

Guidelines for Measuring the Performance of EPA Partnership Programs



The National Center for Environmental Innovation wishes to thank the members of the Partnership Programs Workgroup and other EPA contributors who assisted us in this effort.

This document was developed for use by EPA managers and staff and their contractors as they develop Partnership Programs.

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Executive Summary

Partnership Programs differ greatly in style, type, and function; however, one thing they all have in common is the need to prove they are achieving environmental results and meeting EPA's mission. Without performance measures it is almost impossible to show the value of your program. These guidelines provide advice, guidance, and best practices for how Partnership Programs can demonstrate environmental results and program effectiveness.

What is Performance Measurement

Performance Measurement is the ongoing monitoring and reporting of your program's progress and accomplishments, using pre-selected performance measures. Performance measurement shows how well your Partnership Program is operating and if it is creating real environmental results.

Key terms (identified by bold italics) are defined in Appendix A: Glossary of Terms.

The basis of performance measurement is performance measures (PMs). A performance measure is a metric used to gauge program performance. They allow you to capture data on how well your program is achieving environ-

mental results over the short term, intermediate term, and long term. You may also measure program efficiency, productivity, cost effectiveness, and service quality.

These guidelines introduce you to the world of performance measurement and walk you through a step-by-step framework for how to design performance measures for Partnership Programs. We include real Partnership Program examples and worksheets to help illustrate the concepts described.

These guidelines should be used in conjunction with the *Guidelines for Designing EPA Partnership Programs* and the *Guidelines for Marketing EPA Partnership Programs*.

Preparing to Measure Performance

The first step in developing performance measures is assembling a team. The purpose of assembling the team is to ensure the consideration of multiple perspectives. This will help you to develop a suite of measures that are balanced, realistic, and assess aspects of the program that will be of interest and importance to key stakeholders. Your team should include individuals from several different stakeholder groups

that have an interest in your program—including individuals both within and outside of EPA.

Once you have organized your team, the next step is to develop a performance measurement plan. The plan is a written statement that helps you think up-front about the audience, purpose, context, roles, and resources needed for your performance measurement system.

Developing a Logic Model & Performance Measures

A logic model is a diagram and text that shows the relationship between your program's work and its desired results. Every program has resources, activities, outputs, target decisionmakers, and desired outcomes. A logic model describes the logical (causal) relationships among these program elements. A well thought out logic model, can easily lead you to your program's performance measures.

The Kellogg Foundation has a guide to developing logic models at <www.wkkf.org/Pubs/Tools/Evaluation/Pub3669.pdf>.

A logic model serves as a basic road map for the program, explaining where you are and where you hope to end up. The logic model:

- Communicates the performance story of your Partnership Program, focusing attention on the most important connections between your actions and the results.
- Serves to build a common understanding among staff, EPA management, and with stakeholders.
- Helps “manage for results” by showing how you will achieve your goals and objectives.

- Allows you to easily identify your program's measures for success.

Development of performance measures is tied to the logic model you create. The logic model, clearly identifies your program elements. Now that you have identified those elements, you need to create measures that relate them. There are three primary levels of measures which include:

- **Level 1: Activity Measures.** Activity measures correlate to the Outputs on your logic model. These are more traditional outputs describing specific program actions taken by program staff and your target decisionmakers.
- **Level 2: Knowledge and Behavioral Change Measures.** Knowledge and behavioral change measures correlate to the Short-term and Intermediate Outcomes on your logic model.
- **Level 3: Outcome Measures.** Outcome measures correlate to the Long-term Outcomes on your Logic Model.

In addition to these three primary levels, measures of program efficiency, productivity, cost effectiveness, and service quality are also important. These types of measures are derived from the measures above, are generally needed to prove effective program management. Efficiency measures are also required by the Performance Assessment Rating Tool (PART), a program evaluation tool used by the White House Office of Management and Budget.

Establish a Baseline

Your data collection plan needs to take into account the baseline data describing conditions prior to the implementation of your program.

Baseline data provides a frame of reference for the change that the program is initiating. The measures chosen for your program should be able to express both baseline and future conditions.

There are two types of baselines to choose from, one-year or multi-year. The type of program and data available will determine what type of baseline is appropriate.

Once you have determined the type of baseline appropriate for your program the data can be collected three ways:

- From an existing database.
- From target decisionmakers.
- From a statistically valid sample of target decisionmakers.

Collecting, Analyzing, and Interpreting Data

Collect Performance Data

You can collect two types of performance data: qualitative data and quantitative data. The resources available for collecting data and the type of data you need dictate the type you collect. For example, observations, interviews, document reviews, focus groups, and the like will give you qualitative data. Data from annual reports, tests, surveys, or existing databases provide quantitative data. Generally funding organizations like to see quantitative data, but in some instances qualitative data will need to be collected.

There are several factors to consider when collecting program performance data:

- Use a variety of sources for data.
- Use data from existing databases.
- Limit the burden on program participants as you collect data.
- Protect program participants' confidentiality.
- Practice quality control.
- Normalize the data.
- Prepare for Information collection requests (ICR).

Analyze and Interpret Data

Analysis is predetermined by the measure selected. It can include comparing trends over time, actual performance against program goals, normalization (against production/outputs), variation across units/processes within an organization (Internal benchmarking), or against others in the same field (external benchmarking).

There are potentially multiple uses and audience groups for performance results information. Performance data might be packaged in different ways depending on the audience. Once you have completed the data analysis, consider how you can use the results of measurement activities to improve service delivery or future evaluation efforts, and promote your accomplishments to stakeholders.

There are several ways to communicate your program performance:

- An annual report that describes program successes.
- PART responses.
- Recruiting tools.
- Case studies.

Checklist for Developing Partnership Program Performance Measures

To create consistent and effective Partnership Programs, senior managers should review them early in the development process to ensure they are on the right track. The checklist below provides a list of questions that should be addressed in order to ensure a solid performance measurement system is in place.

Program Goals

- What are the specific, measurable outcomes the program estimates it can achieve in the short-term, intermediate-term, and long-term?
- How will the development of these measures fit into the overall program design and program goals?

Resources

- Does the Partnership Program currently have adequate resources dedicated to measuring program results?
- Does the program have the necessary expertise to develop performance measures?
- Does the program have the resources to secure this expertise through 3rd parties or contractors?

Performance Measurement Plan

- Have you identified all the individuals needed to help in the measurement plan development process, including stakeholder representation?
- Who is your performance measurement system's audience, purpose, context, and roles?

Logic Model & Performance Measures

- Have you identified your program's activities, outputs, and outcomes?
- Are you aware of any the external factors (positive or negative) that might affect your program or target decisionmakers?
- Will your measures show how well your program is meeting customer needs and achieving environmental results.
- Have you developed baselines and targets for the appropriate measures?

Collecting Data

- What data collection techniques will you use to gather data on the measures that you developed?
- What quality control procedures do you have in place to ensure the integrity of your data?
- Have you fulfilled all data collection requirements, such as getting an ICR when required?
- Have you limited the burden placed on Partnership Program participants?

Analyzing and Interpreting Data

- What is the appropriate type of analysis for each measure?
- Who is the audience for your performance measurement information?
- How will you communicate your performance measurement information?
- Have you turned in a Performance Measurement Report to the Partnership Programs Coordination Team?

