



CASE STUDY – SAN FRANCISCO, CA

Scoping for Adaptation

The first step towards implementing any climate assessment or adaptation project is determining project scope. While “climate change” is an extremely broad topic to tackle in a single project, a simple analysis of downscaled climate projections may be too narrow to get the results you have in mind. We recommend scoping a project by first determining what it is you want to understand or achieve. Questions you may want to ask yourself include: Is your project just about climate vulnerability or does it include broader issues of sustainability? Are you trying to build public awareness or create an actionable plan? Do you need to include other stakeholders in the project, and if so, who should participate? After you formulate your project goals, it may be helpful to look for partners who have already undertaken a similar project; building on their experiences, both successful and not-so-successful, can jumpstart your project implementation.

In the Academy’s March 26, 2014 webinar we discussed these and other issues to consider while scoping your project with our guests Eric Gordon, Managing Director of Western Water Assessment and David Behar, Climate Program Director, San Francisco Public Utilities Commission.

Keep it Simple

Climate adaptation planning at its core is a simple concept: seek to identify the ways in which you can prepare for those most consequential and probable things for which you are not yet ready. In other words, what is it that you do that will be challenged by something in the climate that you are not ready to handle?

Scoping your assessment or adaptation plan doesn’t have to be complicated. Begin by asking yourself, “What are my goals and objectives, and how does the climate affect those?” After you’re clear on those essential items, you can fill in the details by asking more questions, like those listed below.

Ideas for Scoping

Adapted from Eric Gordon

WHO: Who are you? A water utility? A state agency? An entire city or state?

WHAT: What needs to be assessed? Only the most climate-sensitive operations and planning? Everything under the sun? What are your core objectives?

WHEN: Time horizon of changes to consider – mid-century? End of century?

WHERE: Can you get climate information specific to the size of your entity/service area/municipality/etc.? Is it useful and credible? Do you need to consider regional/national/global impacts?

WHY: Why are you completing the study? What political context are you operating in?

HOW: How should the work get done? Who do you need to consult with to make this happen? Who internally needs to be involved?

As you begin your scoping process, here are a few important things to keep in mind: *Slow down.* Organizations are often in a rush to get an adaptation plan done, because of internal pressures like a planning mandate or external pressures like an advocacy group or seeing other colleagues in the field completing plans. Unlike mitigation, there is plenty of time for adaptation, so slow down and ask yourself what really matters to your organization. Take the time to get it right.

Remember, you are the expert! You are an expert in your sector, and no one knows more about the resources you manage than you! Start with that knowledge and then find out how to integrate the climate knowledge into your planning process.

Ask the climate questions. Think about making climate considerations part of everything you do. If you're making a decision or setting up a new operational scheme, ask what could happen in terms of climate variability, extreme events and climate change that could affect this decision and if you are doing enough to handle multiple possible futures for that decision.

It's complicated! Bring in outside help. Over-reliance on under-sophisticated methods for interpreting climate information is all too common. You need experts to help interpret the data and tell your climate change story. This will help you avoid making assumptions about how climate change will manifest in your particular region based on generic climate change information.

Scoping for Climate Adaptation in San Francisco

San Francisco Public Utilities Commission (SFPUC) is scoping its third climate adaptation analysis. The first analysis, completed in 2008, was a literature review about how climate change could impact SFPUC's water system through 2025. The second

