Regional Maritime Disaster Management

May 10, 2018

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Key Points

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- Disaster management should be looked at as a cycle of continuous improvement with the effect of building the resilience of ports and related infrastructure.

- Key issues to be addressed ahead of time include:
  - Assessing and prioritizing risks;
  - Regional coordination;
  - Developing a common response system;
  - Including all key participants in plans, training, and exercises;
  - Having clear authorities and jurisdictions; and
  - Planning for recovery (logistics!).

Who We Are

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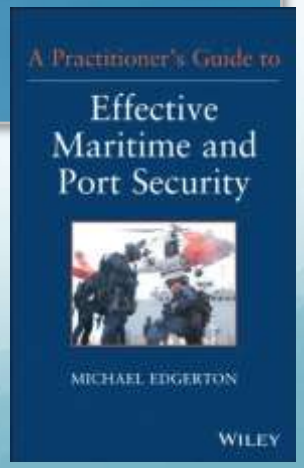
HudsonAnalytix is a US-based international business risk solutions company providing expertise and support to the world's leading commercial shipping, ports and terminals, insurance, and government sectors. Our clients include:

- Port Authorities and Terminal Operators
- National and Regional Port Systems
- Integrated Oil and Gas Companies
- National Oil Companies
- Global Maritime Transportation Companies
- Insurance Companies
- Governments

Key Facts:

- Established in 1986
- Worldwide Presence:
  - Philadelphia (Global HQ)
  - Washington, DC
  - Seattle, WA
  - San Diego, CA
  - Rome, Italy
  - Piraeus, Greece
  - Jakarta, Indonesia (JV)
  - Manila, Philippines



Operating Subsidiaries

HudsonMarine – Risk and Crisis Management

HudsonTrident – Physical and Cyber Security

HudsonTactix - Consequence Management

HudsonDynamix – Integrated Training Solutions

HudsonSystems – Management Systems Development and Improvement

Types of Crises

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CDEMA
CARIBBEAN DISASTER EMERGENCY MANAGEMENT AGENCY
Resilient States · Safer Lives

