



Emergency Management Issues Special Interest Group Annual Meeting

Threat/Risk Analysis Impact on Government and Business Continuity Planning

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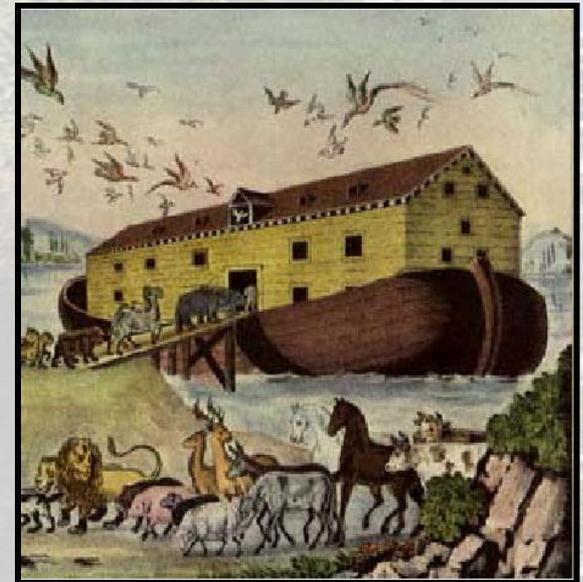
**“Nothing does more to focus attention on business continuity
planning than a disaster” - S. Updegraff, Loss Control Consultant**

May 2–5, 2011 Charleston Marriott • Charleston, South Carolina

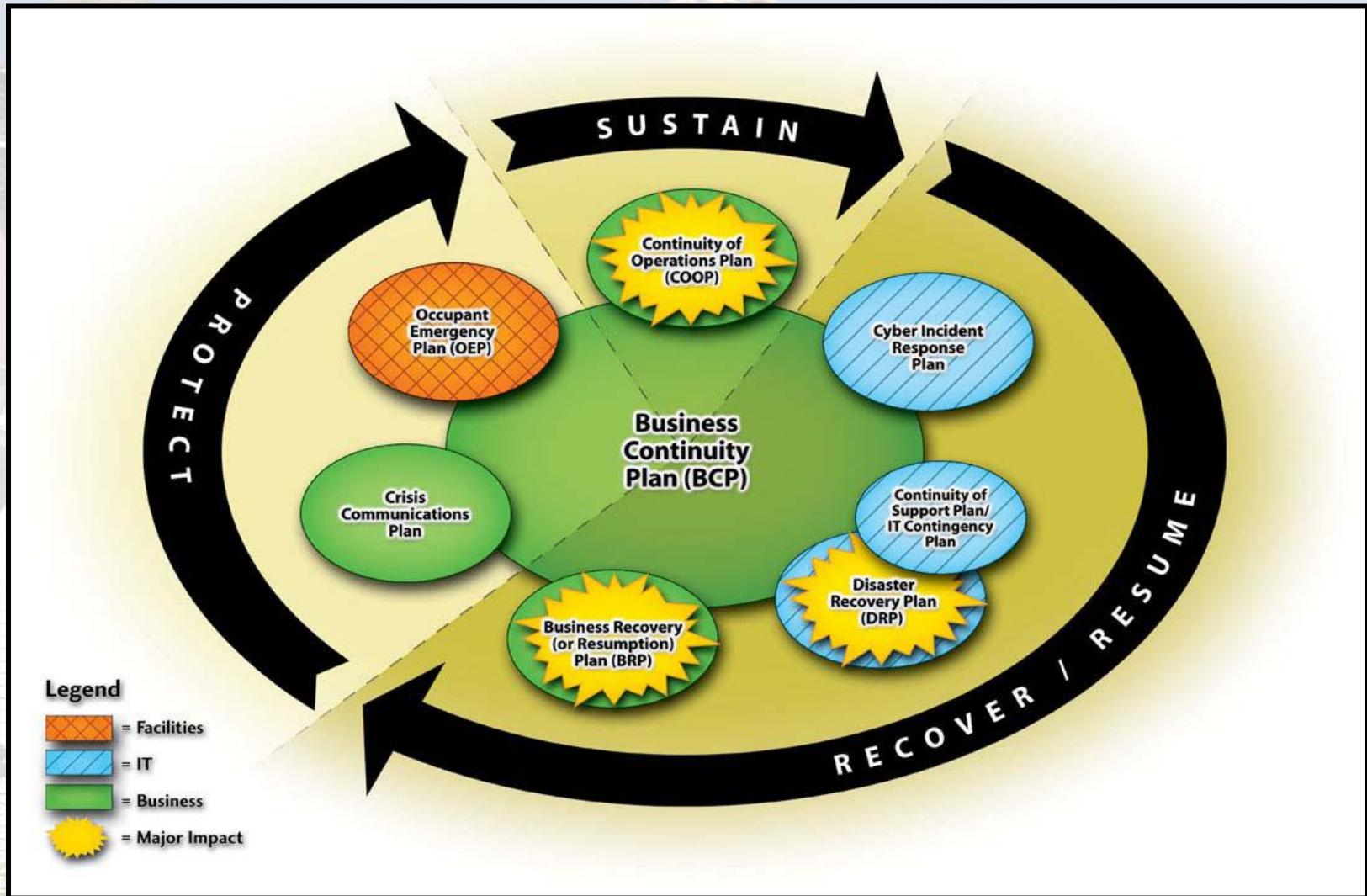


Threat/Risk Analysis Impact on Government and Business Continuity Planning

- ❑ **Risk assessment** is fundamental to government as well as business continuity planning
- ❑ Results of assessments become the **drivers** for developing continuity impact mitigations
- ❑ **COOP** – required for all-hazards to perform NEFs, PMEFS, MEFs & ESAs
- ❑ **BCP** – focus is the *Return Time Objective (RTO)* in order to continue availability of essential services



