Unit Six

Indicators of Community Performance

At this point, you have clarified a community vision, established goals and targets, and developed strategies to achieve them. You are ready to transform your community into a model of sustainability! But it is worth asking yourself now: how will you know if you are succeeding? What are the indicators that your community is making progress toward its goals?

Stated simply, the "indicators" you seek are those that provide measurable information about your community's status and direction. Indicators often seem enigmatic, very technical, and data-heavy. In fact, the strength of good indicators lies in the ability they provide to avoid having to gather and mull through ream after ream of data. There is a plethora of data available today. Determining what information is relevant and expressing it in easy-to-use formats is what makes mere data a suitable indicator for community action plan. Good indicators are incisive, allowing you to get to the heart of the matter by looking at a relatively small number of variables.

Indicators are used at all levels of formal and informal decision-making. The gas gauge in your car, for example, indicates when it is time to fill up, and the gross domestic product (GDP) tells policy-makers whether policies to stimulate the economy are working. The right indicators are necessary to your sustainability planning, telling you whether your efforts to make move your community in the right direction are successful.

This chapter will help you identify the right indicators for your Action Plan. In so doing, you will learn how to answer two major questions about each of the specific targets you have set: where does your community stand in relation to where it wants to be, and how well are your efforts toward achieving your targets working?

ACTION STEP
Select Indicators for Monitoring Performance

Earth Charter Principle
*#8c. Ensure that
information of vital
importance to human
health and environmental
protection, including
genetic information,
remains available in
the public domain.*

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By monitoring indicators for each target you have chosen (see Unit 4) you will allow the government, civil society, and the public at large to assess whether your community is making sufficient progress toward sustainability. You do not need formal experience in developing indicators — it is simply a logical process of determining what information tells you whether your community is meeting the targets you have set for it. You will quickly become comfortable with the concept once you have begun. You can also draw on the experience of many other communities by referring to examples in EarthCAT online, and the resources listed at the end of this book. A good way to introduce yourself to sustainability indicators are the reports available at http://santa-monica.org/epd/scp/goals_indicators.htm.

Indicators can be conceptually simple, like total population, or very complex, like GDP. They can be based on quantitative data like concentration of sulfur dioxide in the air, or qualitative information like the results of a survey of people's attitudes toward their community. One thing is true of all good indicators, however: they are clear and easily understood by experts and non-experts alike. The EarthCAT approach will guide you in developing indicators that allow you to express essential information about your progress in numeric form.

The Action Steps you have worked through to this point have already compelled you to do what is usually the hardest part of choosing relevant indicators: prioritizing the topics your community cares about most. The targets you have set offer a level of specificity that you will find is very helpful in choosing indicators. If you have skipped to this section without first working through the Units on goals and targets, be sure you have identified the specific priorities in your community before proceeding.

As with goals and targets, there is no "correct" number of indicators. However, the experiences of other communities has shown that it is usually better to start with a small number and to increase over time. Santa Monica and Heidelberg, both cities that were very dedicated to their sustainability programs, each started with fewer than 10 indicators. Tracking and sharing indicator data will often require building new capacity for the task, either by local government or

community groups. This can represent a significant change in culture for some government officials. Such changes require time and careful planning, and will often be easier to pursue if you take them on a few at a time. The leaders of the Santa Monica and Heidelberg projects felt that tracking a small number of indicators initially was important to the long-term success of their programs. The list of indicators being used in both of these communities is now in its second or third iteration, and has increased to more than 50.

Task: Brainstorm Indicators

As for each previous step, the first thing to do is to ensure that the team you employ for indicator selection represents the right skills. As stated above, establishing indicators isn't hard, but it is a task that benefits from experience. Also, tracking indicators requires data. If there is a choice between two indicators, and only one of them has data available through administrative sources, that is almost always the one you should choose. Therefore, if you don't already have people on your team from local or regional government administrative offices, or who know how to find out what data are available from these sources, be sure to try to recruit some. As for finding people who are practiced in thinking about indicators, ask yourself if there are individuals — natural or social scientists, for example — who are used to representing the world through numbers, and who might volunteer to help.

