

Recap of Objectives

- Developing community scenario(s)
 - Access to scenario data and info
 - Dissemination and repository of results
- Strategies to initiate integrated scenario simulations
- Form working group

Overall Concept

- Goal: Tool to aid disaster planning
- Mechanism: Develop a framework for simulating disaster scenarios
 - Based on a virtual coastal community that can create "scenarios" for simulations
 - Simulations will be validated through physical testing

How It will Work

- Complete data available for virtual coastal community on a shared website
- "Scenario manager" identifies a particular disaster scenario
- Modelers download data as input to their simulations
 - Initial data, or might be the results of a prior step in the modeling pipeline
- Results are uploaded back to the shared site and disseminated
- Many other scenarios can be formulated in the future
- Entire system will be developed as a framework
 - So it can be adapted to other coastal communities, real or virtual

Essential Elements

- What's kinds of information should be included in the GIS layers for the virtual coastal community
 - Geophysical and geological data - bathymetry, topography, geology
 - Built environment - harbor facilities, buildings, roads, utilities
 - Demographics, human behavior (including consideration of effects on people of different ages)
 - Disaster planning, economics (land use, occupancy rates, etc.)
- We'll also need all those types of expertise (plus IT expertise) in developing it

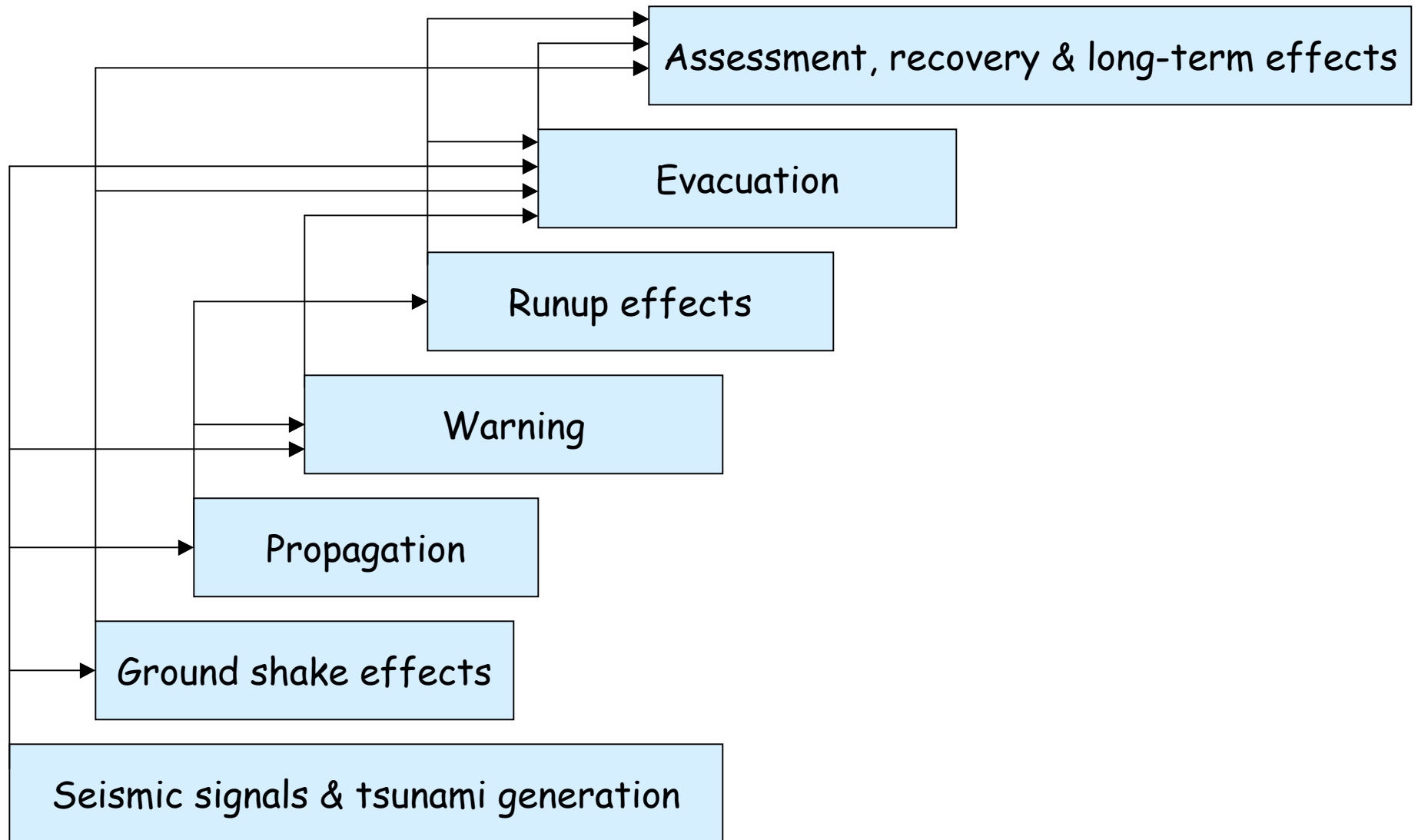
Discussions about Data

- Getting relevant data can be hard
 - Gonzalez offered NOAA's help in obtaining bathymetry/topography data
 - Data must also be appropriate for the models and for comparison with physical experiments - need to involve this expertise too
- Why it needs to be a virtual or pseudo-real environment
 - Data isn't complete for any real location at this time
 - Potentially dangerous to appear to be a particular real community
 - Some data will have to be invented (or pasted in from other communities)

More about Data

- Will a virtual community be biased by what our models can/can't handle?
 - That's a real problem when individual modelers come up with their own data
 - Group effort with multiple disciplines helps prevent this
 - Should try to ensure that some of the really "tough problems" (e.g., particularly problematic bathymetry) are included
- Will be essential to have built-in feedback loop
 - Continually improve fidelity/relevance of the data as well as the models

Proposed Integration Schema, Revisited



Possible Topics for Grand Challenge

- Could be pieced together from small pieces; or could start with a large project that gets subdivided
- Could focus on performance-based design assessment
 - E.g., for port structures
 - Should go beyond the single-event focus
- Could also go beyond ports to structures along the entire coastline - and focus on people rather than dollars
- Suggestions of "protecting the Nation's shoreline"
- Could be more generally "protecting the Nation's critical structures"

Virtual Community, Revisited

- The “grand” part of the challenge should be a real city that is well beyond our grasp (e.g., LA)
 - Our approach could be incremental
 - Starting with a virtual community that is a downscaled version of the real target
 - Gradually increase the fidelity as modeling capabilities and understanding improves

Key Things to Remember for Proposal

- Must identify fundamental scientific problems that couldn't be addressed without NEES facilities
 - Should try to use multiple facilities (e.g., add scouring or instability problems)
 - Make it clear why large-scale facilities are really needed
 - Model a scenario physically as well as numerically
 - Leverage Dr. Katada's existing system
- If Grand Challenge, need to address the social science aspects solidly
 - Loss estimation (social and economic) will be key for demonstrating impact
- Tech transfer component needs to be compelling