

Managing Climate-
Related Disasters:
Achieving
Resiliency through
Exercises

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Overview

- Leaders need a practical approach to manage projected climate change-related disasters
- With extreme flooding events occurring more frequently and with increased severity, leaders are focused on proactively managing new levels of risk posed by climate-related events
- An **exercise** provides leaders with the tools they need to immediately begin to address climate change in their region

Managing Climate-Related Disasters:
Achieving Resiliency through Exercises

PART I: game-changers

PART II: the exercise as a tool to
address game-changing events

game-changers:
when real-world
events don't follow
the rules

PART I



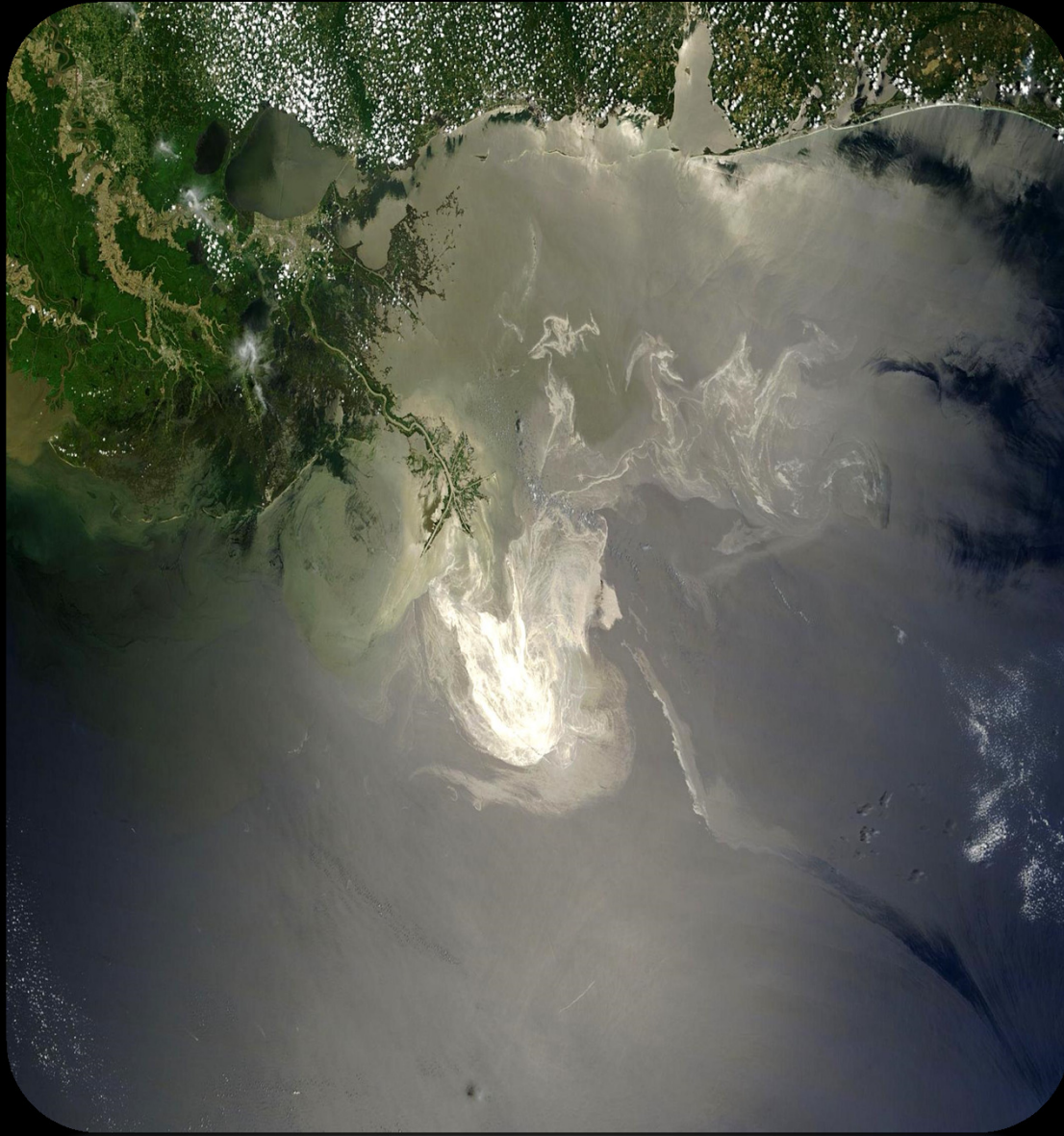
Spill of the Exxon Valdez



**9/11
Terrorist
Attacks**



Hurricane Katrina



Deepwater Horizon



Nassim Nicholas Taleb, author of the 2007 book, *The Black Swan*, describes the

- disproportionate role of high-impact, hard to predict, and rare events that are beyond the realm of normal expectations
- non-computability of the probability of the consequential rare events using scientific methods
- psychological biases that make people blind to uncertainty

He calls these “black swans” ...

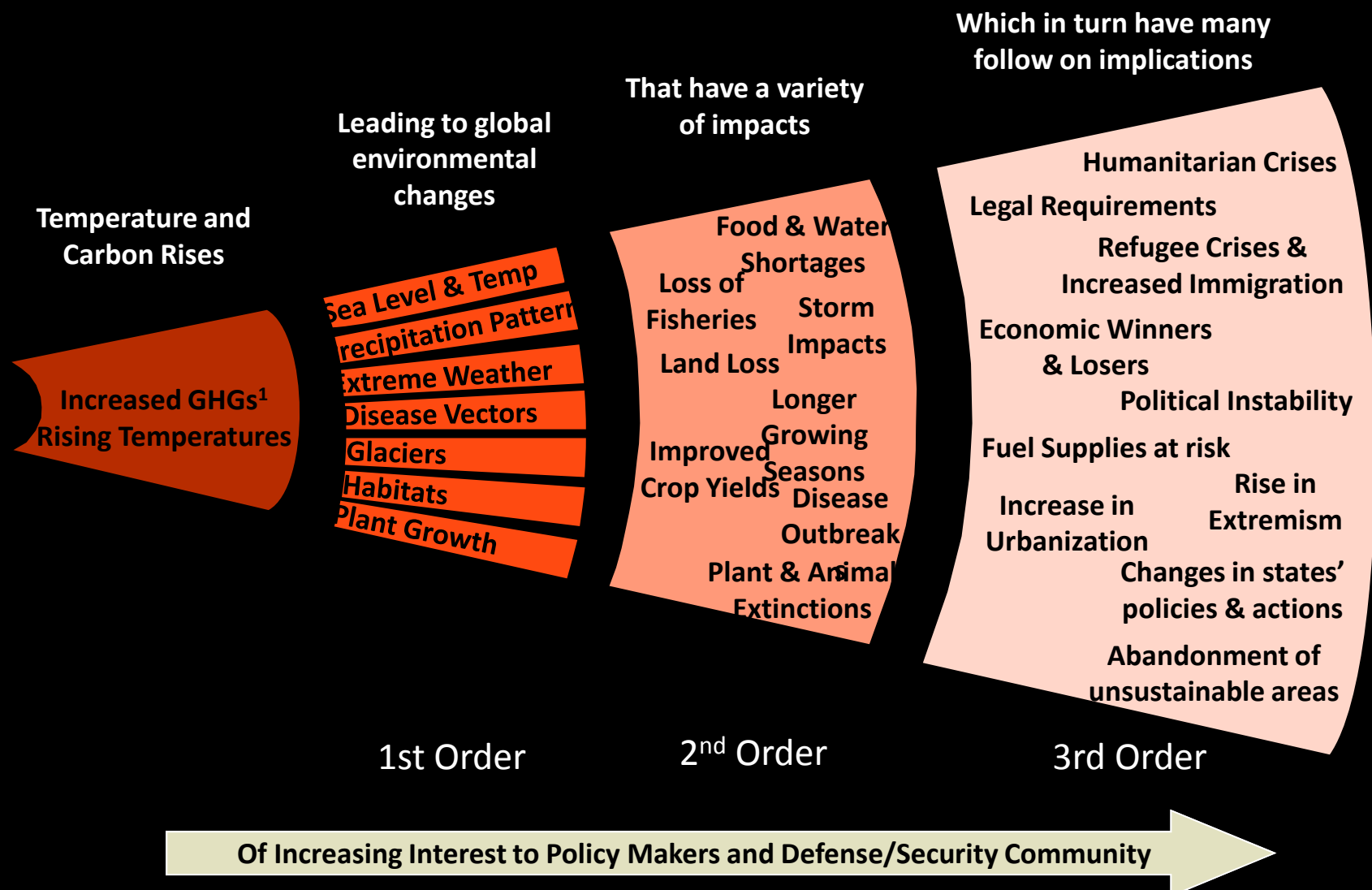
and black swan events are *game-changing events*...

