

## Chapter 12 measure progress and update your plan

How do you demonstrate to your internal team, community and stakeholders that your climate change preparedness plan and actions are truly working to make your community more resilient to climate change? How do you know if your plan or action is not working, and how it might need to be modified? This chapter provides insights on how to answer these questions by suggesting four recurring steps for your team to take:

1. Measure your progress in implementing the preparedness actions you have developed, and identify whether they are helping you to meet your vision of a climate resilient community, which you established in Chapter 10.
2. Periodically review your basic assumptions, including those related to: the vulnerability and risk assessments that guided your identification of priority planning areas, your vision and guiding principles for a climate resilient community, the preparedness goals you set to meet this vision in your priority planning areas, and the information you collect from measuring the results of your actions. Some or all of the important assumptions guiding your preparedness efforts will change over time.
3. Update your climate change preparedness plans and actions regularly, based on the information you collect from measuring your progress and reviewing your assumptions.
4. Share your learning. Look beyond your plans for opportunities to share your climate change information.

These four steps should not mark the end to your climate change preparedness efforts. We recommend these as recurring steps for your team to pursue at regular intervals for the foreseeable future.

### 12.1 Measure Your Progress

Measuring progress on climate change preparedness should happen at multiple levels and for multiple audiences, from your community to your internal team. For each level and audience, you may want to focus on different priority planning area or provide different degrees of detail. One tool we offer at the start of this guidebook – a suggested preparedness checklist for governments – can address both audiences and can help you tell your story about preparing for climate change in a clear, easily understood way.

The checklist presented at the beginning of the guidebook outlines a number of steps, based on the material of this guidebook, which can help you to mark your progress in preparing for climate change. The Five Milestones of the ICLEI – Local Governments for Sustainability Climate Resilient Communities Program are also reflected in this checklist. Whether for your community and other stakeholders, for your internal team, or for recognition in the Climate Resilient Communities Program, completing the checklist will provide you with useful information about progress in your preparedness workplan.

### Developing Measures of Resilience

Remember that a climate resilient community as defined in Chapter 10 is one that takes proactive preparedness actions which effectively reduce the vulnerabilities and risks associated with climate change impacts. Suggested guiding principles for achieving this vision of a climate resilient community were provided in Chapter 10; they informed your development of preparedness goals

#### A MEASURE OF RESILIENCE

is a quantitative or qualitative judgment that you develop and track over time to determine how well a preparedness action meets the preparedness goals you have set in a given priority planning area.

You may already have access to information that indicates how well you are meeting your goals and in turn your vision of climate resilience, based on relevant data being collected now by your government. However, you may also want to develop new *measures of resilience* to incorporate into your performance measurement system, your budget process, or another community indicator report.

To develop measures of resilience, first consider the guiding principles you used to set your preparedness goals. Reframe these guiding principles in the form of questions to ask yourself whether your preparedness actions are meeting the vision that they set. As an illustration, here are five sample guiding questions based on the guiding principles previously proposed:

- 1. Has awareness about climate change and its projected impacts on your priority planning areas increased? Is there support among your government, your community and your stakeholders to prepare for climate change impacts?** (Guiding Principle #1: Increase public awareness of climate change and its projected impacts on your community.)

*Potential ways to measure public awareness about climate change impacts:*

- community surveys tracking participation in public meetings on climate change impacts;
- surveys tracking “hits” to community-sponsored climate change webpages;
- surveys tracking requests for climate change-related publications (e.g., fact sheets, brochures, reports);
- surveys evaluating trends in the number and types of questions or comments received by government agencies about climate change in your priority planning areas;

- surveys of the number of media stories about climate change impacts in your region;
- qualitatively, whether public officials understand 1) how climate change impacts relate to major decisions in your priority planning areas and 2) how those decisions could reduce or increase climate change vulnerabilities or risks.

**2. Have you increased technical capacity in your government and community to prepare for climate change impacts in your priority planning areas? Is this technical capacity being used effectively to evaluate vulnerability and risk in your priority planning areas?** (Guiding Principle #2: Increase your technical capacity to prepare for climate change impacts.)

*Potential ways to measure technical capacity to prepare for climate change impacts in your priority planning areas:*

- number of technical experts you have on staff who can advise you on the latest research about climate change impacts in your priority planning areas, and/or the existence of an ongoing relationship with outside climate science advisors;
- the existence and regular use of ongoing forums for sharing the latest information on climate change in your priority planning areas with internal and external stakeholders, including government employees, the business community, and the general public.

