

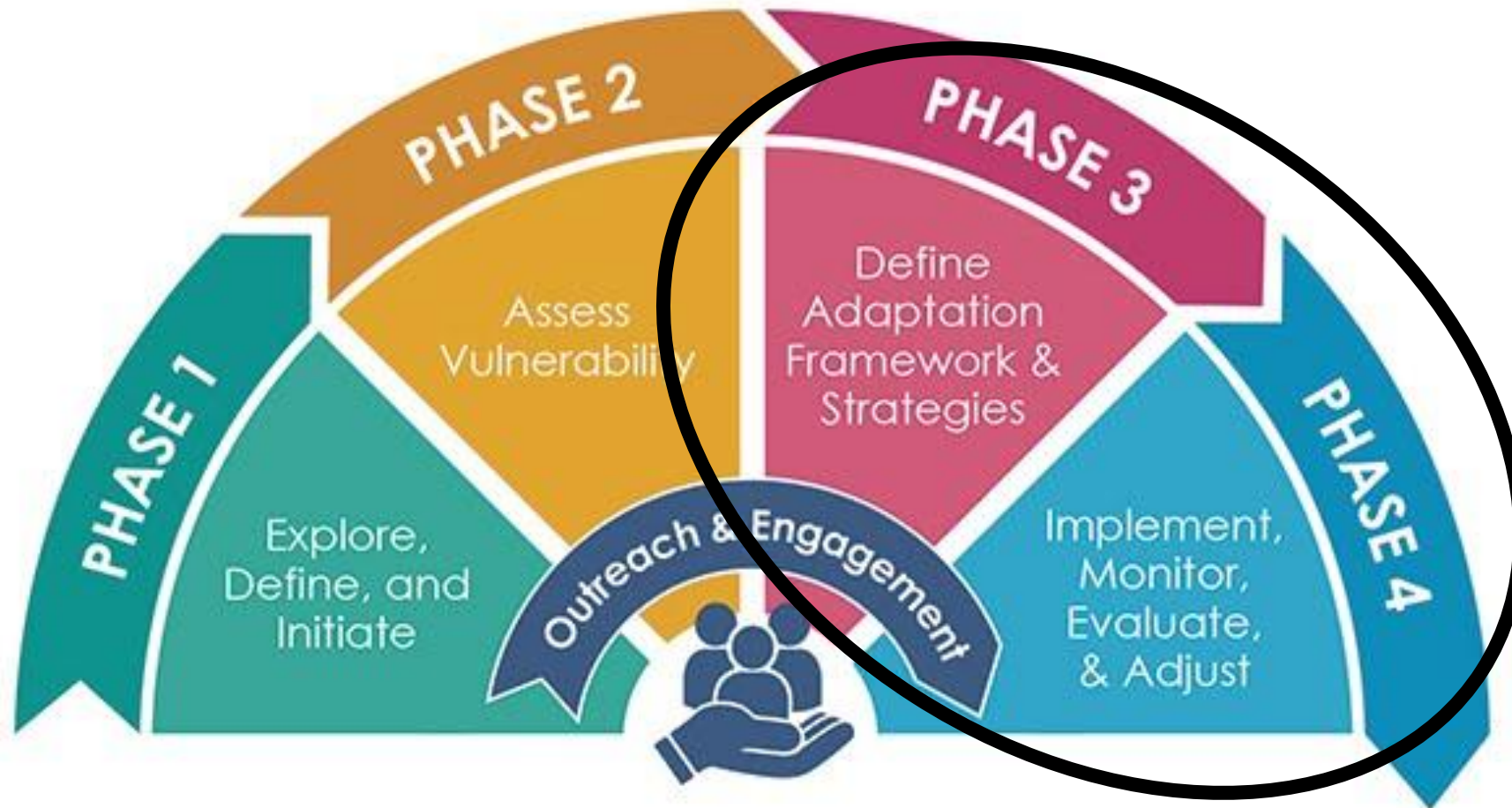


Introduction to Adaptation Strategies

Laura Hilberg



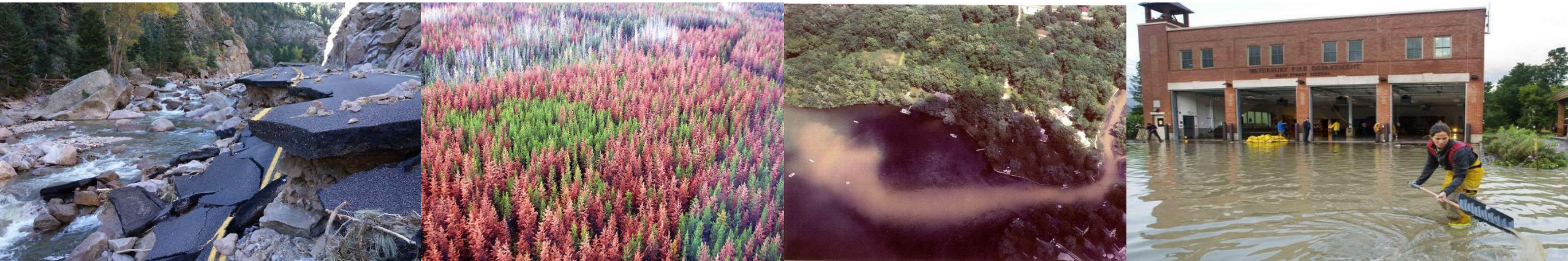
Adaptation Planning Process