Climate change as a game-changer

Requires

- a new way of thinking
- a new approach to stakeholder outreach





Climate Change has no simple cause-and-effect and a long timeline, making it even more complicated to address

the exercise as a
tool to address
game-changing
events

PART II

Some definitions....

What is an exercise?

“The exercise is an instrument to train for and practice prevention, vulnerability reduction, response, and recovery capabilities in a risk-free environment. They also can be used to assess and improve performance.”

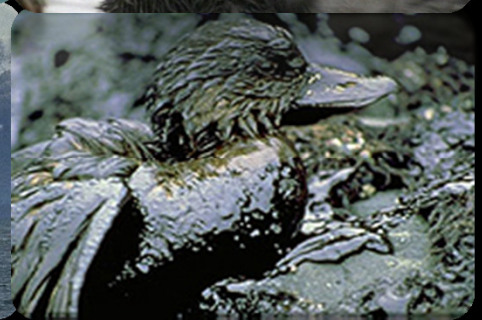
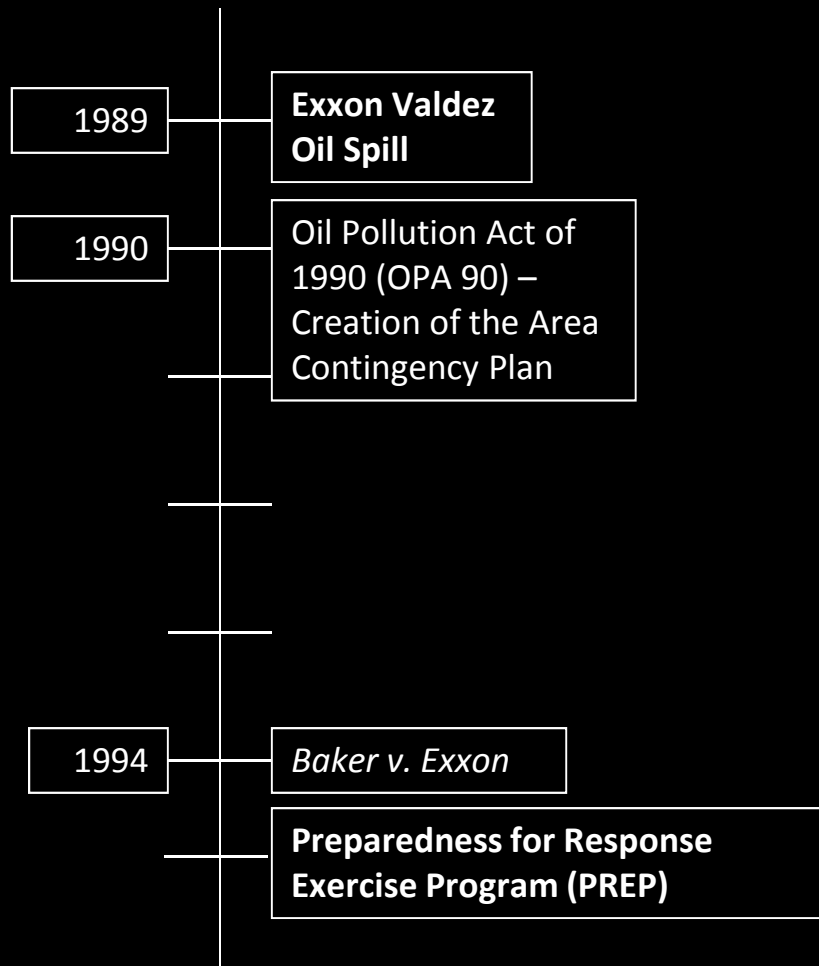
Department of Homeland Security Homeland Security (DHS) Exercise and Evaluation Program (HSEEP)