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Chapter 1:

Introduction

So, you've developed a Partnership Program. Sooner or later, you'll need to find out: is your program protecting the environment? Is it producing environmental results?

Partnership Programs differ greatly in style, type, and function; however, one thing they all have in common is the need to demonstrate they are achieving environmental results and supporting EPA's mission. Program managers are being increasingly asked to defend the efficacy of their programs, non-regulatory and regulatory. Performance measurement is the key to showing that programs are effective. Without performance measures it is almost impossible to show the value of your program.

These guidelines provide advice, guidance, and best practices for how Partnership Programs can demonstrate environmental results and program effectiveness.

Why Is Performance Measurement So Important?

Some argue that measuring performance is too time consuming, too onerous, and too costly for Partnership Programs. In fact, it is more costly in the long run *not* to measure your program.

Performance measurement can help Partnership Programs improve their performance and demonstrate they are in compliance with regulations. More importantly, it proves—with tangible data—that your program is protecting the environment. The following are some of the benefits of performance measurement.

Key terms (identified by bold italics) are defined in Appendix A: Glossary of Terms.

1. Providing data to stakeholders

Performance measures provide valuable information to Partnership Program managers, EPA senior management, **target decisionmakers** (or customers), and other stakeholders on an ongoing basis. It shows them that you are managing the program efficiently and effectively.

2. Improving your program

Performance measurement can help you identify what program goals are met, what program approaches you may need to change, and whether you need to establish new goals. Performance measures can also

be used to identify areas within a program where you may need additional resources.

3. Demonstrating performance for oversight purposes

The **Government Performance and Results Act (GPRA)** and the Office of Management and Budget's (OMB) **Program Rating Assessment Tool (PART)** both require Partnership Programs to measure and report program results, **outcomes**, and performance. GPRA asks how effective government programs are, and PART is one tool used to determine the answer. PART emphasizes the use of outcome and efficiency measures, while GPRA emphasizes output and outcome measures. Actual performance towards program goals is the primary element of an overall PART rating.¹ Poor performance in a PART Review could affect your program's funding so you should begin thinking about it early in your program's development.

Appendix B provides more information on PART and questions that all Partnership Programs should be able to answer.

4. Informing policy and funding decisions

Performance measurement helps EPA Senior Management make policy decisions. If **resources** are limited, performance mea-

surement can mean the difference between continued funding and budget cuts. Programs that provide an unbiased way to demonstrate their progress are more likely to receive funding than those that can not show results.

How Should You Use These Guidelines?

These guidelines introduce you to the world of performance measurement and walk you through a step-by-step framework for how to design performance measures for Partnership Programs. We have included real Partnership Program examples and worksheets to help illustrate the concepts described.

If you have any questions or would like additional information please contact Stephan Sylvan, Partnership Program Coordinator, who is based in the EPA's Office of Policy, Economics, and Innovation, National Center for Environmental Innovation.

Partnership Program managers and program staff of EPA Partnership Programs should use these guidelines in conjunction with the *Guidelines for Designing EPA Partnership Programs* and the *Guidelines for Marketing EPA Partnership Programs*.

Who Should Use the Guidelines for Measuring the Performance of Partnership Programs?

We developed these guidelines primarily for **EPA Partnership Program managers and program staff**. They can use these guidelines to plan and use performance measurement in their Partnership Programs.

¹ Information taken from Guidance for Completing the Program Assessment Rating Tool (PART), Office of Budget and Management, March 2005. http://www.whitehouse.gov/omb/part/fy2005/2005_guidance.doc

Chapter 2:

What is Performance Measurement and How Do You Use It?

What is Performance Measurement?

Performance Measurement is the ongoing monitoring and reporting of your program's progress and accomplishments, against pre-selected performance measures. Performance measurement shows how well your Partnership Program is operating and if it is achieving environmental results.

The basis of performance measurement is **performance measures (PMs)**. Performance Measures are metrics used to gauge program performance. They allow you to capture data on how well your program is achieving environmental results over the short-term, intermediate term, and long-term. You may also measure operating efficiency, service quality, and customer satisfaction.

Performance measurement is different than program **evaluation**. Performance measurement tells you what progress your program is making towards its established goals but does not tell you why you are seeing these results. Program evaluation goes one step further than performance measurement by providing the context to explain the how and why of your

See Chapter 5 and Appendix E for examples of performance measures.

program. Program evaluation, therefore, is a more in-depth and systematic study that uses measurement data to answer specific questions about how well a program is working and why. The upcoming **Guidelines for Evaluating Partnership Programs** will go into more depth about conducting a program evaluation.

How Do You Measure Performance?

To measure performance, you need to follow a five-step process. This process starts by helping you define what you want to measure, leads you through the measurement process, and then helps you present results.

I. Identify Team and Write a Performance Measurement Plan

In this step, you will identify individuals who will help you develop measures for your program. Then, you (and your team) will think up-front about the audience, purpose, context, roles, and resources for your performance measurement system.

II. Develop a Logic Model

In this step, you and your team will develop a logic model, a visual model that shows the relationship between your program's work and its desired results. This visual model will help you "see" your program activities, outputs, and outcomes and prepare you to create your performance measures.

III. Develop Performance Measures

In this step, you will create measures that show how well your program is meeting customer needs and achieving environmental results. You will focus on measures that show your short-term, intermediate, and long-term outcomes.

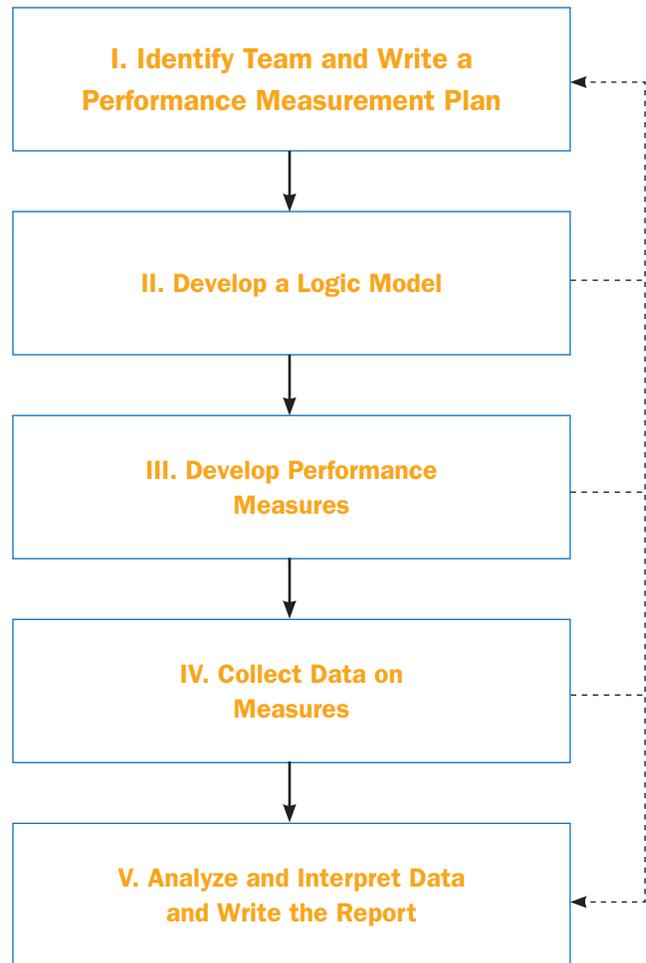
IV. Collect Data on Measures

In this step, you will use a range of data collection techniques to gather data on the measures that you developed.

