Climate Change Adaptation Planning: an Overview

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Presentation Overview

• Mitigation and Adaptation
• Adaptation Plan
• Adaptation Planning Process
Mitigation and Adaptation

- **Mitigation**: Dealing with *causes*. Actions that reduce level of greenhouse gases in atmosphere
  - Reducing emissions
  - Enhancing carbon sinks
  - Ex: renewable energy, forest sequestration

- **Adaptation**: Dealing with *effects*. Taking action to minimize impacts of climate change.
  - Reducing vulnerability of people and places to effects of climate change
  - Ex: rainwater harvesting, land restoration, shoreline protection, move/abandon infrastructure, invasive species removal, forest thinning
Adaptation Plan

Plan and prepare for impacts of climate change! Be **proactive** instead of reactive!

Organize by:
- Sectors, resource types
- Specific hazards

Product:
- Individual plan
- Incorporate into other planning documents
Getting Started

- **Initial scoping**
  - How climate is changing
  - Sectors important to tribe
  - Impacts
  - Tribal staff capacity/time
- **Build support, “buy in” from tribal leadership, community**
  - Outreach and education
  - Tribal council resolution
    - ITEP template

Adaptation Planning Process

- Getting Started
- Impact, Vulnerability Assessments
- Risk and Prioritization
- Adaptation Strategies: Goals and Actions
- Write plan, “mainstream”
- Implement plan
- Measure progress, update plan
Getting Started

• **Get organized**
  • Form climate change planning team, identify team lead
  • Develop guide for tribe’s adaptation planning process

• **Form partnerships**
  • within tribe
  • external to tribe

• **Secure funding**—to support planning effort

Impact Assessment

• **How is climate changing in region?**
  • Measured/observed and projected
  • Temperature, precipitation, wind, extreme weather, sea level

• Information sources:
  • National, regional climate assessments/reports
  • Regional climate centers, CSCs, LCCs
  • Federal/state agencies
  • Universities
  • Tribe--tribal monitoring records, TEK
Impact Assessment

- **Impact on sector**
  - How? How will sector be affected?
  - Where? Spatial (geographic) extent
  - When? Temporal extent – estimated time frame
  - Probability, confidence
  - Consequences: cultural, social, ecological, economic, legal
  - Which tribal depts./programs will be affected?
  - Can organize info in a table (ITEP’s adaptation planning spreadsheet)

Vulnerability Assessment

- **Vulnerability** = susceptibility to harm
- How much is sector affected by changes in climate?
- How much is it exposed?
  - ex: coastal community at sea level vs. on bluff
- Other existing stresses?
- Impact thresholds?
Vulnerability Assessment

• **Able to adapt with minimum disruption, cost?**
  (adaptive capacity)
  • Flexible?
  • Barriers to adapting?
  • Already stressed?
  • Rate of climate change faster than adaptability?
  • Adaptation efforts already under way?

Vulnerability Assessment

• **Assess vulnerability**
  • Consider sensitivity and adaptive capacity
  • High sensitivity and low adaptive capacity → high vulnerability

Vulnerability Matrix

<table>
<thead>
<tr>
<th>SENSITIVITY</th>
<th>ADAPTIVE CAPACITY</th>
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</thead>
<tbody>
<tr>
<td>HIGH</td>
<td>HIGH</td>
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<td>MEDIUM</td>
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Risks and Prioritization

• **Assess risks**
  • Consider consequences and probability of impact
  • High consequences and high probability → high risk

Risk Matrix

<table>
<thead>
<tr>
<th></th>
<th>High Probability</th>
<th>Medium Probability</th>
<th>Low Probability</th>
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<tbody>
<tr>
<td>High consequences</td>
<td>High</td>
<td>Medium-High</td>
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<tr>
<td>Medium consequences</td>
<td>Medium-High</td>
<td>Medium</td>
<td>Medium-Low</td>
</tr>
<tr>
<td>Low consequences</td>
<td>Medium</td>
<td>Medium-Low</td>
<td>Low</td>
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Risks and Prioritization

• **Identify priority planning areas**
  • Consider risk and vulnerability
  • Higher risk and higher vulnerability → higher priority

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<thead>
<tr>
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<th>Higher Vulnerability</th>
<th>Lower Vulnerability</th>
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</thead>
<tbody>
<tr>
<td>Higher Risk</td>
<td>Higher Priority</td>
<td>Medium priority</td>
</tr>
<tr>
<td>Lower Risk</td>
<td>Medium priority</td>
<td>Lower priority</td>
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Adaptation Strategies: Goals and Actions

- **Adaptation goal**: what you want to accomplish in priority planning area
  - ex: Swinomish—Shellfish. Fishery and shellfish resources of the Reservation should be restored and enhanced, maintaining the traditional livelihood based upon these resources
  - ex: Nez Perce—Water Resources. Protect and restore water quality and quantity for human health and aquatic organisms

Adaptation Strategies: Goals and Actions

- **Adaptation action**: activity to achieve goal
  - ex: Swinomish—Shellfish. Shoreward habitat migration, establish beds
  - ex: Nez Perce—Water Resources. Identify/map historic wetlands, protect/restore springs and wetlands, education/outreach

Also consider:
- Required authority/capacity
- Existing authority/capacity
- Internal/external partners
- Timeframe
- Funding needs and sources
Write plan

• Write adaptation plan
• Incorporate in other existing plans — “mainstream”
• ITEP’s template

Implement plan

• Identify feasible first steps
• Build leadership/community support
• Build partnerships for implementing actions
• Locate funding, be ready for “windows of opportunity”
• Ensure you have right implementation tools
• Implement adaptation actions
Measure Progress/Update Plan

- Track progress
- Evaluate effective of adaptation actions
- Review basic assumptions
- Monitor changes in climate and impacts
- Modify/update plan (changing circumstances, new data/info)

Contact Information

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For more information about ITEP, please visit our website: [http://www4.nau.edu/itep/](http://www4.nau.edu/itep/)