An Overview of Adaptation Planning

Chattanooga

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Key need to incorporate climate change into near-, medium-, and long-term planning

- **Minimize** risk of wasting time, money, and effort
- **Maximize** likelihood of success

“A society grows great when old men plant trees whose shade they know they shall never sit in.” Greek Proverb
Mitigation is what we do to decrease the potential of climate change itself.

✔ Addresses the causes with a focus on reducing greenhouse gas emissions

Adaptation is how we prepare for, respond to, and recover from the changes that we are already experiencing/expected to experience.

✔ Addresses the impacts of climate change with a focus on managing change
Many Adaptation Planning Processes

Steps to Whole Community Resilience

Adaptation Ladder of Engagement
Many Adaptation Planning Processes

- Processes generally consist of same steps
- Participatory and iterative
- Generate place-based adaptation strategies

No right or wrong way – the most important thing is to get started!
An Example

Adaptation in Illinois
Adaptation in Illinois

Heat Waves, Drought, Flooding
Adaptation in Illinois

Adaptation Strategies

- Created an online heat toolkit for local health departments
- Developed an online flood mapping toolkit for emergency preparedness professionals
- Targeted education opportunities for healthcare workers so they are better prepared to address health effects of climate change
- Established a mini grant program for local health departments to build their capacity to address the public health effects of climate change

https://braceillinois.uic.edu/take-action-2/take-action/
Adaptation Planning Process

PHASE 1
Explore, Define, and Initiate

PHASE 2
Assess Vulnerability

PHASE 3
Define Adaptation Framework & Strategies

PHASE 4
Implement, Monitor, Evaluate, & Adjust

Outreach & Engagement
Adaptation Planning Process: Phase 1

PHASE 1. Project Scoping

• Identify goals, desired outcomes of process

• Set geographic boundaries and timeframe
  - Near (e.g., length of a plan: 10-20 years)
  - Mid (25-50 years)
  - Long (e.g., lifespan of infrastructure: 50-100 years)

• Identify key stakeholders

• Identify key pre-existing conditions and climate stressors

• Identify important community assets
Vulnerability =

The degree to which natural, built, and human systems are susceptible to harm
Why Assess Vulnerability?

- Identify what is most vulnerable (e.g., people, places, assets, elements) and why
- Helps you to develop a range of adaptation
Vulnerability Assessments: Vulnerability

**Likelihood:** Degree to which an element or asset is exposed to significant changes in climate (i.e. how likely is it that an asset will be exposed to a given climate hazard?)

**Consequence:** Degree to which an element or asset is affected by exposure to a changing climate (i.e. how significant is the effect of the climate impact?)

**Adaptive Capacity:** The ability to adjust to climate change to moderate potential damages, take advantage of opportunities, or cope with consequences

**Vulnerability:**

A function of the likelihood of exposure to climate changes, the consequence of those changes, and the capacity to adapt to changes
Adaptation Planning Process: Phase 3

PHASE 3. Adaptation Planning

• Review and/or summarize the major climate vulnerabilities

• Identify adaptation strategies that reduce vulnerabilities and/or increase resilience

• Prioritize adaptation strategies
Adaptation Planning Process: Phase 4

PHASE 4. Implement, Monitor, Evaluate

- Put adaptation strategies into action
- Create a monitoring program to track implementation
- Evaluate strategies to determine what is/is not working and adjust, as needed
Case Study: Louisville, KY
High-Intensity Rainfall Events and Flooding

Case Study #1: Louisville, KY
Case Study #1: Louisville, KY

Adaptation Strategies

- Tested the effectiveness of green infrastructure in reducing stormwater runoff through 19 demonstration projects
- Updated Green Infrastructure Design Manual based on lessons learned from demonstration projects
- University of Louisville installed underground infiltration chambers, cisterns, rain barrels, and permeable pavers to limit stormwater delivery

University also created Climate Action Plan, which identifies over 175 options for reducing emissions + enhancing adaptation

Plant native, deep-rooted species to enhance carbon sequestration and help manage stormwater

Building a Climate Savvy Community

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BREAK
PHASE 2. Assess Vulnerability

- Identify current and projected future changes in climate factors/hazards (Likelihood)
- Identify impacts of climate change on community elements (Consequence)
- Characterize the current ability to moderate or cope with impacts (Adaptive Capacity)
Vulnerability Assessments: Likelihood

Likelihood: 

*Degree to which an element or asset is exposed to significant changes in climate (i.e. how likely is it that an asset will be exposed to a given climate hazard?)*
Vulnerability =

The degree to which natural, built, and human systems are susceptible to harm

A function of the likelihood of exposure to climate changes, the consequence of those changes, and the capacity to adapt to changes
Consequence:

Degree to which an element or asset is affected by exposure to a changing climate (i.e. how significant is the effect of the climate impact?)
Adaptive Capacity:

The ability to adjust to climate change to moderate potential damages, take advantage of opportunities, or cope with consequences.
Adaptation Strategies

- Aim to reduce the negative effects or take advantage of the opportunities provided by climate change

- General types:
  - Programmatic
  - Plans, regulations, policies
  - Capital improvement/infrastructure projects
  - Coordination/collaboration
  - Knowledge/evaluation
Using Vulnerability Results in Adaptation Planning

- Likelihood
- Consequence
- Adaptive Capacity
Using Vulnerability Results in Adaptation Planning

**Impact:** Extreme storm/precipitation events are likely to lead to flooding of developed areas and infrastructure.

- **Likelihood** (limit change)
  - Reduce stormwater runoff within residential neighborhoods that flood frequently.

- **Consequence** (minimize effects)
  - Site outside the floodplain.

- **Adaptive Capacity** (improve ability to cope w/change)
  - Upgrade stormwater and wastewater systems.
Tools Used in this Workshop

**Rapid Vulnerability & Adaptation Tool**

1. SCOPE
2. ASSESS
3. STRATEGY
4. IMPLEMENT

**for Climate-Informed Community Planning**

Use to assess vulnerability across the community and its many sectors and develop adaptation responses.

**Climate Change Adaptation Certification Tool**

- IDENTIFY
- EVALUATE
- DETERMINE

Use to assess the climate readiness of any project or policy.
Before you added climate change to your list of concerns, what else was already there?