

3.2.1

SERIES 3

Building Resilience



CONSTRUCTING SCENARIOS

Activity 3.2.1

One of the biggest challenges in planning for climate change is uncertainty—past trends are no longer useful indicators of future conditions. In this activity, you will explore how to develop future scenarios that focus on future outcomes, rather than past trends. You can use these scenarios to guide the development, evaluation and ranking of resilience interventions. Systematic use of scenarios in evaluating potential future conditions and needs can help you achieve a more resilient future.

IN THIS ACTIVITY YOU WILL:

- ✓ Select a future planning question to focus on.
- ✓ Identify the two most important factors for that future planning question.
- ✓ Identify the best- and worst-case scenarios for each of those factors.
- ✓ Set up a matrix analysis to explore the four possible futures that would result from combining the best and worst cases for both factors.

ACTIVITY 3.2.1: CONSTRUCTING SCENARIOS

INSTRUCTIONS

We suggest a two-step process for developing and using scenarios. First, imagine a series of possible futures for your city. Then second, use these possible futures to build a best-case/worst-case analysis of specific issues facing your community or city.

In the first step, imagining different futures for your city, you can use demographic and economic trends to create several storylines for a period in the future (such as 2030 or 2050):

- high rates of migration with low economic growth
- low rates of migration and low economic growth
- rapid migration and fast growth
- slow migration and rapid growth.

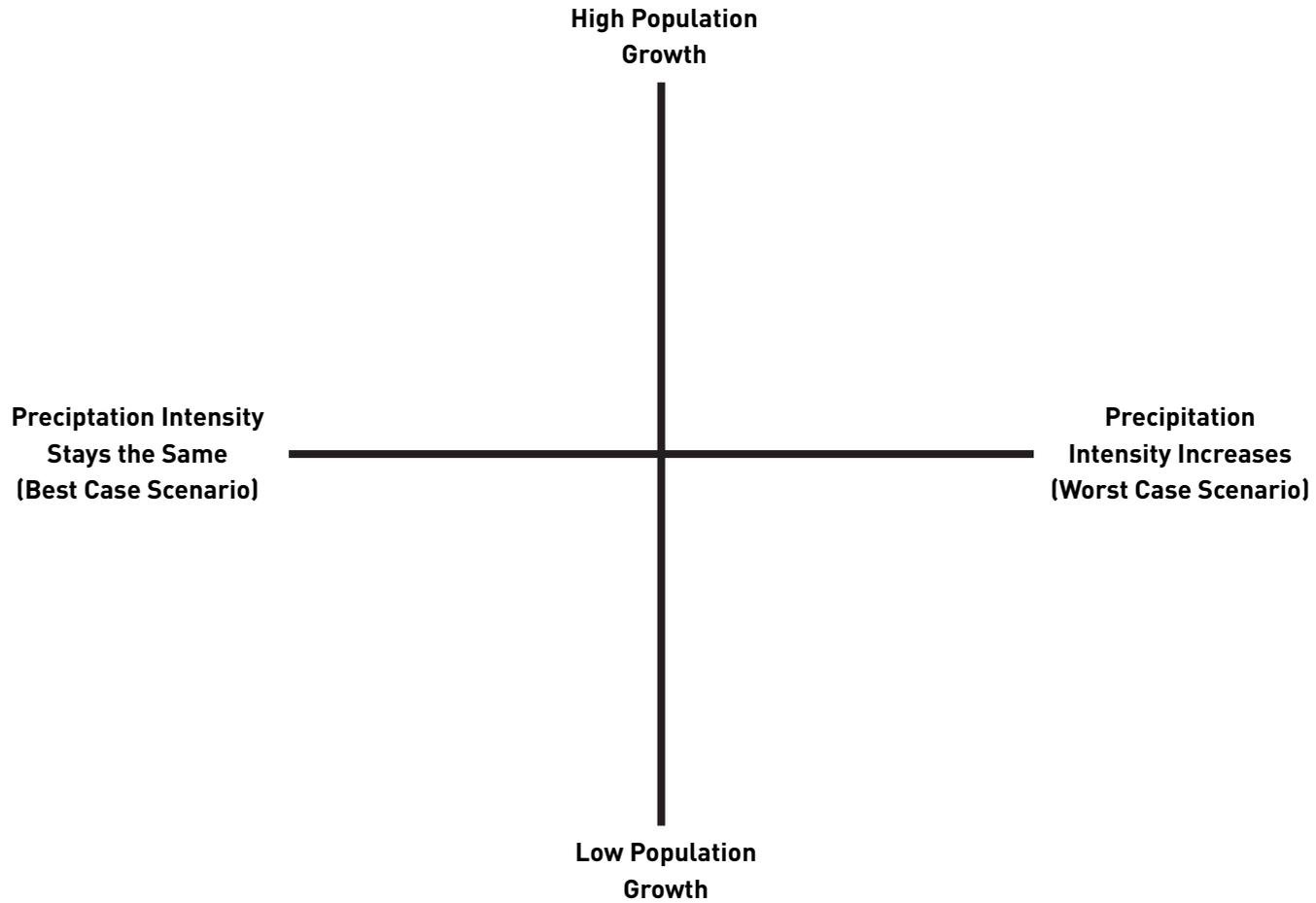
If you find it helpful, these can be tied to specific events that are being discussed for the future, such as development of a bridge, road or airport connecting your city to new markets, changes in national agricultural policy which might impact migration rates, etc.