V. Analyze and Interpret Data and Write a Performance Measurement Report

In this step, you will analyze the data you've collected to see how well your program has achieved environmental results. You'll then write and distribute a performance measurement report that lets others inside and outside of the agency know about your program's results.

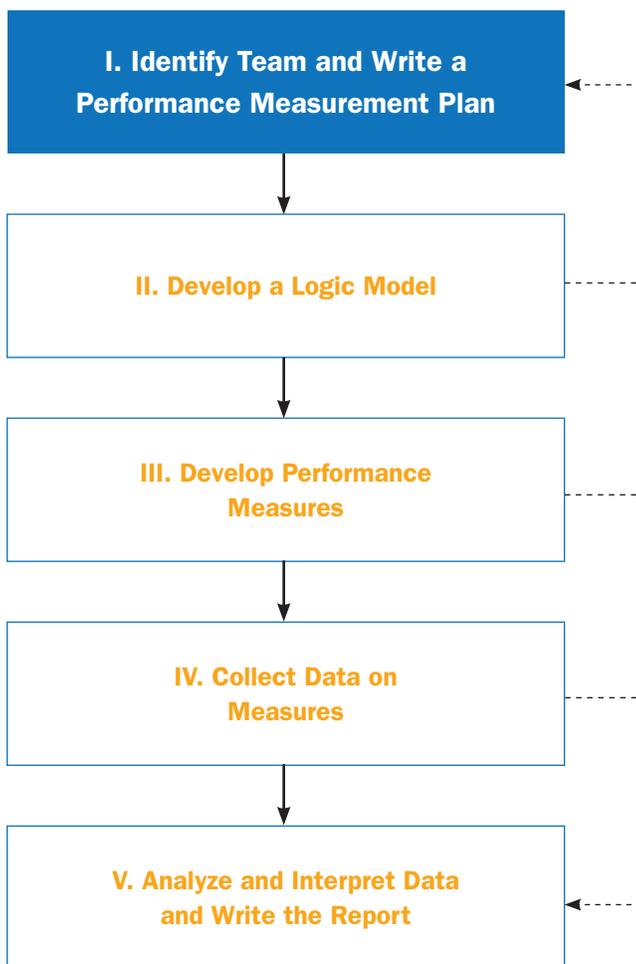
This process is shown in the figure to the right. The following chapters address each step of the process.



The dotted arrows show the iterative nature of this process. Remember that developing performance measures is an ongoing process. It is possible that as you move through the process you may have to revisit and refine some of the information and processes identified in the early steps. Also, note that writing a report does not signify an end to performance measurement. You can use the report as a tool to inform and refine the development of future performance measures.

Chapter 3:

Identify Team and Write a Performance Measurement Plan



Assemble a Performance Measurement Team

The first step in developing performance measures is assembling a team. The purpose of assembling the team is to ensure the consideration of multiple perspectives. This will help you develop a suite of measures that are balanced, realistic, and assess aspects of the program that will be of interest and importance to key stakeholders. Your team should include individuals from several different stakeholder groups that have an interest in your program—including individuals both within and outside of EPA. Generally, a performance measurement team should include:

- **Partnership Program Staff.** While you may identify one person on the Partnership Program staff to serve as lead, you should still have everyone involved in the program participate in the development phases.
- **Customers or “Target Decisionmakers.”** You want to obtain the information needed to determine success without creating an undue burden on your participants. By involving one or two of your most involved target decisionmakers, you’ll learn what aspects of performance are of greatest importance to them, what type of information

will be easily collected, and where additional sources of data may exist.

- **Program Partners.** Depending on the type of program, you may have stakeholders with a vested interest in the program but who are not target decisionmakers. Program partners could be trade associations, non-governmental organizations, other Partnership Programs within EPA, or perhaps EPA management. Try to have each of these additional partners represented in some form.
- **A “Devil’s Advocate.”** Someone who will challenge your assumptions and ground truth the measures being developed. This person brings a unique perspective and will ask critical questions helping to ensure the best possible measures are developed.

Ensure that you have the most robust performance measures possible by involving a range of team members.

Write a Performance Measurement Plan

Next, you need to think up-front about the audience, purpose, context, roles, and resources needed for your performance measurement system. Exercise 1 will help you organize your thoughts into a Performance Measurement Plan. This plan will provide you with a written statement your team members, managers, stakeholders, etc., can buy into and follow. This plan can help guide the development and implementation of your performance measurement system.

Exercise 1 helps you create a Performance Measurement Plan. Please submit a copy of your plan to the Partnership Programs Coordination Team when completed.

Once you have created a Performance Measurement Plan, please provide a copy to the Partnership Programs Coordination Team. We can help you implement the plan and it will help the Partnership Programs Workgroup report on accomplishments throughout the Agency.

Appendix F contains a sample of a Performance Measurement Plan.

Remember, this process is iterative. As you progress and obtain more information, you may have to revisit earlier assumptions.

Exercise 1: Write a Performance Measurement Plan

Purpose: To prepare you and your team for performance measurement by clarifying your thinking about the purpose, audience and resources available to develop and implement your performance measurement system.

- 1. Describe your program's mission.**
- 2. Describe your programs primary stakeholders both internal and external (target decisionmaker, trade association, key environmental NGO, EPA management, etc.).**
- 3. Describe the purpose of your performance measurement system—e.g. how you plan to use the results.**
- 4. Describe the context (organizational, management, political) in which you are developing your performance measurement system. Is the culture supportive or resistant to performance measurement? Is this a first attempt at measurement?**
- 5. Describe the roles for program staff, participants, and key stakeholders in the performance measurement system. Who will be responsible for collecting, analyzing and reporting the performance measurement information? Will this be done in-house or by a contractor?**
- 6. Describe the resources (staff and budget) you have for performance measurement.**
 - **Staff:** Whose time and how much is available to work on developing the measures?
 - **Expertise:** Should a contractor be included to help with certain tasks (creating a survey, analyzing data)?
 - **Budget:** What financial resources are available?
 - **Information:** Is there existing information that can be used?
 - **Timeline:** What is the schedule for completing the framework (logic model, etc)?
- 7. Review the Performance Measurement Plan in Appendix F. Once you've written yours, submit a copy to your team and to the Partnership Program Coordination Team.**

Chapter 4:

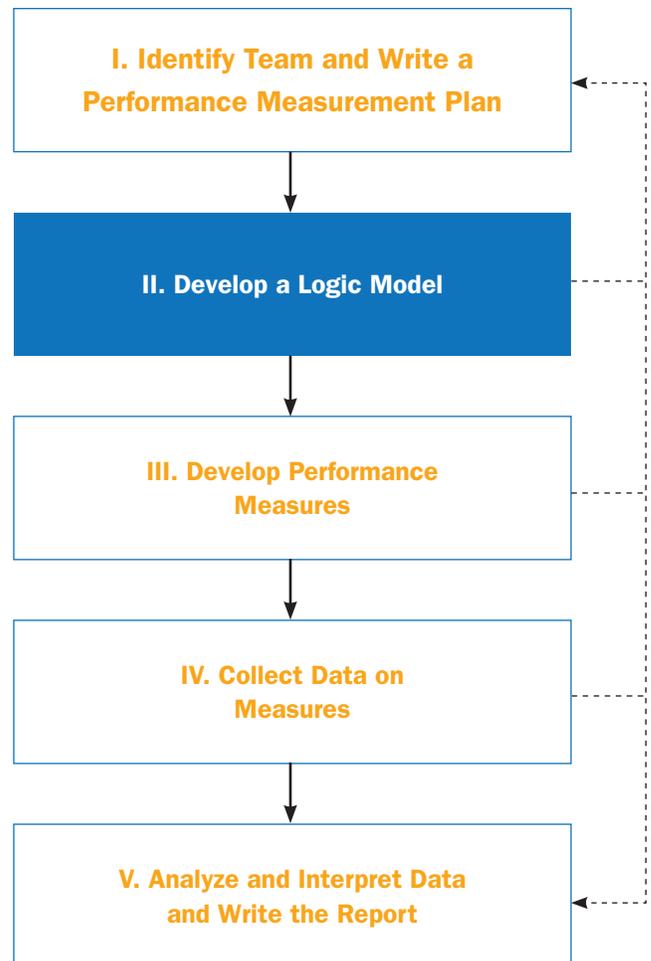
Develop a Logic Model

A logic model is a diagram and text that shows the relationship between your program's work and its desired results. Every program has resources, **activities**, outputs, target decisionmakers, and desired **outcomes**. A logic model describes the logical (causal) relationships among these program elements. A logic model, if well thought out, should easily lead you to your program's performance measures.

Why Use a Logic Model?

A logic model can serve as a basic road map for the program, explaining where you are and where you hope to end up. The logic model:

- Communicates the performance story of your Partnership Program, focusing attention on the most important connections between your actions and the results.
- Serves to build a common understanding among staff and with stakeholders.
- Helps "manage for results" by showing how you will achieve your goals and objectives.
- Allows you to easily flesh out your program's measures for success.



What Does a Logic Model Look Like?

A logic model is made up of seven basic program elements:

- 1. Resources/Inputs.** What you have to run your program (e.g. people and dollars).
- 2. Activities.** What your program will do.
- 3. Outputs.** The things/products your program produces or delivers.
- 4. Target Decisionmaker.** Your program's customers.
- 5. Short-term Outcomes.** Changes in target decisionmakers knowledge, attitude, or skills.
- 6. Intermediate-term Outcomes.** Changes in the target decisionmakers behavior, practices, or decisions.
- 7. Long-term Outcomes.** Changes in the environment as a result of your program.

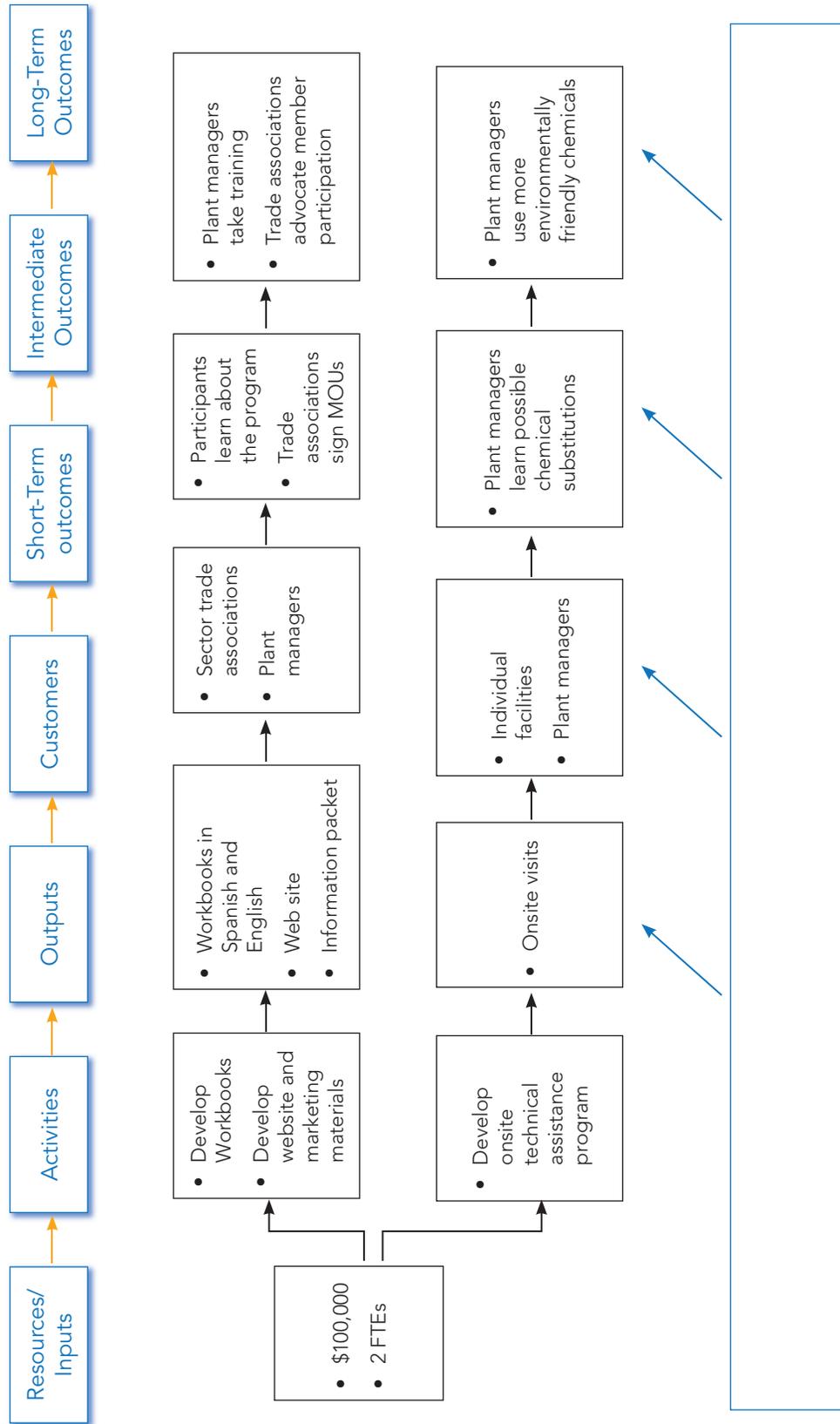
Also included in the logic models are external influences (factors beyond your control) such as, assumptions you currently have about your program and other circumstances (positive or negative) that may affect how the program operates. The next page contains an example of what a Partnership Program logic model might look like. Boxes and arrows represent the logical connection between the separate program elements. Exercise 2 will guide you through developing a logic model for your program.

The Kellogg Foundation has an excellent guide to developing logic models at <www.wkkf.org/Pubs/Tools/Evaluation/Pub3669.pdf>.