**3. Is climate information being considered in decisions in your priority planning areas? Is there a formal mechanism in place that “mainstreams” or otherwise facilitates climate change preparedness in your priority planning areas?** (Guiding Principle #3: “Mainstream” information about climate change vulnerabilities, risks, and preparedness into planning, policy, and investment.)

*Potential ways to measure the “mainstreaming” of climate change information and preparedness in your priority planning areas (adapted from Ligeti et al. 2007):*

- the number of plans or other governing documents in your priority planning areas in which climate change is addressed qualitatively or quantitatively;
- existence and thoroughness of guidelines on how to integrate new or updated information on climate change vulnerability, risk and preparedness into decision making;
- existence and number of dedicated staff to help facilitate preparedness actions across departments and external stakeholders (or the amount

of additional staff time used for implementation of climate change preparedness actions);

- existence and amount of funds for vulnerability and risk assessments, preparedness actions, and measurement of resilience;
- existence of forums which have been established for information sharing about vulnerabilities, risks and preparedness; information about who attends these forums, what information is shared and used, and how information is shared and used.

**4. Are your actions increasing or maintaining the adaptive capacity of built, natural, and human systems in your priority planning areas?** (Guiding Principle #4: Increase the adaptive capacity of built, natural, and human systems in your community.)

*Potential ways to measure the adaptive capacity of built, natural, and human systems in your priority planning areas:*

- survey or accepted media coverage of how well your community handles an extreme heat event, a drought, or 100-year rain event before and after certain preparedness actions have been implemented (with the understanding that each event is unique, such that a direct comparison is not always possible);
- amount of money you have saved (or not) based on an implemented preparedness action, such as an improved flood hazard management plan, improved regional levee system, or other infrastructure investments made to improve adaptive capacity;
- indication of the health of regional fish and wildlife, based on observations by leading ecologists and/or monitoring.

**5. Are community partnerships in place to enable the most robust decision-making possible for climate change preparedness in priority planning areas? Have you engaged community stakeholders in development and implementation of your preparedness actions in your priority planning areas?** (Guiding Principle #5: Strengthen community partnerships that reduce vulnerability and risk to climate change impacts.)

*Potential ways to measure community partnership and stakeholder engagement in decreasing vulnerability and risk in your priority planning areas:*

- the existence and regular use of ongoing forums for sharing the latest information on climate change with internal and external stakeholders, including government employees, the business community, and the general public (also noted above as a measure of technical capacity);

- the existence of “consensus” reports on vulnerabilities and risks in your priority planning areas, developed collaboratively by a full range of stakeholders;
- the existence of a community task force or citizens’ advisory panel on climate change preparedness in your priority planning areas, representing a range of different community perspectives and other specific interests.

Ideally, your government will be able to develop a measure or measures that respond to each of these questions. If your government has been working on climate change preparedness for a few years, or if your government already collects information in priority planning areas related to some of these considerations, you may already be able to measure your resilience and track your improvements over time. On the other hand, if you face resource constraints that prevent you from developing measures now, you can also use these guiding questions informally, simply by answering “yes” or “no.”

How often you measure your progress in climate change preparedness will depend on: the nature of the vulnerabilities and risks that you are addressing in your priority planning areas; the planning horizon, investment rules and/or other factors related to a given capital project or system in your priority planning area; and your government’s budget cycle. Please refer to accepted public sector resources for details on how to develop a robust performance measurement system for a public policy environment.

## 12.2 Review Your Assumptions

Remember that climate change preparedness is an ongoing process. As natural, social, economic and political conditions change, your original assumptions may also need to change. In conjunction with your measurement, you can use the following questions to review the basic assumptions guiding your work:

- **Have new peer-reviewed scientific findings improved or changed your understanding of your community’s vulnerabilities?** Science is based on almost-constant inquiry, discovery, and findings. You will probably receive new (and sometimes seemingly conflicting) scientific reports. Work with your science advisors to determine whether new findings are truly relevant to your work – and whether they should influence you to change your course. New reports should be held to the same high standards of your initial scoping stage and vulnerability assessment (Chapters 4 and 8). Reports that conflict with your initial scoping results or vulnerability assessment should not necessarily lead you to change your course, unless you have strong scientific advice or evidence to do so.
- **Have your priority planning areas changed?** A change in public officials or development of new stakeholder relationships can quickly change your priorities and related funding for climate change preparedness. You may also receive new information, based on new scientific findings, that leads you to change the focus of your preparedness effort. For instance, you may have initially identified

preparedness goals for several priority planning areas only to find that another planning area that you had not addressed at all (e.g., coastal erosion control, flood hazard management, or extreme heat response planning) has become an even more urgent concern to address. In this case, you will want to reprioritize your planning areas and set new preparedness goals at the next appropriate window of opportunity.