Defining Adaptation

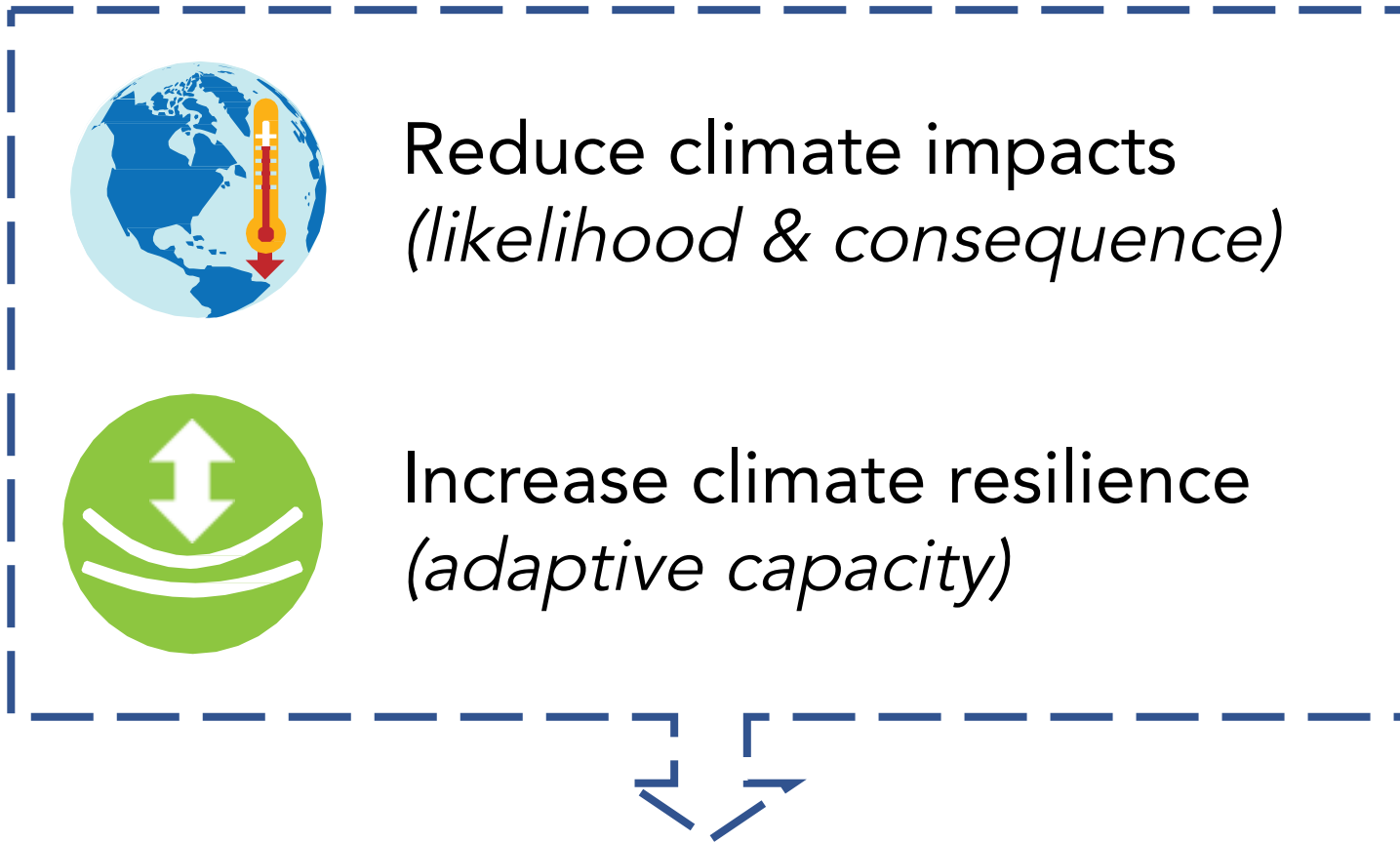


Adaptation refers to efforts to reduce the negative effects or take advantage of the opportunities provided by climate change