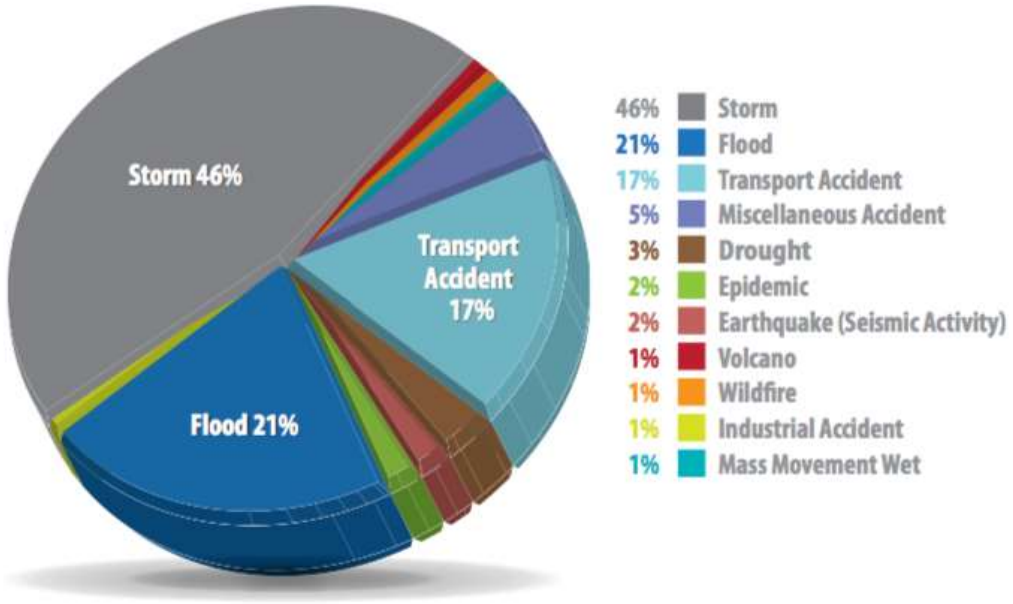

Figure 1: Distribution by Disaster Type/Caribbean 1980-2009

Source: EM-Dat 2010

Types of Risks

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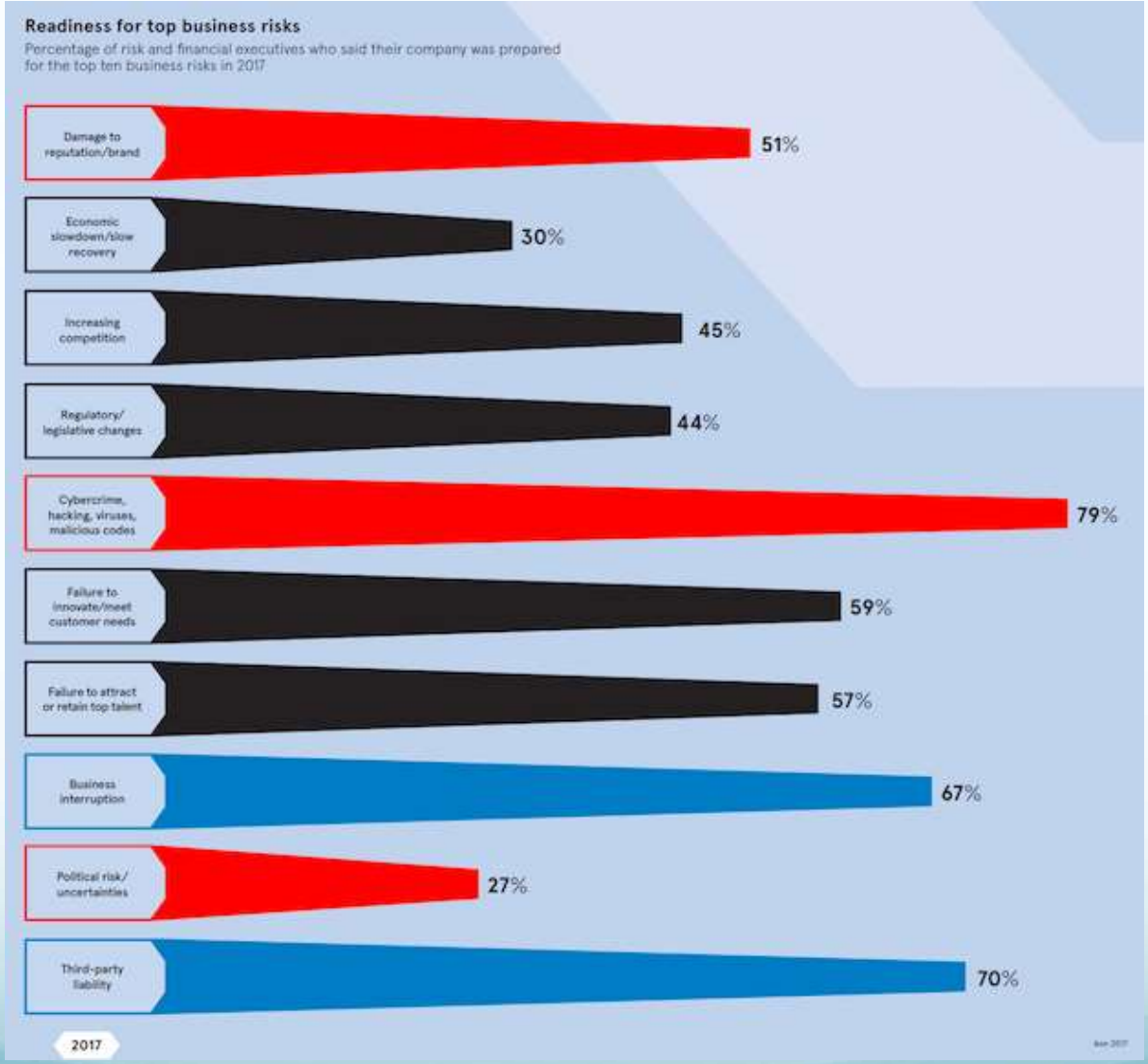

Components of Disaster Management

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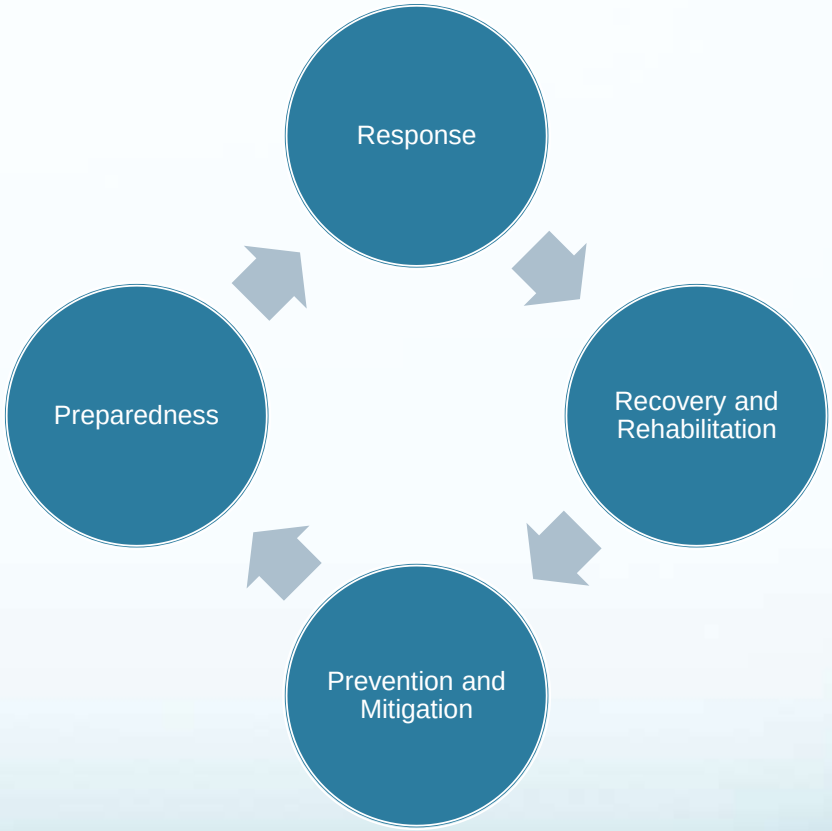
Key points:

- Risk-Based;
- Continuous Improvement;
- Measurable.