Threat/Risk Analysis Impact on Government and Business Continuity Planning



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Consequence/Severity Rating		Vulnerability/Exposure Rating			Rating	Description
		1	2	3		
1	Minor	1	2	3	1	Minor exposure, minor severity
2	Moderate	2	3	4	2	Minor exposure, moderate severity; or moderate exposure, minor severity
3	High	3	4	5	3	Highly exposed, minor severity; or minor exposure, high severity; or moderate exposure, moderate severity
					4	Highly exposed, moderate severity; or moderate exposure, high severity
					5	Highly exposed, high severity

- Quantifying Risk
- Prioritizing Risk
- Acting on Risk Assessment

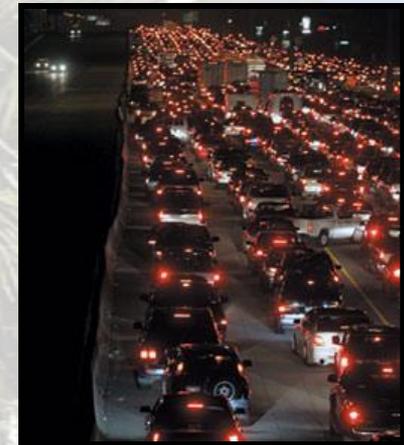
Threat/Risk Analysis Impact on Government and Business Continuity Planning

- ❑ The March 11th 2011 *Tōhoku* or the *Great East Japan Earthquake & tsunami* generates worldwide public concern about nuclear facility disaster planning – **why wasn't an earthquake and resulting tsunami of this magnitude foreseen?**
- ❑ Since 1970's Japanese seismologists conjectured a large quake, but **were certain it would happen southwest of Tokyo: named *The Tokai Earthquake*.**
- ❑ "We do tend to focus on the expected events. We're going to get blindsided by unusual events. . . . But **uncommon events happen,**" USGS geophysicist.



Threat/Risk Analysis Impact on Government and Business Continuity Planning

- It is often said that **the Japanese are the best prepared for earthquakes** largely because they have the most experience. What went wrong?
- It can also be said that **the US is the best prepared for hurricanes** for the same reason. What happened with Katrina?
- What was it about both the Katrina and the *Great Japan Earthquake*? **Magnitude?** **Duration?** **Secondary effects?**



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How often do major hurricanes hit the US?

On average, **two** major hurricane (cat 3-5) strike **every three years**; in all categories, about five hurricanes make landfall every three years. **On average, a hurricane cat 4 or higher only strikes once every six years.** 2004 and 2005 were both anomalies.

Period	Number	Category 4 Number per year
1851–1900	13	0.26
1901–1950	29	0.59
1951–1975	22	0.92
1976–2000	24	1.0
2001–2010	17	1.7

Predictions of tropical activity in the 2004 season

Source	Date	Tropical storms	Hurricanes	Major hurricanes
CSU	Average (1950–2000)	9.6	5.9	2.3
NOAA	Average ^[1]	11	6	2
NOAA	May 17, 2004	12–15	6–8	2–4
CSU	May 28, 2004	14	8	3
CSU	August 6, 2004	13	7	3
	Actual activity	15	9	6

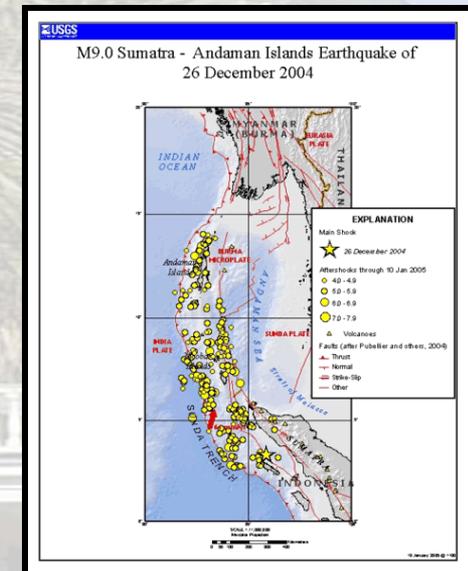
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- ❑ It is human nature to **plan for what we expect** (e.g., tsunami seawalls, tornado warning sirens, signs showing hurricane evacuation routes) – what if the risk assessment shows **highly unlikely**?
- ❑ In COOP/BCP using **teams with wide range of disciplines, backgrounds, experience and knowledge** to conduct risk/threat analyses or risk assessments may help. Use consultants – NOAA?
- ❑ **If the threat/risk result shows unpredictable or unlikely** - we usually don't plan for it because we probably couldn't get funded. **Is there an alternative?**