Exercise 2 provides you with a format for developing a logic model. Appendix C provides actual examples of logic models.

Example of a Partnership Program Logic Model

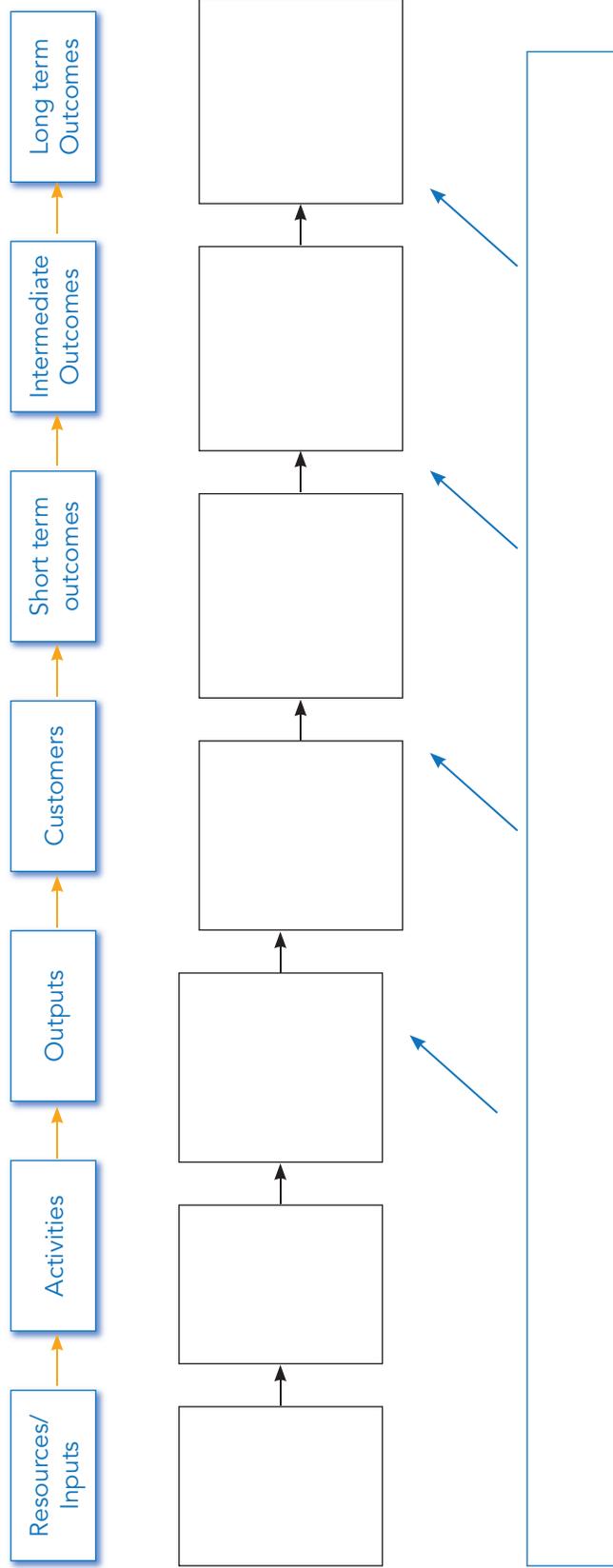
Program Goal:



Exercise 2: Develop a Logic Model

Purpose: Apply the principles and practices of logic modeling to your Partnership Program.

Sketch a logic model of your program using the example provided on the previous page. The example illustrates two aspects of a Partnership Program, not the entire program. Your logic model will likely have many boxes leading to several primary goals. See Appendix C for an example logic model. Once completed verify the logic model with stakeholders to ensure that all aspects of the program have been depicted.



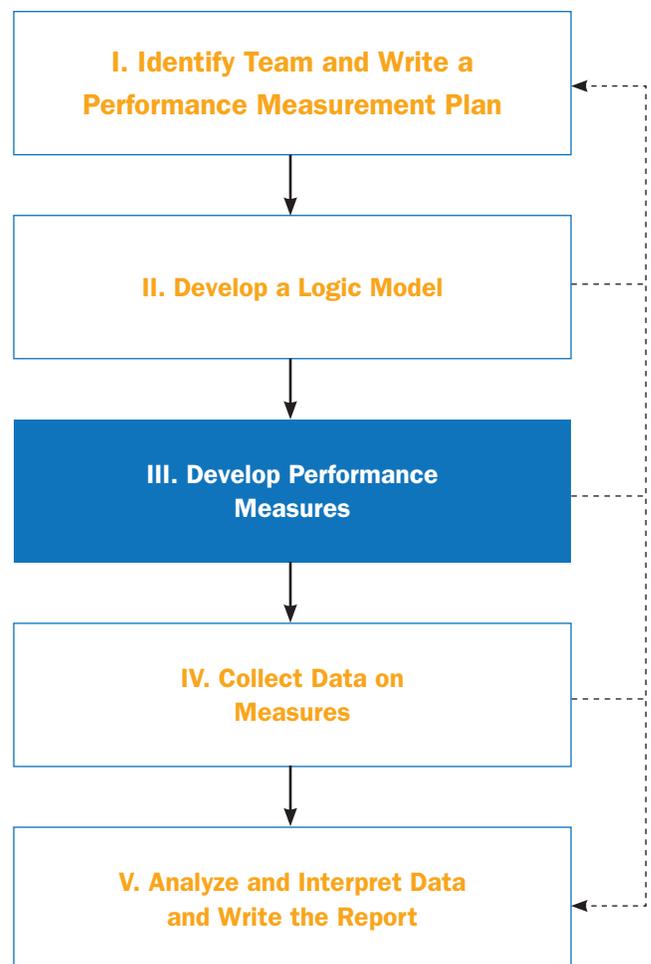
Chapter 5:

Develop Performance Measures

Develop Performance Measures

Development of performance measures is tied to the logic model that you created in the previous step. A logic model, clearly identifies your program elements. In this step, you create measures for your program that relate to those elements. A primary focus should be placed on your short-term, intermediate, and long-term outcomes, because they will allow you to see if your program has achieved environmental results. But, you will also need to develop measures for the other elements of your logic model, in order to measure your program's efficiency and productivity. This section shows how the **logic model** relates to the levels of measures that you can collect.

- **Level I: Activity Measures.** Activity measures correlate to the Outputs on your logic model. These are more traditional outputs describing specific program actions taken by program staff and your target decisionmakers. These measures are useful as a gauge of program efforts, and relatively easy to measure (e.g. number of trainings, site visits, program information developed).



- **Level 2: Knowledge and Behavioral Change Measures.** Knowledge and behavioral change measures correlate to the Short-term and Intermediate Outcomes on your logic model. These measures are useful because they give an indication of actions taken (or awareness increased) by your program participants. (e.g. number of participants adopting program goals, implementing program elements).
- **Level 3: Outcome Measures.** Outcome measures correlate to the Long-term Outcomes on your Logic Model. These are the most preferred types of measures as they address the environmental result of your program's activity. (e.g. pounds of hazardous waste generated, reduced operating costs).