What is a scenario?

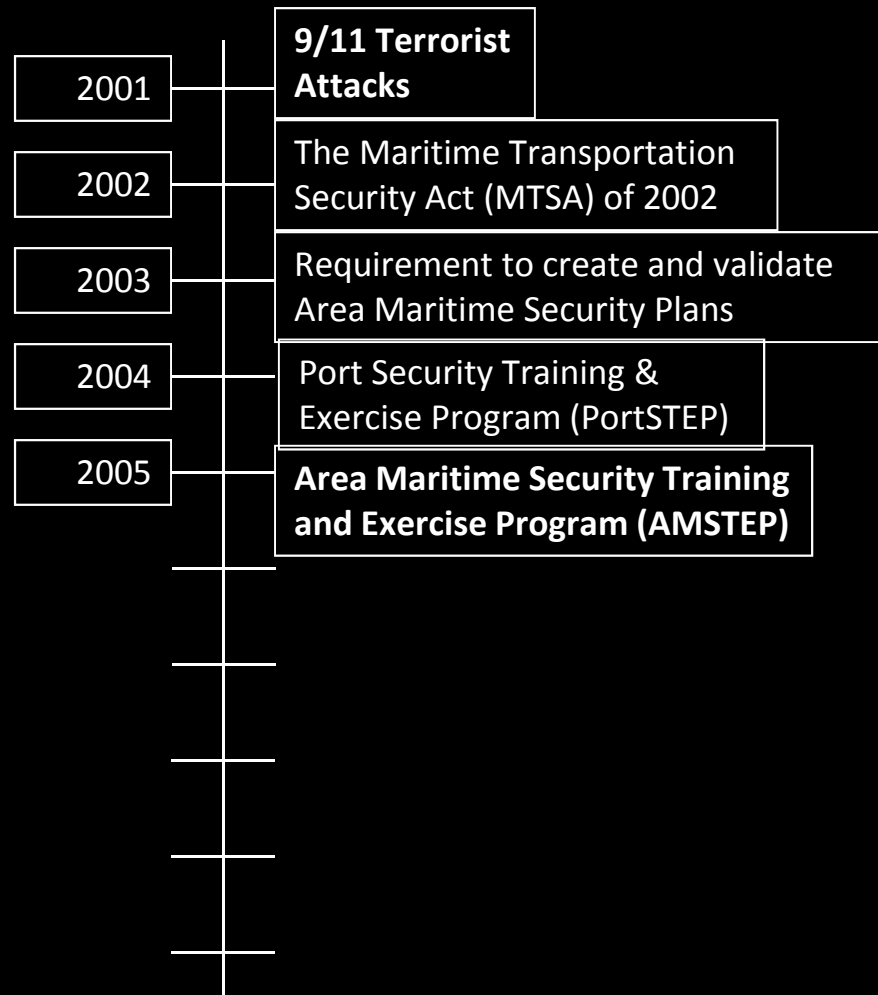
“A scenario provides the backdrop and storyline that drive an exercise. The first step in designing the scenario is determining the type of threat/ hazard.”