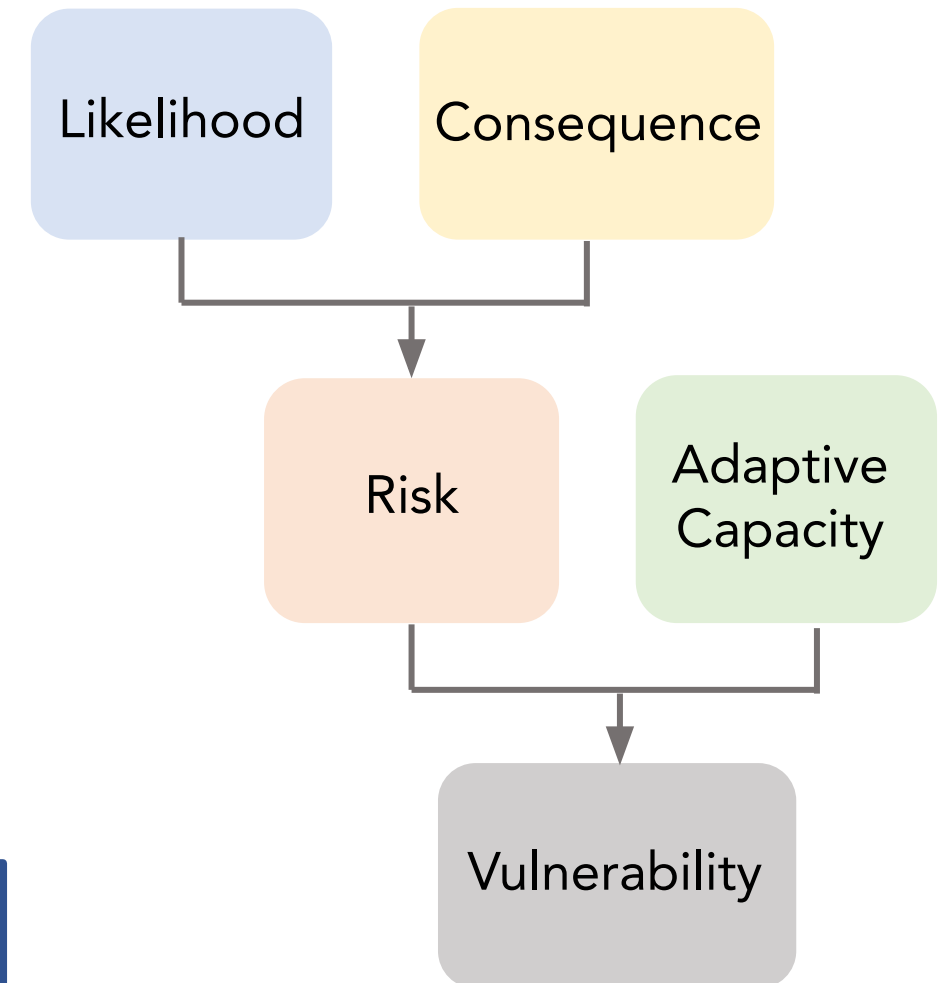


Adaptation strategies aim to reduce the impacts of climate change and/or increase the resilience of human, built, and natural systems.