In addition to these three primary levels, measures of program efficiency, productivity, cost effectiveness, and service quality are also important. These types of measures are derived from the measures above, are generally needed to prove effective program management, and are required by PART. Examples of the types of measures are included Appendix E.

The ultimate goal of these measures is to demonstrate positive effects on the environment. In addition to developing the measures you also need to identify a target and a timeline for each measure. A target is simply a goal that you want your participants to meet and the timeline is the length of time they have to make that change. However, depending on your program's size, resources, and longevity, you may not yet be able to show environmental results immediately and must fall back on measures that show incremental changes like knowledge and behavior practices.

Appendix E includes example metrics for each of these levels.

The easiest way to develop measures is to think about all of the performance questions that your stakeholders, management, and target decision-makers will ask and what information you will need to answer them. On the next page is an example of how measures might be developed for the Partnership Program logic model constructed on page 10.

Exercise 3 helps you develop performance measures.

Program Goal: To reduce the amount of hazardous waste produced by companies while creating cost reductions.

	Activity Measures		Knowledge and Behavioral Change Measures		Outcome Measures
	Resources/Inputs	Activities/Outputs	Customer/Target Decisionmaker	Short-Term Outcomes	Intermediate Outcomes
Performance Measurement Questions (what you want to know) <ul style="list-style-type: none"> Do we have enough money/FTEs? How consistent are our resources? 	<ul style="list-style-type: none"> How many workbooks were distributed? How many people are accessing the Web site? Have marketing materials been distributed? How many site visits are taking place? 	<ul style="list-style-type: none"> How many people are joining the program? How many partnerships have we formed? Are plant managers happy with site visits? 	<ul style="list-style-type: none"> Are people more aware of our program? How many plant managers understand the chemical substitutions? 	<ul style="list-style-type: none"> How many managers are implementing our techniques? 	<ul style="list-style-type: none"> Did we reduce company operating costs? How much did we reduce toxic chemical emissions?
Performance Measure (answers to the questions) <ul style="list-style-type: none"> Amount of funding/year # of FTE/year 	<ul style="list-style-type: none"> # of compliance workbooks developed/distributed # of Web site hits # of marketing booklets distributed # of technical assistance requests responded to 	<ul style="list-style-type: none"> % of program participants % of program partners # of plant managers # or % of plant managers satisfied with visits 	<ul style="list-style-type: none"> % of people asking for information/attending trainings % of managers who understand possible chemical substitutions 	<ul style="list-style-type: none"> # of managers substituting chemicals 	<ul style="list-style-type: none"> Dollars saved Pounds of hazardous waste reduced

External Influences: 1) Changes in programmatic funding or personnel for EPA, and other partners, 2) Economic conditions that influence the ability of the participants to partake in the program.

Establish a Baseline

Now that you have selected your measures you need to develop a baseline that describes conditions prior to implementation of your program. **Baseline data** provides a frame of reference for the change that the program is initiating. For example, if you want to show the impact of a program to reduce air emissions, then as a baseline you should use measures that show the pounds/year of air emissions prior to the program starting. You can then measure air emissions after your program is in place and be able to show the change. If your program is already established, consider identifying a “control group”, a group of program non-participants that can be compared with those in the program. The measures you choose should be able to express both baseline and future conditions.

Aspects of your Program Baseline

The most useful measures to baseline will be those that you can compare against your intermediate and long-term outcome measures (levels 2 & 3). Programs, particularly those that are new and innovative, may also find it useful to baseline resources, activities, and/or outputs. This information provides a record against which to measure efficiencies, and the use of resources and staff. This can help you show management what you are achieving in the start-up phases of the program. Customer satisfaction is also good to baseline because that is why you are in business.

Choose a Starting Point

There are two types of baselines to choose from, a one-year or multi-year baseline. As their names suggest, a one-year baseline looks at

data from one-year (e.g. a company's hazardous waste generation in 2005), while a multi-year baseline uses data from across several years (e.g. an average of a company's annual hazardous waste generations from 2000-2005).

To decide what type of baseline is best for your program, look at the availability of the data, the number of program participants you need data from, how easy it will be to collect the data, and what other factors may influence the program and the data generated (e.g. the economic stability of the industry you are targeting).

Choose a one-year baseline if one of the following applies:

- 1. Your program has a large number of participants.** The amount of data required for a multi-year base-line can be very resource intensive. Partnership Programs with limited staff, resources and time may find it easier to collect and analyze data for a one-year baseline.
- 2. If the data collected in previous years no longer apply to existing or future performance standards.** If during the last few years participants have changed the way they measure performance (e.g. hazardous waster generation) then, it will be difficult to compare data for multiple years. In this case, selecting a one year baseline after the new measurement protocol has changed is most appropriate.
- 3. If external factors that influence program performance are relatively steady.** If you are dealing with an industry or companies where productivity or economic activity are relatively steady over time

(i.e., there are no sudden changes in productivity or performance), a one year baseline is appropriate, because it shows normal productivity.

A multi-year baseline is appropriate if (1) there are a small number of participants in the program; (2) if the data for one year are spotty; or (3) if external factors are not steady over time (i.e., they vary from year to year).

Examples of programs that use one-year baselines include, WasteWise, Federal Electronic Challenge, and Hospitals for a Healthy Environment (H2E). They all ask partners to report baseline data at the outset of the program. Later, they report annual data and are able to show impacts/results of participation in the program.

Collect the Baseline Data

You can collect baseline data in three ways:

- **From an existing source.** You can collect the information from a readily available source such as a public database or company reports. A surprising amount of data is collected on thousands of topics and the key is often simply knowing where to look and being persistent.
- **From target decisionmakers.** You can ask target decisionmakers to provide the information you need, but be aware that this request puts extra burden on them and not all will be comfortable responding.
- **From a statistically valid sample of target decisionmakers.** You can collect the data from a smaller but statistically significant portion of the participants and extrapolate their data to get your baseline.

Exercise 3 helps you define and select **performance measures** that consider both current conditions and expectations of future change.

Exercise 3: Developing Performance Measures

GOAL: Apply the concepts of developing performance measures to your Program.

INSTRUCTIONS:

1. Review the logic model developed for your Program, in particular your short-term, intermediate, and long-term outcomes. These will help you begin to think about how to measure in order to show environmental results.
2. Develop Measures. For each measure, ask:
 - Does the measure clearly relate to the program goal and objective?
 - Is the measure important to management and stakeholders?
 - Is it possible to collect accurate and reliable data for the measure?
 - Taken together, do the measures accurately reflect the key results of the program, activity, or service?
 - Is there more than one measure for each goal or objective?
 - Will the measure be useful in the OMB PART analysis?

Is each measure...	If so, then it is...
<input type="checkbox"/> Linked to an objective	Directly related to clearly stated objectives for your program.
<input type="checkbox"/> Related to future action	Matched to specific organizational units and people who are responsible for and capable of taking action to improve performance.
<input type="checkbox"/> Organizationally acceptable	Valued by all levels in the organization, used as a management tool, and viewed as being "owned" by those accountable for performance.
<input type="checkbox"/> Comprehensive	Inclusive of all relevant aspects of the program performances; e.g. measuring quality and quantity.
<input type="checkbox"/> Credible	Based on accurate and reliable data sources and methods, and to the extent possible, not open to manipulation or distortion.
<input type="checkbox"/> Cost-effective	Money-saving in terms of data collection, processing, and reporting.
<input type="checkbox"/> Compatible	Integrated with existing information systems.
<input type="checkbox"/> Comparable with other data	Useful in making comparisons; e.g. performance can be compared from period to period, with peers, or to other programs.
<input type="checkbox"/> Easy to interpret and report	Easy to present and explain graphically.