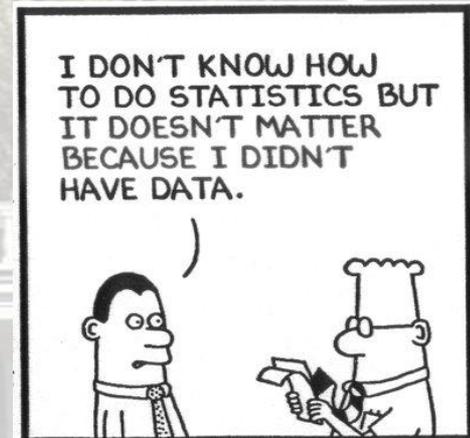
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- ❑ What is the **impact of incompletely assessing risk** for continuity planning with events like the *Great Japan Earthquake* that are **not predicted** and presumed to be **improbable**?
- ❑ Some statisticians call these *Black Swan* events which are characterized by **rarity**, **extreme impact**, and **retrospective predictability** (see Taleb, 2007, *The Black Swan*).
- ❑ The problem with a **Black Swan event is that it is not predictable looking forward** – we don't have the information to make that prediction because there is no data to base it on.



Threat/Risk Analysis Impact on Government and Business Continuity Planning

- ❑ Interestingly it is the **Black Swan events that shape our actions** and moves us often into new directions.
- ❑ What caused us in the last few years to now focus on COOP and Business Continuity Planning?
- ❑ Have you had to take a **new look at planning** because of the Fukushima Daiichi power plant disaster?
- ❑ Do you consider **cascade events** in your COOP/BCP risk/threat analysis?



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- ❑ Here are a few Black Swans important to us:
 - ❑ Columbus discovers America
 - ❑ Discovery of gold in California
 - ❑ Development of the semiconductor
 - ❑ Development of the Graphical User Interface (GUI)
 - ❑ Invention of the Internet
 - ❑ NASA/Black & Decker developed rechargeable batteries
 - ❑ Loma Prieta Earthquake of 1989
 - ❑ **9/11 Terrorist Attacks in 2001**
 - ❑ **Katrina in 2005**
 - ❑ **The Great Japan Earthquake of 2011**
 - ❑ April 2011 tornados represent the largest single-system outbreak in US History – entire towns decimated (?)



Threat/Risk Analysis Impact on Government and Business Continuity Planning

- ❑ How do *Black Swan* events affect the threat/risk analysis process and **significance of consequence planning** on government and business continuity?
- ❑ The Nuclear Regulatory Commission says that it considers the 104 U.S. nuclear plants to be secure, but **the evidence from Japan's devastating reactor damage would be the basis for a new review**
(Peter Behr *Scientific American and ClimateWire* | March 18, 2011 | 8)



Threat/Risk Analysis Impact on Government and Business Continuity Planning

The **1928 Thames flood** was a disastrous flood of the River Thames that affected much of riverside London on 7 January 1928, as well as places further downriver. It was the last major flood to affect central London, and, particularly following the **disastrous North Sea flood of 1953**, helped lead to the implementation of new flood-control measures that culminated in the construction of the **Thames Barrier in the 1970s**.

The barrier was originally designed to protect London against a big flood level, with a **return period of one-thousand years** up to the year **2030**, after which the protection would decrease, whilst remaining within acceptable limits.

They now know they need to expand – **this wasn't enough to protect them.**



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Continuity Lessons Learned from Katrina:

- Disasters are often not local
- Vaults used to store historic records couldn't withstand the storm surge (water damage). Forty-eight hours. That's the time professionals say the records can wait after a disaster before being recovered and mold starts to form.
- Staff were often not available to help recovery
- Prevention would have been a lot cheaper than the recovery
- Stage resources outside potential hazard zones
- Effective communications is critical to disaster recovery – major problem



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Continuity Lessons Learned from Tōhuko Earthquake:

- Power failures take down telecommunications - wireless hit the hardest
- Travel and transportation was restricted – leave the immediate area and can't return for some time
- Basic support services unavailable – gasoline, food, water
- Employee/family issues
- Electronic copies of BCP plans not available for some time
- Critical facilities should not be located near each other
- Resources staged in safe areas – above potential flood levels
- Hardware, software, media, and license keys are major data management challenges
- Insurance coverage often inadequate to cover expenses
- Return to primary facility unlikely - hardware damaged and unusable – facilities destroyed.

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- ❑ **What is the “continuity” answer to continuity planning for a Black Swan event?**
- ❑ **At least qualitatively look at worst case scenarios. Could they be easily mitigated?**
- ❑ **Consider whether you could mitigate a higher consequence with the same or nearly the same action.**
- ❑ **What would you do if the COOP/BCP facility was yours? Your money, your home, your family, or your retirement?**



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Questions?