Using Vulnerability Results in Adaptation



Reduce climate change vulnerability



Using Vulnerability Results in Adaptation



↓ Likelihood (*limit change*)

- Increase shading on pedestrian walkways, transit stops, and around county facilities
- Use cool pavement materials or reflective coatings to reduce heat absorption
- Reduce stormwater runoff within residential neighborhoods that flood frequently

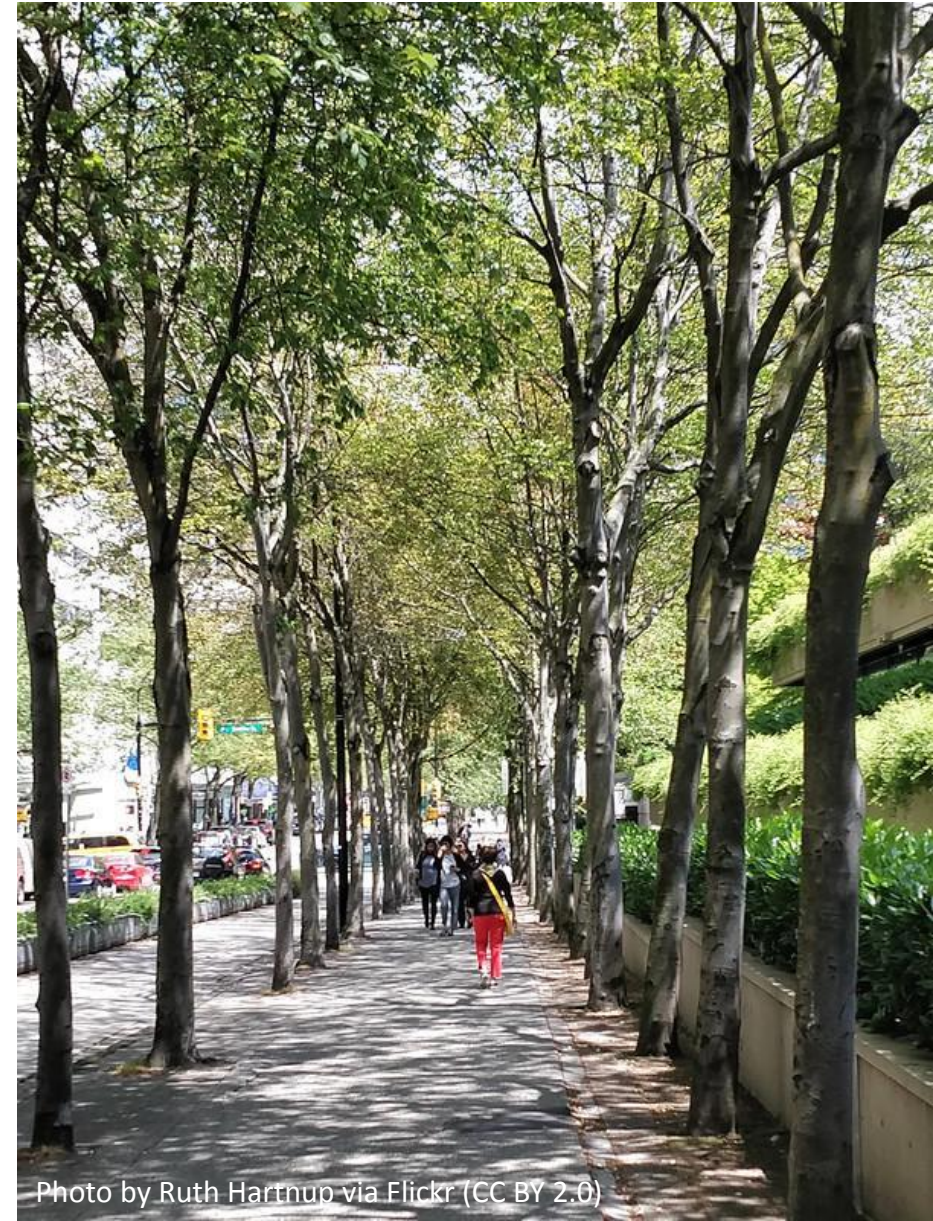


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Using Vulnerability Results in Adaptation



↓ Consequence (*minimize effects*)

- Retrofit or reroute pedestrian/bicycle trails and bridges in areas that are subject to flooding
- Plant heat- and drought-tolerant native species in landscaping projects
- Provide free transportation to cooling centers