You should treat the brainstorming steps as an iterative process. Go through them quickly, recording as many ideas as you can quickly generate. Then use the criteria to begin to eliminate and refine the ideas you recorded early on.

The steps to choosing the indicators for your project are deceptively simple. The trick lies in determining what variables will incisively and meaningfully tell you about your progress.

Choose one target as a starting point for brainstorming. The indicators you develop for the first few targets should be considered a learning process…choosing and clarifying indicators gets easier with practice. You will probably reconsider and revise your list a number of times. So start by choosing the target you are most interested in or knowledgeable about and begin. Once you have done this for one target, choose the next and continue until you have developed indicators for all your targets.

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Research and/or brainstorm a list of the specific type of data that might reveal where you are and where you are going with respect to the target. Remember to seek out examples of indicators developed by other communities — these examples can often make the difference between a successful and unsuccessful brainstorming session. Look closely at the strategy you have developed for the target, and use the following three questions to brainstorm a list of indicator candidates:

1. What pressures act on the community system to hinder its ability to provide the needs in question (pressure indicators)?

2. What information will help you measure where things are in relation to the target you have set (state indicators)?

3. What leverage points and activities are you planning and how can you measure the success of their implementation (response indicators)?

(For a fuller description of the three basic types of indicators, see Appendix II.)

Record Basic Indicator Information

As you develop indicators, record the following elements for each one. It helps to use a simple table for this purpose during the brainstorming phase. While there is no need to develop the table completely while brainstorming, considering what you would enter into each field will help you to determine whether the indicator will be useful for the target.

➢ *Indicator name.*

➢ *Definition.* Define the indicator in detail. What metric will the indicator will use to measure progress toward your community's target?

➢ *Justification.* Why will data gathered for this indicator clearly tell you whether your strategy is being successfully implemented and that your community is making progress toward realizing the target?

➢ *Units.* What are the units associated with this indicator. For example: Percent, Parts per million (ppm), Incidence per 1000 people, etc.

➢ *Data Sources.* Where will the data be obtained? Will it be gathered by the community? Can it be accessed from local or regional administrative records? Do local NGOs or federal agencies gather data? See the last Action Step on planning data gathering for more on this topic.

➢ *Data Gathering Methodology.* What method will be used to gather the data?

Consider Geographic Scale for each indicator

Indicators that use average values for the overall community work well for many targets, but not for all. For example, many planning efforts are concerned with issues of equity within the community in the areas of health care, school achievement, life expectancy, and many others. Assessing the equity of distribution within a community obviously can't be done with a value that represents the overall community average. Some indicators will therefore be tracked at smaller geographic units.

For example, in Washington DC, some parts of the city have extremely low infant mortality rates — among the lowest in the world. In other parts of the same city, fewer than 3 miles (5 km) away, the infant mortality rates are on par with countries such as Haiti. Clearly, an indicator or progress toward equity in Washington DC would need to be measured at smaller geographic units than the entire city.

Geographic sub-units are usually best established along political boundaries. People are used to thinking along these lines, and community governments and other entities are probably already gathering data using these boundaries. In general, we recommend choosing only one level of geography within the overall community. Tracking multiple levels can become burdensome and shouldn't be necessary unless you are developing a sustainability plan for a very large city. Ideally, the level you choose will be detailed enough to allow clear understanding of the patterns within the community, without being too detailed and therefore too demanding of time and energy.

**Task:
Apply Selection
Criteria**

Good indicators share a number of traits in addition to clarity. Following is a list of some criteria you should keep in mind as you develop the best indicators for your purpose. Gathering data is time-intensive and can be costly. It is better to spend the time up front developing indicators that will tell you clearly about your issue of concern than to realize later that your indicators aren't providing the information you had hoped for.