Department of Homeland Security Homeland Security (DHS) Exercise and Evaluation Program (HSEEP)

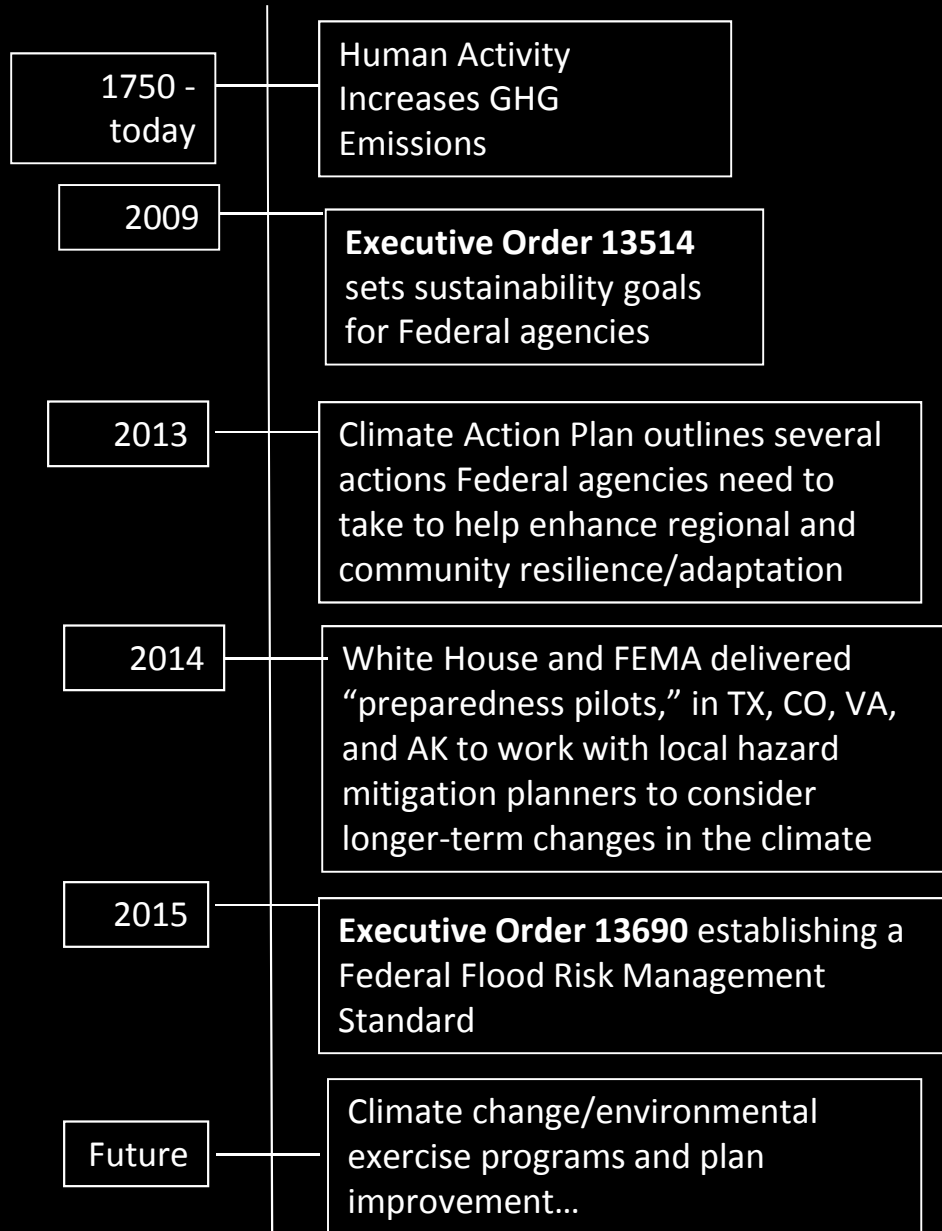
Why do we do exercises?



Why do we do exercises?



What does this have to do with climate change?



The need

- With extreme events occurring more frequently and with increased severity, leaders are focused on managing new levels of risk
- Leaders in government and the private sector need:
 - a practical approach to manage climate change-related disasters
 - a method to develop a consolidated adaptation framework to prepare for and respond to climate change in a geographic area
- Don't wait until a disaster strikes to start learning your plan!