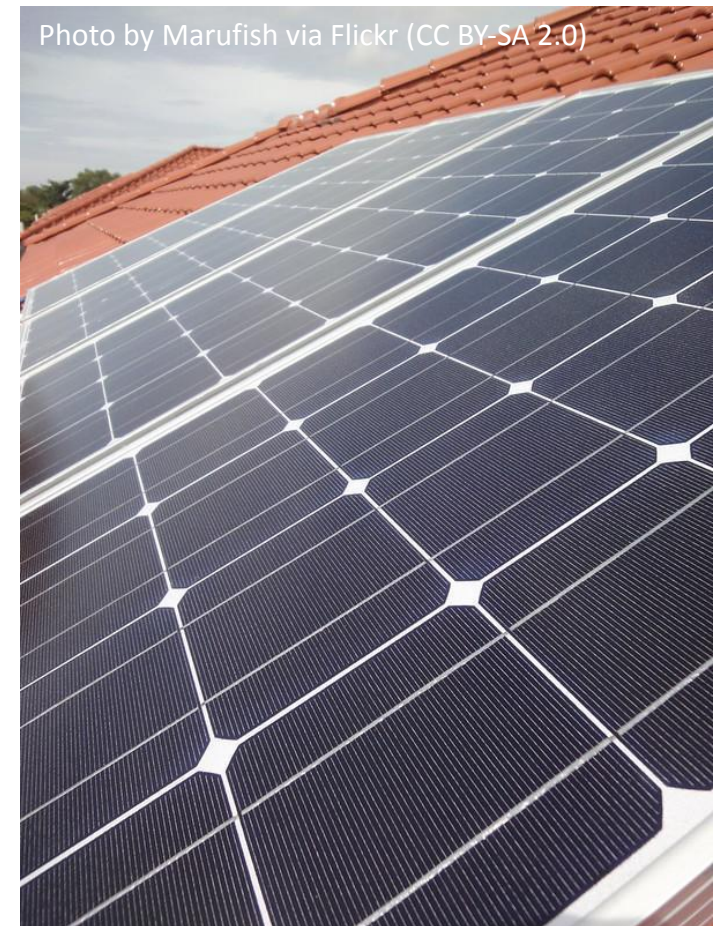


Using Vulnerability Results in Adaptation



↑ Adaptive Capacity (*improve ability to cope*)

- Offer professional development opportunities for staff to develop their technical expertise and skills to prepare for and respond to climate change impacts
- Create policies that encourage solar and other renewable energy generation
- Build partnerships between public, private, and nonprofit sectors to provide critical services to vulnerable populations



Types of Adaptation Strategies



Adaptation strategies can reduce vulnerability through:

- ★ Programmatic activities

- ★ Plans, regulations, policies

- ★ Capital improvement/infrastructure projects

- ★ Knowledge/evaluation activities

- ★ Coordination/collaboration activities

Programmatic Activities



Strategies aimed at creating new or expanding existing programs, activities, or initiatives



Examples:

- Establish a shuttle system to cooling centers
- Integrate climate into public health programs and create a website that details health risks exacerbated by climate change and provides information that helps residents prepare for and respond to impacts
- Develop low-income energy programs

Plans, Regulations, & Policies



Strategies aimed at developing or revising policies, plans, regulations, or guidelines



Examples:

- Create hazard recovery plans and prioritize restoration of vital facilities and assets
- Revise zoning regulations to prohibit certain land uses in high-risk areas
- Require all new construction to make provisions for on-site stormwater management

Capital Improvement/Infrastructure Projects



Strategies designed to address physical and functional deficiencies or needs in the built and natural environment



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Examples:

- Construct water storage facilities and install efficient plumbing fixtures and equipment in buildings to conserve water
- Install heat-reducing roofs
- Fill in the basements of homes within the 100-year floodplain
- Use permeable pavement and rain gardens to reduce stormwater runoff

Knowledge/Evaluation Activities



Strategies that aim to gather information about climate changes, impacts, and/or management effectiveness

- *May be a precursor to implementing another type of strategy*



Photo by Bill Butcher/USFWS (Public Domain)

Examples:

- Inventory bridges and culverts to determine which are at high risk of failure during future storm events
- Explore feasibility of supply side diversification and resilient electrical distribution infrastructure to facilitate access to local, decentralized renewable energy