4. Develop measures using the chart below and the example on page 14.

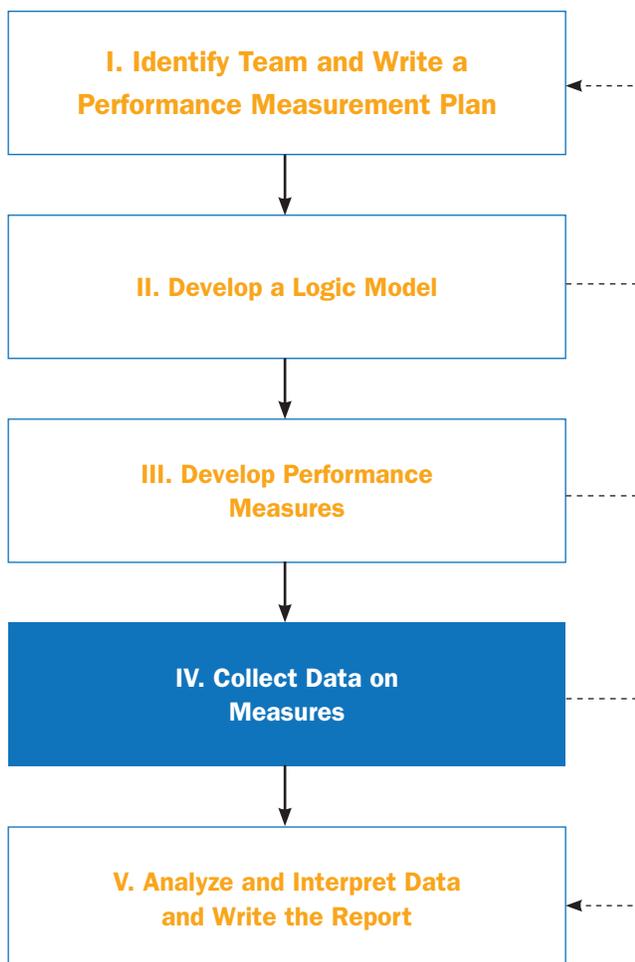
Program Goal:						
	Resources/ Inputs	Activity Measures		Behavioral Change Measures		Outcome Measures Long-Term Outcomes
		Activities/ Outputs	Customer/Target Decisionmaker	Short term Outcomes	Intermediate Outcomes	
Performance Measurement Questions (what you want to know)						
Performance Measure						

External Influences:

5. Collect Baseline Data on the measures you have selected

Chapter 6:

Collect Data on Measures



Collect Performance Data

You will need to collect data for each of your performance measures. Data shows how your program is achieving environmental results.

1. Collect different kinds of data. You can collect two types of performance data: **qualitative data** and **quantitative data**. Both have different uses:

- Use qualitative data when you want anecdotes or in-depth information, are not sure what you want to measure, or there is no need to quantify the information. Observations, interviews, document reviews, focus groups, and the like typically give you qualitative data.
- Use quantitative data when you want to do statistical analysis, want to be precise, know exactly what you want to measure and want to cover a large group. Data from reports, tests, surveys, or existing databases provide quantitative data.

2. Use a variety of sources for data. You will probably need data from a variety of sources to answer all of your **performance**

measurement questions and to strengthen your findings. Wherever, high quality, reliable data already exists, use it. The table called, Data Collection Methods, on page 22 describes a range of different methods you can use to collect data as well as the advantages and challenges of each.

Official data that may be appropriate for you to collect and use include:

- Agency and administrative records.
- Mandated reports.
- Management information systems.
- Permits issued and permits revoked.
- Grants and program reports.
- Financial, performance, and compliance audits.
- Performance Information collected for others, like trade associations.

Other types of inquiry to consider:

- Direct observations.
- Surveys and customer response cards.
- Production records and inventories.
- Activity and case logs.
- Claims processing systems.
- Incident reports.
- Time, attendance, and salary reports.

3. Use data collected by others. Keep in mind that you can save time and resources by using data collected by others for other purposes. For example, trade associations collect a great deal of data about members. By using pre-existing resources you avoid having to develop collection methods to ensure the quality of your data. However, be aware of how the data is collected and that

how the organizations collecting the data may define terms differently than you do. This can affect data quality.

4. Use appropriate methods to collect data. The table on page 22 shows a range of different data collection methods. It explains the purpose of the method and the challenges and advantages of using that method of collecting data.

5. Limit the burden on program participants as you collect data. Always balance getting good enough data to show results while not overburdening the partners from whom you would get the data. Though you need good quality data, the requirements can't be too onerous. Always remember that the burden of data collection could be a disincentive for people participating in your program, thus reducing your positive results.

6. Protect program participants' confidentiality. Also, be sure to consider business confidentiality concerns for data collected. You need to protect the confidentiality of participants' information in order to alleviate any concerns they may have about loss of competitive advantage. Review the requirements of the Freedom of Information Act as it relates to confidential business information.

7. Practice quality control. Be sure to check the data you collect. WasteWise, for example, quality checks all partner-supplied reports by: (1) verifying any large numbers (more than 1 million pounds) reported; (2) verifying that all numbers are for domestic facilities; (3) comparing figures with previ-

ously reported figures (to see if there was a dramatic change and if the dramatic change can be explained).

8. Normalization of the Data. In addition to looking at the quality of the data you may also need to normalize the data. Normalization is a tool to account for external factors that might influence program results/impacts. **Normalization** is a tool to account for external factors that might influence program results/impacts such as changes in target population, or changes in production or efficiency. This tool helps you acknowledge and account for the affect external factors have on the ability of your program to achieve its goals.

9. Information collection requests (ICR).

Every federal agency must obtain approval from the Office of Management and Budget before collecting the same or similar information from 10 or more target decisionmakers. An **Information Collection Request:**

- Describes the information to be collected.
- Gives the reason the information is needed.
- Estimates the time and cost for the public to answer the request.

For more information on ICR and the ICR process please visit <http://intranet.epa.gov/icrintra>.

The table on the following page contains several examples of data collection methods. Additional resources on data collection can also be found in Appendix D, and Exercise 4 helps you develop a data collection plan that relates back to each of your performance measures.

