

chapter 11 implement your preparedness plan

Now that you have selected and prioritized preparedness actions in your priority planning areas and written your preparedness plan, this chapter will provide guidance on how to:

- ensure that you have the right *implementation tools*
- manage uncertainty and risk over time.

11.1 Ensure that You Have the Right Implementation Tools

Implementing your selected preparedness actions will draw on a variety of (existing and in some cases new) implementation tools, which are the authorities and/or avenues over which your government has control or influence in policy, planning, and infrastructure.

The tools you have to implement preparedness actions will depend on the size of your government and the authorities it holds. Common tools are listed in Box 11.1. Notice that preparing for climate change does not require starting from scratch. Many of the tools used to implement preparedness actions are legislative, regulatory and/or fiscal authorities that your government uses in its day-to-day operations. Also note that preparing for climate change does not happen in a void. Your community already administers a wide array of programs and regulations that can be used as avenues for implementing your preparedness actions. Look for opportunities to merge specific preparedness actions into existing planning efforts, such as updates to your community water supply plan or development master plans.

IMPLEMENTATION TOOLS are the authorities and/or avenues over which your government has control or influence in policy, planning and infrastructure.

Box 11.1 – Common Implementation Tools for Climate Change Preparedness Actions

Here are a few conventional tools that you may need when implementing your climate change preparedness actions:

- Zoning rules and regulations
- Taxation (including tax incentives)
- Building codes/design standards
- Utility rates/fee setting
- Public safety rules and regulations
- Issuance of bonds

The following can also be considered implementation tools:

- Infrastructure development
- Permitting and enforcement
- Management practices
- Outreach and education
- Emergency management powers
- Partnership building with other communities

As you begin to look at how you might use specific tools to implement your preparedness actions, consider how the tools are currently being used and whether the tools can be used “as is” or with slight modification for climate change preparedness. For example, you may find that local permitting procedures do not include flexibility needed to adjust to changing conditions. One option for addressing this problem is modifying general permitting procedures to include re-opener clauses that require a permit to be re-examined under certain circumstances. You may have identified this need already in your strategy selection process, or it may become evident as you start getting into the “nuts and bolts” of implementation. In either case, continue working on ways to increase flexibility whenever you run into the institutional barriers that can limit the success of your preparedness planning effort.

Like other aspect of preparedness planning, implementing the preparedness plan is not a one-time event. Many actions will need to be implemented in phases; some may take years or decades to implement. You will need to reevaluate all of your actions and your plan periodically to gauge their effectiveness as the community changes and new information on climate change impacts emerges.

Finally, securing continued support over time will be a critical element of implementation. Continue building and maintaining support for your community’s planning efforts through education and outreach activities (many of which may now be folded into specific preparedness actions).

11.2 Manage Uncertainty and Risk

Preparing for climate change is a challenge in part because of the uncertainties that exist around local impacts. Ideally, you would choose preparedness actions knowing exactly how, when, and where climate change will affect your community. As you know from having to manage other challenges facing your community (e.g., population growth, rising health insurance costs, natural disasters), this level of certainty is not possible. Consequently, when it comes to planning for climate change, you must do as you always do – make decisions in the face of uncertainty.

Risk is another component of climate change preparedness planning that must be managed. All decisions from the personal to the community level involve some informal assessment of risk. When should a homeowner, for example, purchase earthquake insurance for a home? When should a community concerned about bioterrorism purchase smallpox vaccines? The outcome of these decisions will be shaped by personal experience, thresholds for tolerating risk, and new information about risks and probabilities, all of which can change over time and space.

So how can governments manage uncertainty and risk, given that they will always be factors in preparing for climate change? One approach is to implement “no regrets,” “low regrets,” or “win-win” actions². A “no regrets” action provides benefits in current and future climate conditions even if no climate change occurs. A water conservation program, for example, provides benefits today by potentially reducing the need for water restrictions during drought and delaying the need to develop new water supplies as population grows, potentially saving the utility and its rate payers millions of dollars in expansion costs. These benefits will accrue regardless of how climate changes in the 21st century but would be even greater with climate change given the potential for climate change to increase the frequency and intensity of drought in many regions of the country.

² See Willows and Connell 2003, de Loë et al. 2001

“Low regrets” preparedness actions provide important benefits at relatively little additional cost or risk. For example, a utility planning stormwater system upgrades may expand the capacity of its stormwater collection system by 10 percent, for example, in anticipation of more extreme precipitation events if the benefits of the added capacity exceed the marginal cost increase. Similarly, a community concerned about the impacts of sea level rise may increase setback requirements for coastal development by an additional 200 feet as part of a Master Plan development provided the benefits of the additional setback exceed the marginal cost.

“Win-win” actions reduce the impacts of climate change while providing other environmental, social, or economic benefits. For example, preserving riparian wetlands not only provides critical habitat for climate-sensitive species but also provides water quality and flood protection benefits now and under plausible climate change scenarios.

Another approach is quantitative modeling. Modeling integrates different climate change scenarios with our current understanding of how systems respond to changes in temperature and precipitation or other climate-related variables to put boundaries on a range of future conditions. Modeling can also help identify which uncertainties are significant and how specific preparedness actions may help manage those uncertainties.

Recent advances in downscaling techniques have improved the overall accuracy of smaller-scale climate change impacts assessments used to guide local policies and infrastructure choices. The City of Seattle, for example, sponsored research examining the impacts of climate change on the city’s water supply (Wiley 2004). The study found that snowpack in the watersheds contributing to Seattle’s water supply could decline by as much as 50 percent by 2040, reducing the system’s current gross yield by 14 percent. The study also found that while uncertainty was present at each level of the analysis, the uncertainties were no greater than those found in traditional water supply studies that rely on evaluation of historic records and were not “necessarily significant enough to mask the underlying trends or scale of impacts” (*ibid*, p. 149).

While modeling can be an effective tool for quantifying future impacts, modeling is not required for climate change preparedness nor will it eliminate all of the uncertainties in planning for climate change. Modeling should be viewed as one tool of many that your government can utilize for preparedness.