A solution

The exercise design process can provide leaders with a methodology to immediately begin addressing climate change in their region

Exercises can be:

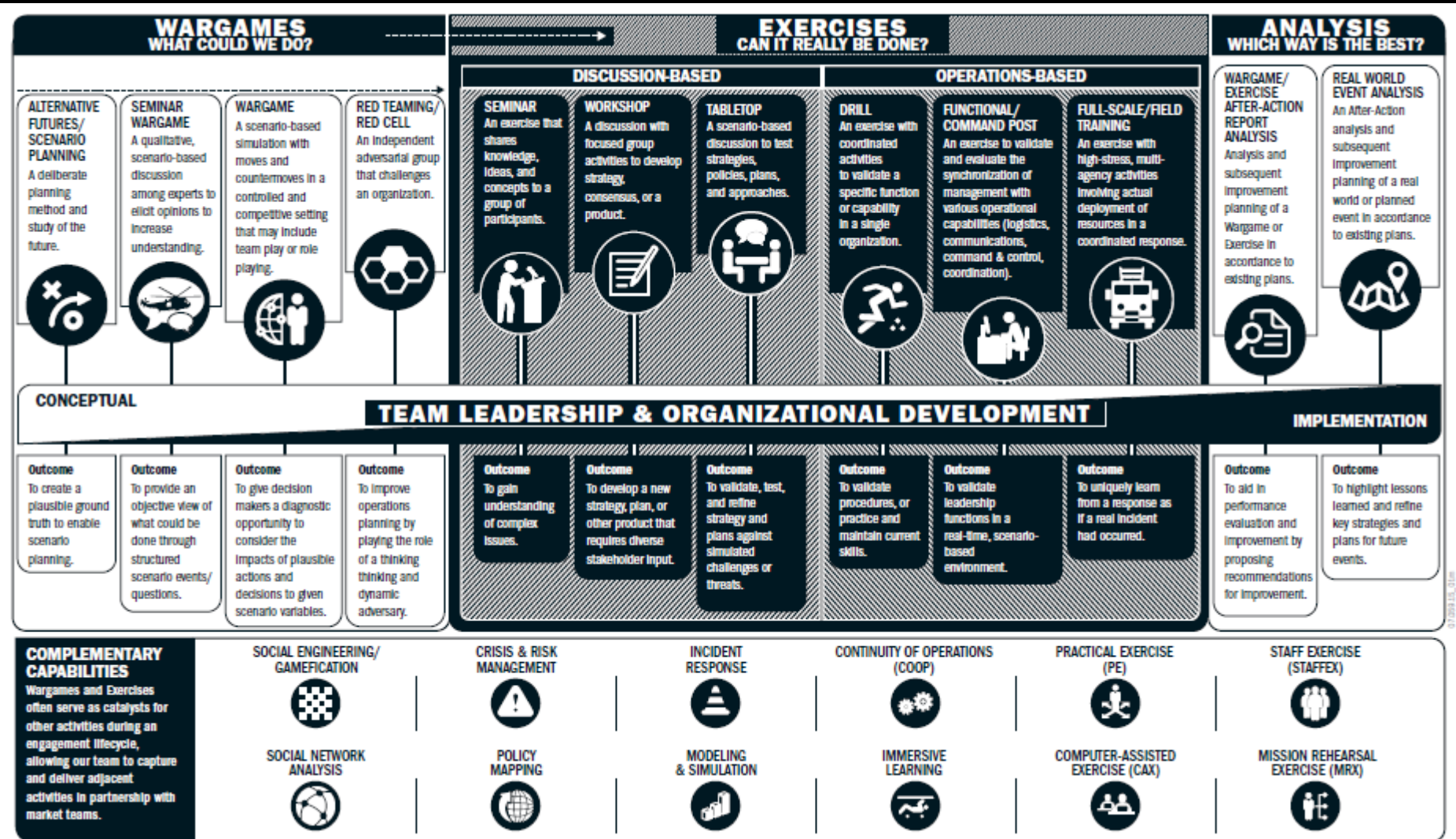
- a catalyst to bring the key stakeholders together
- applied to a wide audience
- flexible, allowing users to tailor the breadth and depth of the exercise to meet specific requirements

