Lessons Learned from Water Disasters – How the Past Shapes the Future

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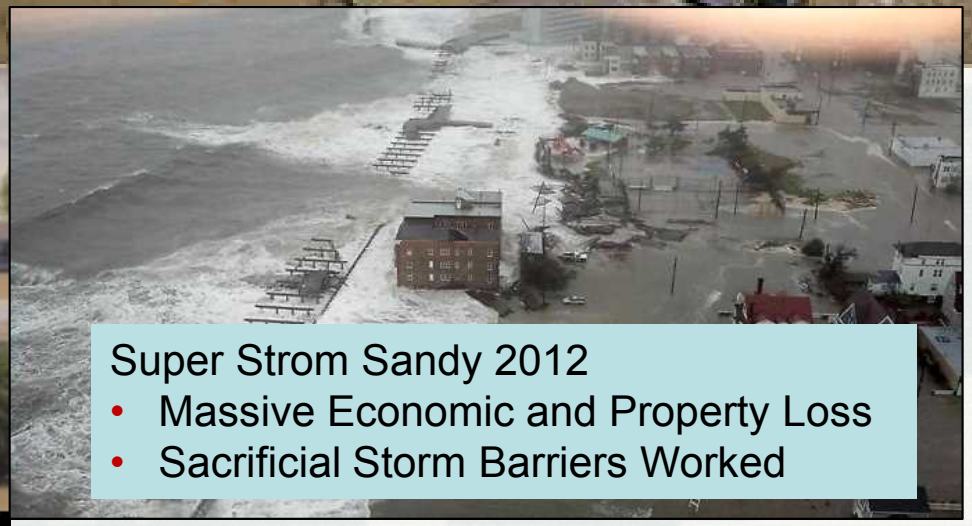
Recent Disasters

Katrina - 2005
- 1,833 deaths
- $130 B in Recovery Cost
- 80% of New Orleans underwater

Nashville Flood 2010
- 31 Deaths
- $2.3 B Damages

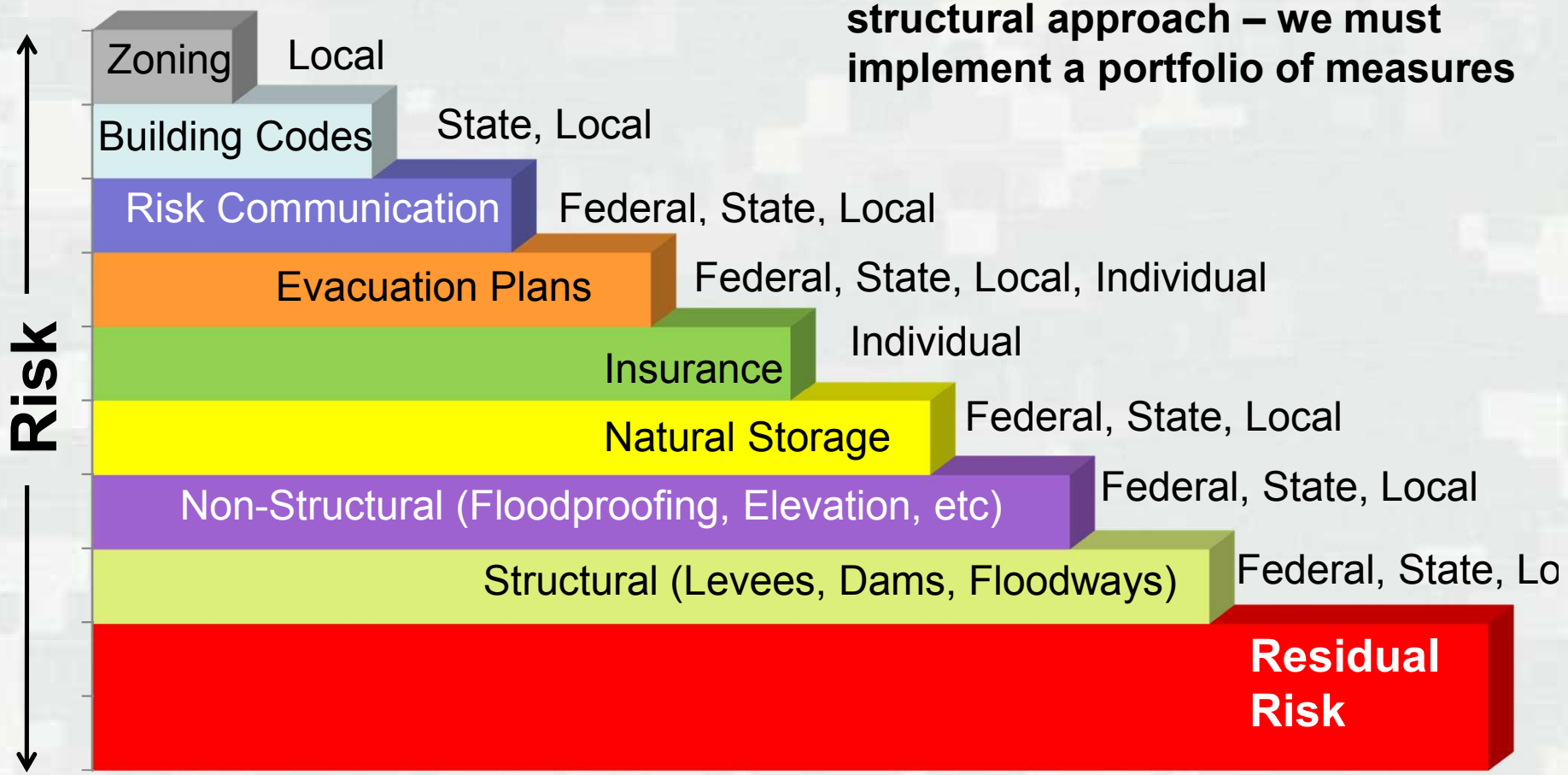
2011 Mississippi River Floods
- No deaths as direct result of flood
- $238 B Damages Prevented