Collaboration/Coordination Activities



Strategies that focus on strengthening partnerships and relationships, communicating information, expanding awareness, or coordinating across organizational, jurisdictional, or political boundaries



Examples:

- Encourage neighborhoods to become familiar with residents who have skills and tools to assist others with special needs (e.g., develop maps and inventories of neighborhood assets)
- Work with local medical providers and hospitals to ensure that medical facilities are prepared to meet periods of increased demand

Making Decisions in a Changing Climate

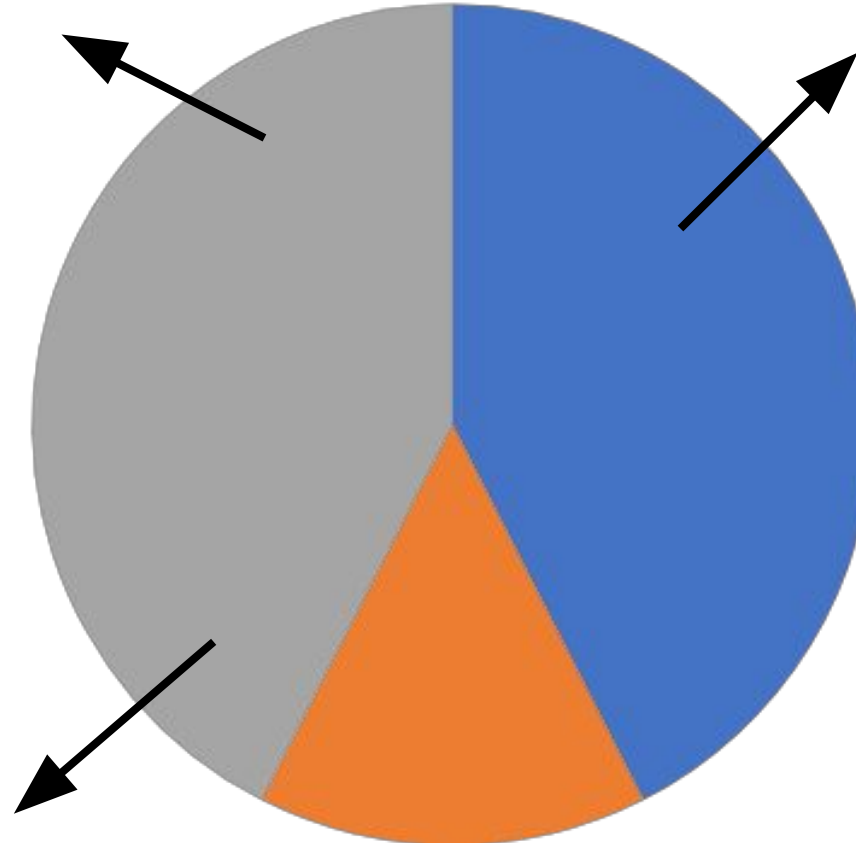


New/different activities

Assess potential climate change-induced population migration within and to the county

Current/same activities

Educate public on water conservation



Modifications to current activities

Plant drought-tolerant vegetation around municipal buildings

Adaptation reflects the intentional consideration of climate change... but activities are not always different.

Case Study: Spaulding Rehabilitation Hospital



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- Purchase and remediation of contaminated brownfield site on Boston Harbor (at sea level)
- Construction of new building to replace existing hospital

Boston, MA

Case Study: Spaulding Rehabilitation Hospital



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STEP 1. IDENTIFY CLIMATE + NON-CLIMATE IMPACTS

- Sea level rise, flooding, extreme heat

STEP 2. DETERMINE ACTIONS THAT COULD REDUCE IMPACTS

- ACTION: Move critical infrastructure/patient care functions above the first floor
 - ✓ Continuity of care even during floods
- ACTION: Allow patient windows to open
 - ✓ People remain comfortable/safe even if the cooling system goes down
- ACTION: Add triple-glazing and sunshades to windows
 - ✓ Increase energy efficiency and block heat