Prevention and Mitigation

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- Develop Risk Register and Business Impact Analysis;
- Develop Strategy (Doctrine);
- Leverage preventive programs such as:
  - Laws and regulations such as:
    - Environmental regulations;
    - Construction standards;
    - Public Relations campaigns, etc.

Preparedness

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- Refine Risk Register and BIA;
  - Enterprise approach (Tourism, IT, Operations, Intermodal Connections, etc.)
- Develop Plans;
  - Leverage ALL Stakeholders and Expertise;
  - Identify resources and providers in advance;
  - Ensure inter-agency agreement and participation;
  - Train and exercise.

Business Continuity – Disaster Recovery

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- BIA;
  - Quantitative or Qualitative;
  - Quantitative – Less emphasis on data, more on working with stakeholders, other operating divisions.
  - Qualitative – Dependent on data. Useful for developing business case;
  - Hybrid – Best of both. Qualitative validated and accomplished with stakeholders

- BIA needs to reflect key metrics to help prioritize recovery efforts:
  - Minimum Tolerable Downtime;
  - Recovery Time Objectives; and
  - Recovery Point Objectives.

Business Continuity – Disaster Recovery

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Quantitative Assessment:
Key concepts:

- Asset;
- Exposure Factor – Potential damage (measured as:
  - 0% - 0.0;
  - 50% - 0.5;
  - 100% - 1.0.
- Calculus:
  1. SLE = AV x EF (ex. $100x.5=$50);
  2. ARO = # of incidents/year (ex. 1x every 2 years or .5 annual occurrence)
  3. ALE = SLE x ARO (ex. $50 x .5 = $25)
  4. **$25** – Budgetary Spending Cap

Treating Risk

- BIA provides the foundation for making these decisions:
- Was to treat risk:
  - Avoid;
  - Transfer;
  - Accept;
  - Mitigate;
- Can be more than one treatment;
- Residual Risk (ALARP)
- Now you can plan!

Response

- The actual management of the crisis as it develops;
- Multi-disciplinary;
- Command and control;
  - Pre-ordained;
  - Unified;
  - Scale varies upon type of incident.
- Challenge:
  - Use of different systems (ICS, GSB, Military, etc.);
  - Competition for response resources;
  - Different laws and regulations.

Recovery and Rehabilitation

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- Longer-term;
- Opportunities for improvement;
- Heavy financial investment and expenditures;
- Different stakeholders;
- Shift of command and control; and

The Objective is Resilience

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Resiliency is the capability to absorb undesirable or unexpected events with minimal impact and to quickly recover full operations.

Includes Crisis Response and Recovery as well as Continuity planning.

Ports are a Unique Operating Environment

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- Similar risks as other domains, including:
  - Weather;
  - Human Error;
  - Intentional acts such as crime and terror;

- Unique Elements:
  - Almost always has an international element:
    - Multinational interests;
    - Multiple Jurisdictions (ie, ships in port);
    - International agreements and codes;
    - Commercial drivers;
    - Lack of full transparency in stakeholders (ship-owners, cargo owners, etc.);
    - Huge environmental sensitivities;
    - Cyber disasters?
      - Maersk

Case Study: Indian Ocean Tsunami

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Damage from the 2004 Indian Ocean Tsunami had a significant effect on port operations and maritime commerce throughout the Pacific Rim with ripple effects being felt globally.

In Banda Aceh, Indonesia alone, in addition to the massive loss of life, infrastructure along over 800 kilometers of coastline was destroyed or severely damaged, including 22 port areas. Over 700,000 people were rendered homeless.

Case Study: Indian Ocean Tsunami

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Port assessments were delayed due to lack of access and communications.

Response organizations were reliant on airlift to move people and supplies due to the damage to the transportation infrastructure.

Initial response operations were disjointed with only ad hoc coordination among host nation, foreign militaries and NGO's.

Case Study: Indian Ocean Tsunami

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Lessons learned:

- With port and associated transportation infrastructure damaged or destroyed, coupled with a massive humanitarian crisis, the support of the international community was essential but required coordination;

- A key recovery element was international support in reconstituting the seaports, including the training of staff to replace those killed. This is an ongoing, multi-year effort;

- The role of salvage and logistics support in a major incident needs to be considered in advance of an incident with contracting mechanisms in place; and

- Command and control needs to be instituted in advance and exercised so it is understood and the stakeholders know each other, their roles, and their capabilities.

Leading Practices

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- Top management is fully supportive of planning, training, and exercising;
- Clear lines of responsibility and authority;
- There is one, nationally implemented command and control system which is, or is derived from, a globally recognized system;
- An investment in training and exercising with senior management participation;
- Inclusive of relevant stakeholders;
- Risk-based;
- Stakeholders know each other through the planning, training, and exercising activities;
- Risks and associated plans are updated regularly; and
- Take an approach focused on resilience.

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Thank You & Questions?