

# Lessons from Japanese earthquake , tsunami and Nuclear disaster-1

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# Japan one of the most well prepared countries

- Japan is very well prepared for such catastrophes
  - Every home has emergency kits
  - Every family has a plan including communication plans to re-unite
  - Even children are educated
  - They have concrete walls around the country , fort like floodgates and tsunami shelters (They are the only ones to have shelters) to take on tsunamis
  - One of the most sophisticated earthquake and tsunami warning systems in the world
  - Tsunami warnings popped up just 5 minutes after the earthquake; the first waves arrived in 30 mins.
  - Japanese financial system and payment networks have not been significantly disrupted.
  - Most buildings survived the 8.9 magnitude earthquake because of stringent building codes!
  - Special seismic protection for important buildings like hospitals
    - Then what went wrong?

# Lesson -1

- **When looking at risk, build really worst case scenarios and don't look only at the recent past**
  - The earthquake was larger than what was thought possible
    - In Sendai, the concrete seawalls were about three meters, against 10 meters in other locations in Japan.
    - Not enough tsunami shelters
  - The Big one was thought to be 8.5 or so but it was 8.9
    - This is deceptive as the 8.5 one would have been just one third as strong as a 8.9 one
  - The last earthquake of this magnitude was in AD 869; so this was not considered as a possibility

# Lesson-1 contd.

- This is a fundamental problem in all risk planning like saying 'this has not happened in the last 100 years'
- Classic example:
  - GE thought it was bold, testing its model against a % drop in interest rates, but did not conceive of a sudden and nearly complete stop to inter bank lending , a total absence of buyers for its securitized debt and investors so panicky they are willing to accept negative interest rates to gain the safety of T-bills!
  - A risk manager's worst case scenario may become the best case!

# Lesson-2

- **Your disaster recovery plans have to be frequently tested for resilience**
  - Japan's systems undergo less rigorous hazard analysis and testing compared to systems in California
  - Bridges in Japan are designed for higher earthquakes than the buildings next to them
  - Applications in Japan consider a lower level of earthquake for the design and the review and plan checking are not as rigorous as in California.

# Lesson-2

- **The largest risk is the risk of compounding, a series of disasters one after another and this has to be considered in your worst case scenario:**
- **Look at the chain of events in Japan**
  - 1. 9 Magnitude Earthquake
  - 2. 33' Tsunami
  - 3. Three Nuclear Reactors in Melt down with Three more Reactors At Risk of Melting Down
  - 4. Volcanic Eruption in the South of the Country
  - 5. Rolling Blackouts & Loss of Critical Export Industry Output Due to Loss of Electrical Generating Capacity- JIT inventories do not help in disasters
  - 6. Supplies evaporate when panic buying starts- Growing panic

# Lesson-3

- **Too much reliance/concentration on anything is bad; You risk planning has to have 'worst case scenarios' on anything you rely a lot on-product, supplier, customer, whatever**
  - Japan relies to the extent of 33% on nuclear power
  - About 90 percent of the property and casualty business in Japan is written by three big domestic insurance groups. The Japanese insurers jointly own a reinsurer, the Japan Earthquake Reinsurance Company, which in turn is backstopped by the Japanese government. So the Japanese Govt will foot a large part of the bill for the \$100B or so loss.

# Lesson-4

- **Man made disasters are difficult to predict and can sometimes be bigger than natural disasters**
- **The nuclear power plant is complicating the Japanese disaster a lot**
  - What Warren buffet said in his letter to shareholders in 2001 after the 9/11 disaster is worth noting.
    - “A Mega catastrophe is no surprise ; one will occur from time to time and this will not be our last; we did not however price for man made mage cats; we were foolish in not doing so.”

# Lesson-5

- **Not doing your worst case scenario planning may become a very costly exercise**
  - Operators of nuclear plants in Japan are required to buy liability insurance through the Japan Atomic Energy Insurance Pool, an industry group. But they are required to buy coverage of only about \$2.2 billion for liabilities, and the pool does not sell the utilities coverage for earthquake damage or business interruptions, suggesting it will be up to the Japanese government to bear the brunt of those costs.

What may help in risk

# assessment and planning?

- FEAR
- Not debilitating, all consuming and monumental fear
  - We do not want to be paralysed
- But fear based on what is probable even if outside the fringes of normal thinking

# Sources

- Edutopia
- The learning network
- 6 lessons for Preppers by DR.Richard
- Tsunami warning systems: lessons from Japan
- Japan's Govt likely to bear much of the loss -NY times
- Crisis in Japan: The global impact by Tracy Kitten
- Q&A: Early lessons from Japan's earthquake -LA times
- Lessons from Japan's earthquake :Science daily
- After effects: How Japan can improve its earthquake, tsunami defenses Technewsdaily
- Lessons from Japan's earthquake and tsunami: get emergency prepared -Blogger