Apply the following criteria for each indicator you brainstormed. Some indicators will quickly be eliminated. If possible, however, try to emerge from this exercise with a number of candidates for each category of indicator — pressure, state, and response — that can be described as:

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✓ **Incisive:** the indicators you choose should tell you clearly and specifically about the problems you are addressing. Avoid choosing indicators that can fluctuate for reasons unrelated to efforts the community is making.

✓ **Measurable:** in order to be useful for assessing progress, indicators need to be quantifiably measurable. While most of the indicators you consider — the amount of dissolved oxygen in a stream, or the percentage of third grade girls who can read — will naturally lend themselves to being quantified, others may not. Methods have been developed to measure and quantify governance issues like free access to information. We will explore a method to index qualitative data below; you should explore this methodology if the indicator you have brainstormed is not inherently quantitative.

✓ **Results oriented:** because you are dedicated to producing change in your community, you will want to choose indicators that measure the effect of the actions you are taking. This will sometimes seem difficult for pressure indicators, since the pressures that lead to a situation like air or water pollution often take place far outside the community.

✓ **Reliable:** indicators must be based on variables that can be measured as accurately as possible. In addition, you must be able to gather the needed data at an appropriate scale and frequency.

✓ **Replicable:** if you can't accurately repeat a measurement, you will not be able to assess progress over time.

✓ **Simple:** choose indicators that are easy to understand, while being as precise as possible.

✓ **Cost-effective:** relatively inexpensive to monitor without diminishing the effectiveness or quality of the data.

✓ **Relevant:** relevancy is a top priority when developing indicators. Do not spend your time with indicators that to not relate to the goals and targets you have developed.

Task:
Finalize Your
Selections

At this point, you will have enough information to select the final indicators for the target. Ideally, you will have sufficient indicators to choose from to give an accurate picture of the performance of each activity in your strategy (see Appendix II). Now you will develop additional information for each indicator to ensure you are ready to begin gathering data and using the indicator to track progress.

Indexing

It can be useful to index your indicators so the measurements can be communicated more easily. Indexing is the process of weighting the data so the results will fall within a pre-determined range that is easy to understand and compare. Percentages are one form of indexing that everyone understands. Comparing the exact number of children who graduated from secondary school from year to year, for example, doesn't explain anything about educational performance if the number of children enrolled in school fluctuates. When the data are indexed as a percentage of all children enrolled, however, year-to-year comparisons become relevant and easy. As you implement your sustainability plan, the number of indicators you track to measure its progress will grow, perhaps numbering 50 or more. Effectively communicating progress for all of these indicators will be significantly easier if the results are presented within a common range. This can often be done by using a linear scale of 0 to 100, where 0 represents a completely unacceptable value and 100 represents an ideal value (see the sidebar for the equation to convert your indicator data to this uniform index scale).

To make use of an index scale like this, you will need to discuss what the outer limits — the unacceptable value and the ideal value — will be for each indicator. The unacceptable value will represent the lowest value in the range, and the ideal value will represent the highest possible value in the range. The indexing range is not meant to duplicate the target the community set in Unit 4, but rather to provide a mechanism for easily assessing and communicating progress toward the target over time. The ideal value mentioned above should therefore be higher, probably significantly higher, than the community target.

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When you have gathered the numerical data for any given indicator, you can convert each value X to an index value (on the 0 to 100 scale) as follows:

Subtract the low-end value L for that set of data (the numerical quantity that you have assigned an index number of "0") from X.

Multiply the result by 100.

Now divide the result by the difference between the high-end ("ideal") value H and the low-end value L.

Here's the equation:

(X – L) * 100 / (H – L)

Your result is the value of datum X expressed on an index scale of 0 to 100.

For example, if you community has adopted a goal to protect the climate (or to become climate-neutral), and a target of reducing net greenhouse gas emissions by 25% by 2015, that does not mean that 25% below current emissions should be pegged as 100 in your index. There are two main reasons to avoid doing so. The first reason is practical: what if your community succeeds beyond its dreams and reduces emissions by 50%? The index could not accommodate this level of success. The second reason is more philosophical. Our communities are aiming for sustainability, which is a long-term goal. Most of our communities have a lot of progress to make before we are close to true sustainability. Over time, however, we can make significant strides, and we want the indexing to fully allow for all the progress we, with concerted effort, can make.