Exercise to manage risk

$$\text{Risk} = (\text{Impact of Risk}) \times (\text{Probability of Occurrence})$$

- Does an event need to be a catastrophe or “black swan” to be important? No!
- Impact can be reduced by knowing and testing contingency plans, thus reducing risk
- A single event may not be serious, but cascading events can become critical very quickly (Hurricane Katrina, Tsunami in Japan)

The exercise design lifecycle



The tabletop exercise



A tabletop exercise

- is as close as many agencies can get to experiencing an actual event
- moves participants from simply discussing a complex issue to taking specific actions to address it in a short period of time
- uses a structured discussion to create a plausible scenario where imagination fills in the gaps
- provides a risk-free environment in which participants “respond” to an event, implement a proposed plan, and determine if the plan/mitigation techniques are sufficient or if improvements are needed

The result

A tabletop exercise can accomplish three objectives:

- Understanding of a complex issue or possible series of events
- Identifying organizational roles and responsibilities for addressing the issue
- Refining an existing plan or consolidating action items for staff to complete

The process

MANAGING CLIMATE-RELATED DISASTERS: ACHIEVING RESILIENCY THROUGH EXERCISES

Exercise purpose. *A broad statement of the reason why an exercise is being conducted, defining what elements are to be assessed, evaluated, or measured.*

The purpose of this exercise is to...

Exercise scope. *An indicator of the level of participation in exercise play (can include local, multi-local, regional, state, multi-state, Federal, national, international, and private sector).*

Exercise objectives. *A series of exercise goals that provide a framework for scenario development and define evaluation criteria (should be simple, measurable, achievable, realistic, and task-oriented).*

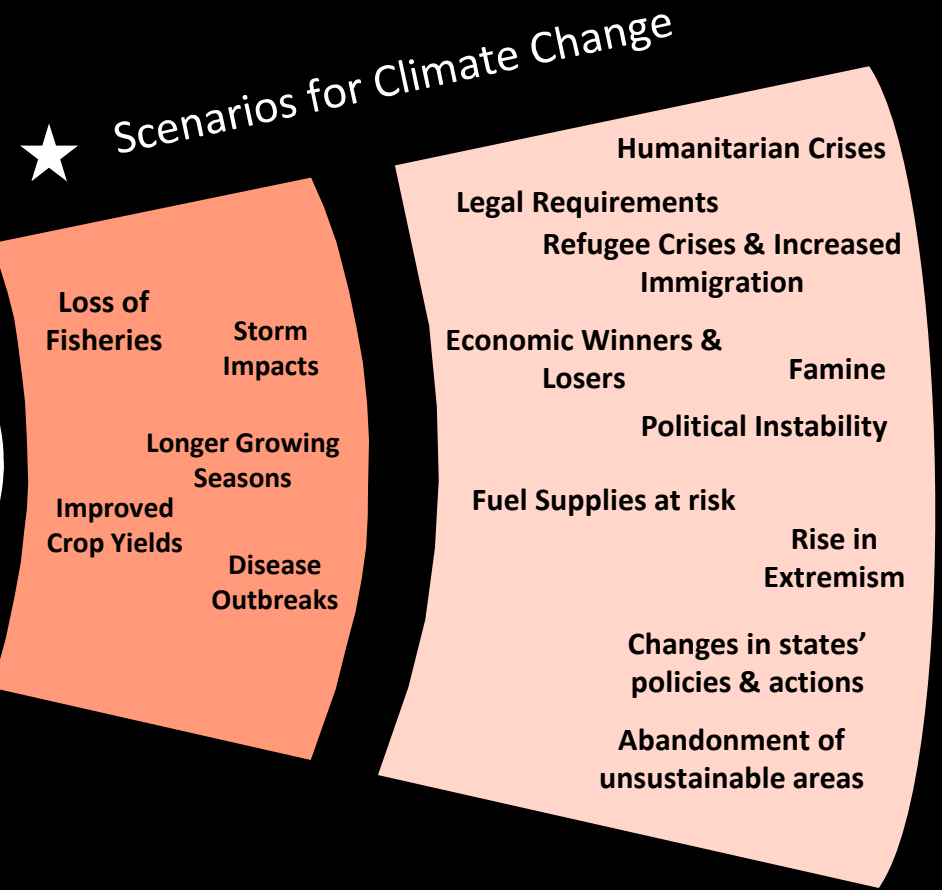
TIP: Clearly establish key objectives, possibly:

