legal Protection and Claims Management from Infrastructure Failure (Martel et al. 2014)</td>
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</table>
risks that are not completely mitigated, an emergency response plan needs to be developed.

Emergency Response and Recovery and Business Continuity Planning

It is essential that a water utility maintains solid operations after an incident. The WRF report, Business Continuity Planning for Water Utilities: Guidance Document, presents a business continuity plan template and online video modules to help maintain financial, managerial and functional operations after the occurrence (Moyer et al. 2013).

Crisis Communications

Communicating with the public and other agencies after an incident can be one of a water utility’s hardest jobs. The EPA published Effective Risk and Crisis Communication during Water Security Emergencies (Covello et al. 2007) to provide information about effective and proactive message development and delivery. WRF has published several related reports: Strategic Communication Planning: A Guide for Water Utilities (Mobley et al. 2006), Protocol for Cryptosporidium Risk Communication (Small et al. 2002), Advancing Collaborations for Water-Related Health Risk Communication (Parkin et al. 2006), and Contaminant Risk Management Communication Strategy and Tools (Mobley et al. 2010).

Health and Safety

The activities performed in water utilities frequently involve tasks that are considered high-hazard work. Failure to follow procedures can result in severe injury or death. Workforce Health and Safety: Prevention through Design includes prototype tools to make the ongoing cost of safe operations salient to management, and to measure progress in improving the safety and cost of operations (Adams and Grieser 2014).

Utilities that have well-developed risk management processes in place will be well-equipped to assess, mitigate and manage risk.

References