- **Are your vision and guiding principles still relevant to the results your team wants to achieve?** Ideally, your team will have established a vision and guiding principles that are flexible to different conditions, so that you do not have to change them drastically over time. However, with new information and some experience in implementing your preparedness actions, you may want to broaden or narrow the language of your vision and guiding principles to make them most relevant to your current efforts.
- **Have you collected significant new information about the success (or failure) of your preparedness action in building climate change resilience?** After tracking and measuring your progress over a significant amount of time, you may find that the preparedness action you have implemented is not actually improving the resilience of sea walls, ecosystems, or vulnerable communities in your region and may even be making a problem such as coastal erosion, species decline, or heat stress worse. Alternatively, you may find that your action is so successful and critical that you need funding to do more of the same. The information collected in your measurement step, if used to review the course you have charted, can thus become critically useful for updates to your priority statements, public reports, budget requests, and investment decisions.

While this list does not include all of the questions you may want to ask as you proceed in your climate change preparedness efforts, it can begin to help you ensure that your assumptions, your work, and your measures of resilience remain appropriate to current natural, economic, social and political conditions in your region.

### 12.3 Update Your Plans

Once you have collected new information useful for reviewing and modifying your basic assumptions, you are ready to update your climate change preparedness actions and plan. At this point, you should also remain aware of the opportunities that plan updates offer to share your information and influence climate change preparedness planning beyond your team. Consider the following when you update your preparedness actions and plans:

- **Incorporate the most urgent and/or specific information in budget proposals and other short-term decisions.** Sometimes, new information about the risks of climate change to your region will demand more urgent and detailed action than a broadly written plan updated on a four- or five-year cycle can provide. For example, as King County has found with flooding, you may recognize that a

natural hazard in your region is becoming more frequent and more intense, with immediate damage and costs in terms of public health, safety and property. This kind of new information will demand quicker decisions, on a shorter time scale and with more detail than most comprehensive plans can offer. In these cases, annual or even quarterly budget negotiations or other short-term decision arenas may therefore become your most appropriate windows of opportunity to raise specific climate change issues that you are facing. (King County has responded to its recent flooding events and new information about expected future flooding by proposing an improved flood hazard management plan, as well as a new countywide flood control zoning district, with taxing authority to cover the costs of regional levee improvements.)

- **Incorporate new climate change information into your regular planning updates.** Comprehensive land use plans, shoreline management plans, and other planning documents tend to be updated once every four or five years. If the climate change impact that you intend to address does not pose an obviously urgent concern to your community, and can be effectively addressed in broad language, these planning update years can be useful windows of opportunity to address climate change. King County has employed this approach in both the 2004 Comprehensive Plan update (incorporating climate change emissions reduction goals) and the upcoming 2008 Comprehensive Plan update (now on track to include goals related to climate change preparedness).

## 12.4 Share Your Learning

As you improve upon your preparedness actions, share the results of your plan. Transparency and accountability in your climate change preparedness effort can help the public and your team see that your actions achieve desired results. In some cases, such a proposed tax package that requires broad public support, it could be incredibly useful for your team and government to share detailed findings about your progress with your broader community.

Sharing your results publicly will also help improve your community partnerships. Outside partner institutions can benefit from information about how well your actions are working, especially if you are measuring the results of collective work in a priority planning area such as efforts to protect an endangered species, ecosystem, or shared water or forest resource. Additionally, when you can tell the story of your successes and lessons learned (backed up by sound quantitative and qualitative data) with city, state, regional, and federal governments, you are providing evidence that your actions deserve funding and political support from other levels of government.

Above all, learn through open and honest inquiry. If you do not have a culture of open inquiry, you may find it difficult to ask direct, tough questions about the success of your preparedness actions. However, it will become increasingly important to know what is actually unfolding, and how well you are responding. Have your actions delivered the benefits you expected? How can they be changed based on what you have learned? Have your priority planning areas changed? Do you need to assess climate change impacts on new planning areas or add new members to your preparedness team?

You must teach yourself and your team about what it will take to make your communities more resilient to climate change. You are the expert(s) about what public policies, organizational approaches and infrastructure investments work for your communities. You must make educated decisions now about what your next five, ten, fifteen and more years will bring, and set up a process of learning for the future that will help you and your successors to modify your preparedness actions and plans as you begin to see their effectiveness.