- identifying a list of vulnerabilities within existing policies/plans
- identifying regulatory compliance gaps
- creating a climate change mitigation plan

Can the impacts of climate change really be an exercise scenario?

- ★ Chemical, Biological, Radiological, or Nuclear event
- ★ Terrorist Attack (threat or event)
- ★ Oil Spill
- ★ Pandemic Influenza
- ★ Cyber-attack
- ★ Flooding event
- ★ Zombie Attack

Your exercise



The process (cont.)

TIP: Develop one or more plausible scenarios to:

- allow participants to “respond” to an event
- implement a proposed plan
- determine if the plan is sufficient in a “safe” environment

Exercise Scenario. An imagined sequence of events that provide the storyline to drive exercise play and determine what the organization is attempting to improve.

- Humanitarian Crises
- Legal Requirements
- Refugee Crises & Increased Migration
- Economic Winners & Losers
- Political Instability
- Fuel Supplies At Risk
- Increased Urbanization
- Rise in Extremism



The tabletop exercise, example

- Purpose: Measure the impacts of rising sea levels on a specific area containing military assets, urban populations, and wildlife
- Scope: A regional partnership for planning and sustainability
- Objectives: To review existing plans, identify the need for future plans, and determine gaps
- Scenario: Progressive maps guide the discussion about preparing for and responding to possible threats from rising sea levels



- Outcome: List of specific action items assigned to individuals, with deadlines for completion, which clearly define the steps to solve the problem.

Questions? =====

Backup Slides=====

June 2013 – Obama released the first [Climate Action Plan](#) for the Nation – this outlines several actions Federal agencies need to take to help enhance regional and community resilience/adaptation

Third [National Climate Assessment](#) was released in May 2014 – provides a national and regional perspective of observed climate trends and future conditions – according to EO 13653, every agency is required to update their agency adaptation plan the year after the quadrennial NCA is released

[2012](#) and [2014](#) agency adaptation plans are available to the public – DHS plan lays out a roadmap of actions they're taking to enhance resilience (one of which in the 2014 plan talks about ensuring that climate change is taken into consideration for hazard mitigation planning)

Superstorm Sandy occurred and HUD launched the [Rebuild by Design Competition](#) was launched in the NY/NJ area to rebuild in a more resilient manner

USGCRP partnered with FEMA, USACE, and EPA to integrate future SLR projections into existing FEMA Flood Insurance Rate Maps – so planners can see where sea levels will rise over time and build in a more resilient manner (or just not rebuild in floodplains) – [Sandy Recovery SLR Tool](#) (they're looking at expanding the tool to cover the entire east coast – not just NY and NJ)

HUD then launched the [National Disaster Resilience Competition](#) that requires communities to consider future changes in the climate (using info from the NCA and local resources) in order to get funding

More recently (Fall 2014 – now), the White House and FEMA's National Exercise Division (NED) have partnered on several "[preparedness pilots](#)," in TX, CO, VA, and AK. These pilots transformed into a Seminar Series with a "train-the-trainer" concept to work with local hazard mitigation planners to consider longer-term changes in the climate (e.g., more powerful extremes, SLR, higher temps, etc.)

January 2015 – [Executive Order 13690](#), Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input was released