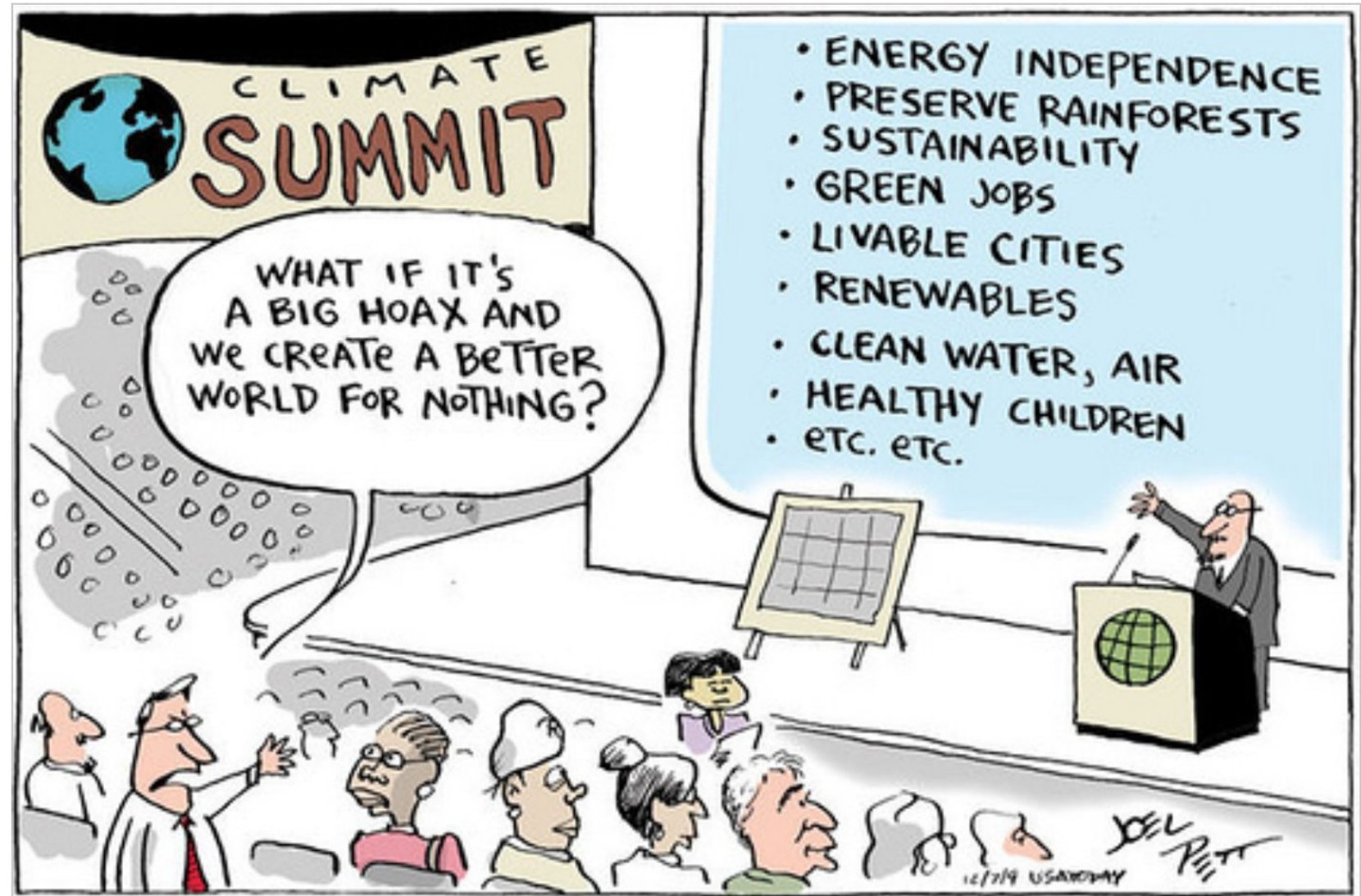
Case Study: Spaulding Rehabilitation Hospital



STEP 2 (CONT). DETERMINE ACTIONS THAT COULD REDUCE IMPACTS

- ACTION: Elevate the hospital above likely flood range
 - ✓ Prevents flood damage and loss of services
- ACTION: Create on-site combined heating/power system
 - ✓ Increase energy efficiency
 - ✓ Provides redundancy in case of power loss/generator malfunction
- ACTION: Add green roof and on-site stormwater drainage network
 - ✓ Reduces stormwater discharge and allows rapid drainage to minimize flooding

Questions?



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