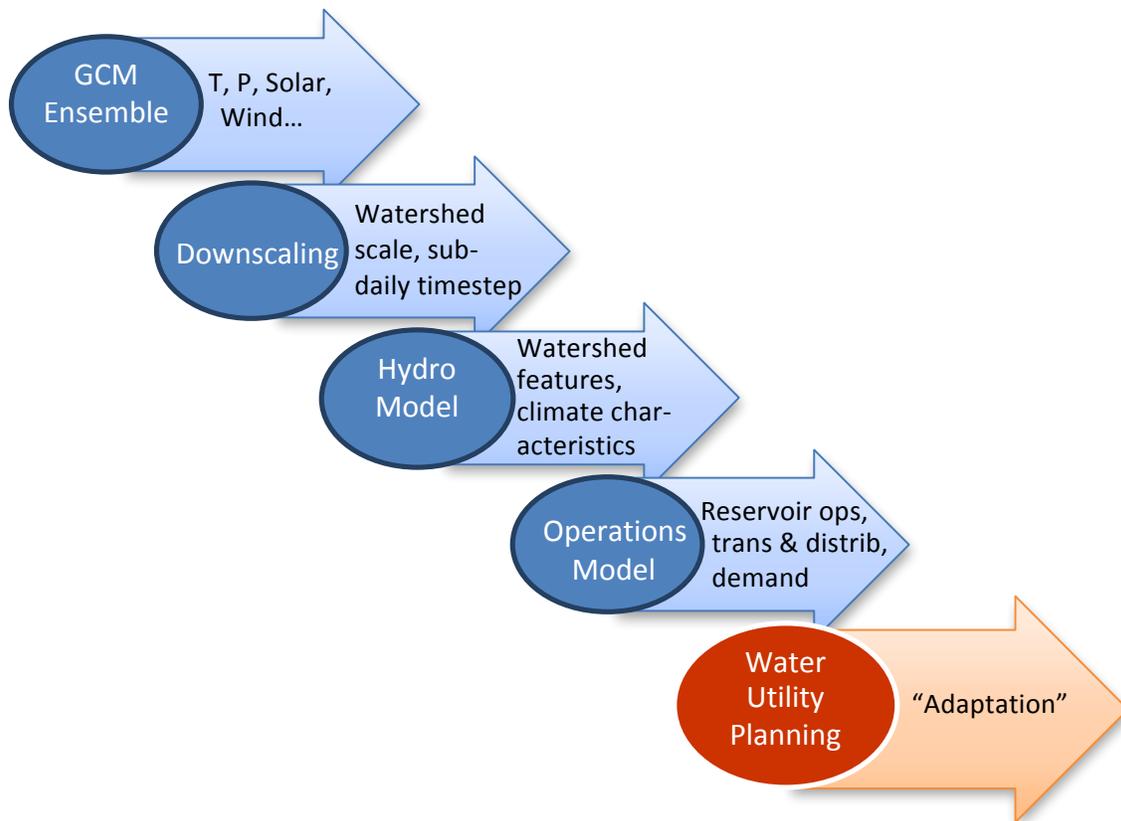
analysis, completed in 2012, was a sensitivity analysis using climate scenarios. SFPUC used three scenarios for temperature and three for precipitation, based on the estimates revealed in the 2008 literature review. The current analysis is a comprehensive assessment of climate projections, climate science and paleoclimate data.



The Hetch Hetchy Reservoir, located in Yosemite National Park, contributes approximately 85% of SFPUC's water supply. *Photo: Mel Foody*

This comprehensive assessment is helping SFPUC determine how to best operate their water system under projected climate futures. They are using climate model output to drive their watershed scale hydrologic models and water supply operations models. To begin scoping their project, SFPUC asked:

1. What happens to climate variables in the future? What data sources for these variables have the most credibility? Variables to consider include temperature, precipitation, wind, solar radiation, and evapotranspiration.
2. What is going to happen to runoff in our watersheds when these variables change? SFPUC's water supply comes from three very different watersheds in California.
3. What adjustments do we need to make to our water supply operations? SFPUC's water supply model takes into consideration runoff, timing, demand and storage availability.



SFPUC’s chain of models is an example of iterative, collaborative, ongoing assessment. Conversations move up and down this chain between climate scientists, water managers, and decision makers. *Adapted from David Behar.*

The scoping process for SFPUC’s comprehensive assessment has produced a set of tasks for the project team:

Task 1: Detect trends in observed data, acquire paleoclimate data

Task 2: Evaluate and assemble climate projections

- Survey existing dynamically and statistically downscaled projections
- Convene Assessment Advisory Committee (scientists with assessment experience)
- Evaluate projection datasets alongside climate process information (atmospheric rivers, drought, El Nino)

Task 3: Develop datasets for hydrologic modeling

Task 4: Conduct hydrologic analysis

Task 5: Conduct water supply operations analysis

Task 6: Provide planning and adaptation context

Task 7: Produce report and hold stakeholder workshop

The Bottom Line

Over any number of years, there will be changes in what we know about climate change. San Francisco Public Utilities Commission's comprehensive adaptation assessment is intended to tell the story of what they know today, but also lay the groundwork for future assessments. This approach will help them to evaluate their adaptive capacity and plan for modular, step-wise adaptation as they gain more information and experience with evolving climate futures.

If you're just getting started scoping your project, it's important to keep in mind that iteration is key. You may want to begin with a narrower scope for your first assessment, and then build on it in the future by asking tougher, more detailed questions.

The nature of climate change means that we're all learning as we go. Choosing an appropriate scope for your assessment will help you achieve the goals you're striving towards now, as well as build a foundation for future adaptation goals as the climate future unfolds.

Tools

Guide Tool:

[Preparing For Climate Change: A Guidebook for Local, Regional and State Governments](#). Climate Impacts Group. This guidebook was prepared for ICLEI's climate resilient community program. Its purpose is to help you as a decision-maker in a local, regional, or state government prepare for climate change by recommending a detailed, easy-to-understand process for climate change preparedness based on familiar resources and tools. Chapters 4 and 7 are particularly relevant to project scoping.

<http://www.icleiusa.org/action-center/planning/adaptation-guidebook>