There are situations, however where your target *can* serve as the high value in the index. Using the example above, a number of communities have made significant strides in reducing greenhouse gas emissions and are considering adopting climate neutrality (0 net emissions) as a target. This target really does strive toward true sustainability, and is a worthy high-end value in an index.

Indexing some indicators is relatively easy. For high school graduation rates, a 0% graduation rate can be assigned the "unacceptable" value and 100% the ideal. Others, however, can prove difficult due to the unavailability of initial data, or other practical reasons. You may also encounter areas where there will be strong disagreements about what constitutes unacceptable versus ideal rates, and what the high and low values should be. Try to avoid getting too bogged down by these arguments, bearing in mind that it is the *targets* that you are all striving toward.

Choosing Base and Target Years

To be a useful tool for evaluating progress, you will need to have base and target years for each indicator. You have already identified the target year when you set your target (see Unit 4). The base year provides the baseline value with which you will compare later results to assess the impact of strategies. Gathering data from a time before the strategies have begun to be implemented provides the snapshot of what it is you are trying to change. For indicators where data already exist and have been gathered periodically for municipal purposes, you can choose your

baseline to match the most current set of available data. Often times, communities choose a recent year that falls on the beginning of a decade or half-decade. On the other hand, if you will be gathering your own baseline data, you will probably choose the current year — or even next year — as your starting point.

Record Detailed Indicator Information

At this point, you will have generated all the information you need for your indicators. Make sure that each of the fields below can be completed for each indicator.

	Indicator name:
A detailed description of the indicator, including the metric it will use to measure progress.	**Definition:**
The reason this indicator will clearly tell you whether your community is making progress toward the stated Target	**Justification:**
The units associated with this indicator. Percent, Parts per million (ppm), Incidence per 1000 people, etc.	**Units:**
Where the data will be gotten, who collects it, and how it can be accessed.	**Data Sources:**
The methodology that will be followed to gather the data.	**Methodology:**
A scale ranging from 0 to 100, or some other convenient means of expressing and comparing its measurements.	**Indexing Metric:**
The year for which data will be collected prior to implementing the plan, and the target date for the progress this indicator will measure.	**Base and Target years:**
Whether the indicator addresses: elements that drive the system (pressure), the status of the system (state), or your efforts to improve the system (response).	**Pressure, state, or response:**

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ACTION STEP *Gather Baseline Data*

Gathering data for your indicators is not as conceptually challenging as identifying them in the first place. Over the long term, however, it will be much more time and resource-intensive. Sometimes you decide upon an indicator, only to discover that data for it cannot be found after all. This underlines the importance of determining how, or whether, you will find the data needed for an indicator you are planning to rely on. The next unit on tracking data will present more information on data sources and data gathering.

Local or regional governments are often an outstanding source of administrative facts and figures about school enrollment, crime, incomes, taxes, percentages of households with plumbing and electricity, health, etc. Determining which department and which individuals within that department are able to provide you with the data you need, however, can be a difficult process. Furthermore, you may encounter resistance in getting them to share what they have. There are, unfortunately, many prevalent attitudes that can make it difficult to obtain information, even when you know the data exist. When choosing between two strong indicator possibilities for the same target, you should take into account the probability of being able to get the data, before assuming it will be available to you.

Government sources responsible for managing environmental and health issues should have data on topics such as water quality, air pollution levels, trash hauling, etc. You may also be able to find data on these topics from non-governmental organizations that track these issues.

For other indicators, you will probably need to gather your own tracking data. This would be true for a wide variety of indicators, from chemical analysis of stream water quality, to public satisfaction with city services, to levels of vehicle traffic. Don't be too surprised or disappointed if gathering data for a certain variable proves to be impossible, despite all your attempts to anticipate and avoid obstacles.