These storylines will help you define high and low rates of growth and characterize what your city might look like

under each of those conditions. At a very basic level, you are just telling a story about what the city looks like and how it functions. Some cities in your region may have attributes that you hope your city will achieve in the future—an active business district with clean, safe public transit or abundant, high quality, affordable housing for the poor, for example. This can provide a starting point for exploring the conditions needed to achieve those goals. The goal of creating these broad story lines is to think about how changes in economic conditions or populations may promote or inhibit resilience aside from the role that climate change might play. A rapid rate of urban population growth, for example, that exceeds the city's ability to provide sufficient support for new residents will increase vulnerability to climate impacts.

The second step in Scenario Development is to identify two factors that are most important for your future planning. If you are concerned about city vulnerability to flooding caused by rainstorms, the two most important factors might be population growth rate and precipitation intensity. If you are concerned about how climate change will affect food security, your two factors might be temperature and drought. There also may be more than two factors that are important,

FIGURE 3.2.1
Setting up your future scenarios.



in which case you will want to pick two to start. Once you have completed your analysis of the first two factors, you can then build additional scenarios to address additional factors. Dealing with two factors at a time, even if there are many others, allows for an easier, more structured analysis. Because scenario planning is less about predicting a specific future and more about thinking about the range of potential futures and the main characteristics of each future, it is not necessary to attempt to construct a more complex set of scenarios at this point.

For each of the two factors you identified, you will create a best-case scenario and a worst-case scenario. In selecting your two most important factors, avoid factors that are highly predictable or highly unpredictable. If your factor is highly predictable, then there will be no difference between the best-case and worst-case scenarios. If it is highly unpredictable, it may be impossible to guess what the best-case and worst-case scenarios are. Work with factors that you can come up with reasonable bounds for. One way you might want to select factors is to choose one physical factor, and one social factor, e.g. drinking water vs. education/awareness around drinking water.

On a blank sheet of paper draw vertical and horizontal axes as shown in Figure 3.2.1.

Use the best-case and worst-case scenarios to label the ends of horizontal and vertical lines. It does not matter which factor goes on which line, nor does it matter on which end of the line the best-case and worse-case conditions are put. Once you have set up your axes, look at each quadrant. What are the positive and negative aspects of each quadrant for your future planning? List these in that quadrant. We show a very simple example on the following page in Figure 3.2.2.

Once you have listed positives and negatives for each scenario, think about current systems and whether they are set up to either address the negatives or take advantage of the positives.

- What challenges are posed in each scenario? Which can your city handle? Which can't you handle and why? What would happen? For example, high heat might not affect a particular sector until energy production or distribution is affected. Then energy constraints, coupled with high heat, might result in high vulnerabilities.

- Are the current systems redundant or modular? Are there backups in place in case of failure? If not, how could backups or safe failure points be included?
- Is there a scenario in which current systems will completely fail? What could you do if those conditions occurred?

Write down the information you generate about each of your future scenarios either next to the grid or on another sheet of paper.

Finally, explore whether, if you had to plan for just one of these scenarios, which you would choose, why you would choose that scenario, and what the risks of selecting that scenario over the other could be.

FIGURE 3.2.2
Populated Scenario Chart