Super Strom Sandy 2012
- Massive Economic and Property Loss
- Sacrificial Storm Barriers Worked

Reducing Risk

- **Absolute protection from floods is not possible – must plan for exceedence (Residual Risk)**
- **We cannot rely on a single structural approach – we must implement a portfolio of measures**



Identify risks and make decisions based on relative risk – recognizing that not all will get the same protection

Hurricane Katrina 2005

- Lesson Learned
  - Did not assess the flood control works as a system
  - Did not communicate the amount of residual risk.
- Actions Taken
  - Established the Risk Management Center (RMC)
  - Make risk informed decisions on investment

Nashville Flood - 2010

Corps of Engineers

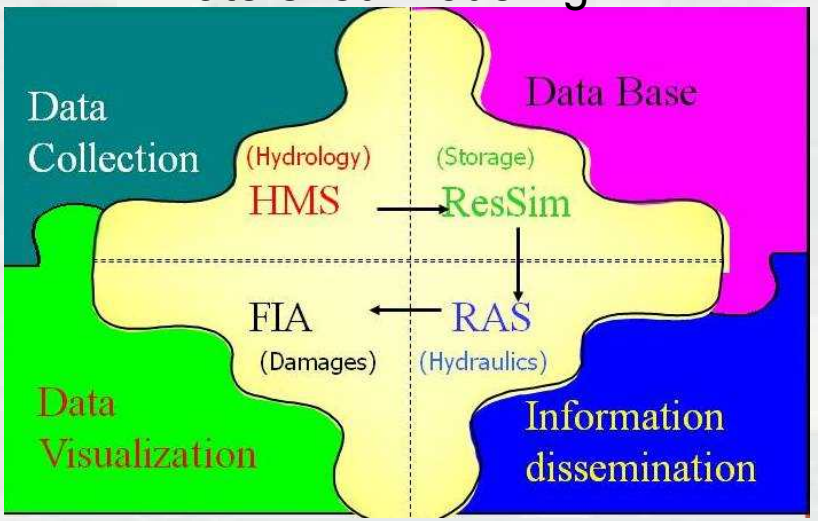
National Weather Service

U.S Geological Survey

- Lesson Learned
  - Poor inter-agency communications and difficulty in sharing real-time information impacted operations.
- Actions Taken
  - Charters with other agencies
  - Sharing technical expertise

Mississippi River Floods - 2011

Watershed Modeling



- Lessons Learned
  - Limited ability to communicate impacts of operational decisions lead to confusion
  - Flood protection Infrastructure worked
- Actions Taken
  - Developing comprehensive watershed models
  - Inundation mapping

Super Storm Sandy - 2012

- Lessons Learned
  - Lack of Resiliency
  - Sacrificial shore protection projects worked
  - No comprehensive approach to flooding
- Actions Taken
  - Account for Sea Level Rise in planning and design
  - Integrate sustainability (economic, social, environmental)
  - Promote long-term community protection
  - Continue with sacrificial protection projects
  - Development of North Atlantic Coast Comprehensive Study

Bottom Line – Flood Risk Lessons Learned

1. Effective communication of risk is essential.
2. Consider all components of the system.
3. Consider current science and technology.
4. The public's memory of a flood is short.
5. Proper technical expertise is critical.
6. Build on what we have learned from the past.

Discussion

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