Data Collection Methods

Method	Overall Purpose	Advantages	Challenges
Monitoring Data	When you want to assess degree to which environmental impacts are occurring	<ul style="list-style-type: none"> • Yields good accountability and impact data 	<ul style="list-style-type: none"> • Takes time to see results • Often beyond control of the Agency • Variability in application of process • Different monitoring standards for acceptable levels of performance
Questionnaires, Surveys, and Checklists	When you need to quickly and/or easily get lots of information from people in a non-threatening way	<ul style="list-style-type: none"> • Can complete anonymously • Can administer inexpensively and to many people • Is easy to compare and analyze • Can get lots of data • Can use preexisting sample questionnaires 	<ul style="list-style-type: none"> • May not get careful feedback • Wording can bias client's responses • Are impersonal • In surveys, may need sampling expert • Doesn't get full story • May need an Information Collection Request (ICR)
Interviews	When you want to fully understand someone's impressions or experiences, or learn more about their answers to questionnaires	<ul style="list-style-type: none"> • Can get full range and depth of information • Can develop a relationship with client • Can be flexible with client 	<ul style="list-style-type: none"> • Can take a lot of time • Can be hard to analyze and compare • Can be costly • Interviewer can bias client's responses
Documentation Reviews	When you want impressions of how the program operates without interrupting the program You may review applications, finances, memos, minutes, etc.	<ul style="list-style-type: none"> • Can get comprehensive and historical information • Doesn't interrupt program or client's routine in program • Can use preexisting information • Minimizes biased information 	<ul style="list-style-type: none"> • Often takes too much time • Info may be incomplete • Need to be quite clear about what you're looking for • Not a flexible means to get data • Data is restricted to what already exists
Observation	When you want to gather accurate information about how a program actually operates, particularly about processes	<ul style="list-style-type: none"> • Can observe operations as they occur • Can adapt to events as they occur 	<ul style="list-style-type: none"> • Can be difficult to interpret observed behaviors • Can be complex to categorize observations • Can influence behaviors of program participants • Can be expensive
Focus Groups	When you want to explore a topic in-depth through group discussion, e.g., about reactions to an experience or suggestion, understanding common complaints, etc. Useful in evaluation and marketing	<ul style="list-style-type: none"> • Can quickly and reliably get common impressions • Can be an efficient way to get a range and depth of information in a short time • Can convey key information about programs 	<ul style="list-style-type: none"> • Can be hard to analyze responses • Need good facilitator for safety and closure • Difficult to schedule six to eight people together • May not provide appropriate quantitative data to measure performance of your program
Case Studies	When you want to fully understand or depict a client's experiences in a program, and conduct a comprehensive examination through a cross comparison of cases	<ul style="list-style-type: none"> • Can get a full depiction of a client's experience in program input, process, and results • Provides a powerful means to portray the program to outsiders 	<ul style="list-style-type: none"> • Usually quite time consuming to collect, organize, and describe • Represents depth of information, rather than breadth • May not provide appropriate quantitative data to measure performance of your program

Exercise 4: Collecting Performance Data

GOAL: Connect data collection to the logic model and to the underlying assumptions of the program.

INSTRUCTIONS:

1. Review your logic model and the measures you have chosen.
2. Use the table below to identify data collection methods for your baseline and each of your measures.

	What methods will you use to collect this data?	What sources will you use for this data?	What concerns do you have about using this method?
Baseline			
Performance Measure 1			
Performance Measure 2			
Performance Measure 3			

Chapter 7:

Analyze and Interpret Data & Write the Report

Analyze the Data

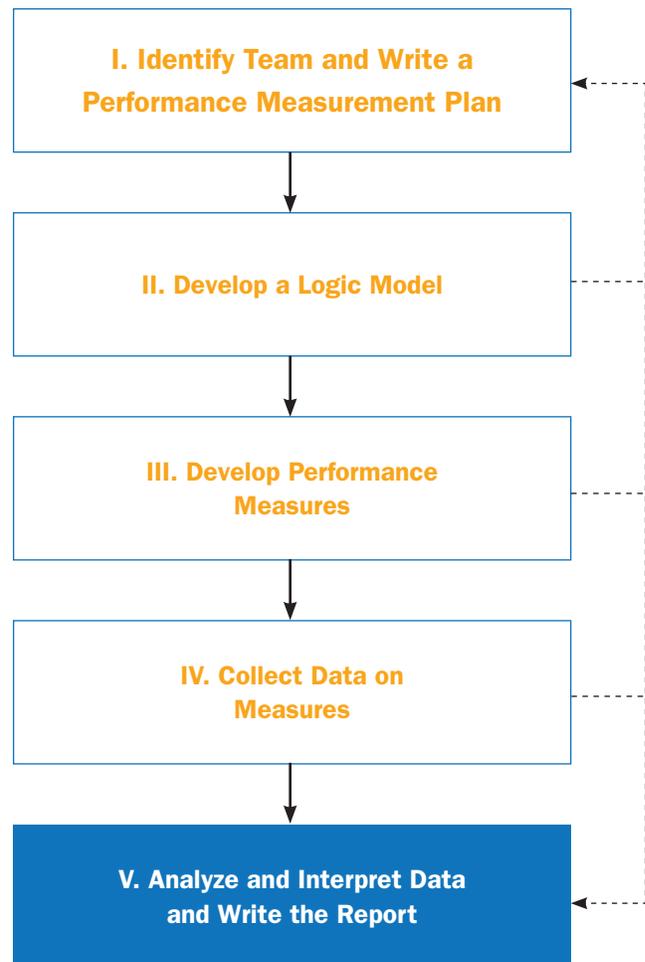
Before you can present performance data to stakeholders, EPA management, policymakers, or other stakeholders, you and your team must analyze and interpret the data in order to make it meaningful. Analysis involves comparing and interpreting the raw data you receive from participants, so that you can show your audience what the program has achieved. Although analysis comes at the end of the process, think about the type of analysis you need to do as you develop the measures.

Analyzing Quantitative Data

Generally, the data collected from participants is in a very raw form when received. In order to make meaningful comparisons you will probably need to do some basic analysis. Descriptive statistics are the most common way of analyzing data. These include:

Frequency Distribution. A count or tally of the number of responses that fit into a certain category.

Proportions - Percent Change. Shows changes in a value over time, particularly useful when comparing data from pre-tests and posts-tests.



Measures of Central Tendency. A way of summarizing a larger data set of data. These measures include:

- Mean – the average value of the data.
- Median – the value that has half the values above it and the other half below it.
- Mode – the most common value in the data, or the value that appears most frequently.

Measures of Variability. A measure of variability tells you how much the data values differ from one another. These measures include:

- Range – the difference between the largest and the smallest value.
- Variance – measures the extent to which the value in the data differ from the mean value. Larger variances indicate the data are more dispersed.
- Standard deviation – is the square root of the variance which measures how values are spread around the mean. The more variation there is in a data set, the larger its standard deviation.

Analyzing Qualitative Data

Qualitative data is generally not numerical, so you need to do some additional analysis before using descriptive statistics. Look for common, recurring patterns and themes, ideas, words or phrases in the data (e.g. on a survey respondents answered they were “highly satisfied” with the program). Once you determine the common responses either assign them a number or a category (e.g. “highly satisfied” gets a rank of 5 each time it appears, “highly dissatisfied” gets a rank of 0). Be sure to explain any holes in the data or any assumptions you make.

See Appendix D for resources on analyzing data and using the statistical techniques described in this section.

Finding Trends

Once you have analyzed the raw data you need to compare it to your baseline. This will allow you to determine how your program is doing toward achieving its goals. There are many different ways you can show trends and results. Some of the most common are:

- **Trends over time.** Compare several years of data and look for trends (e.g. increase or decrease in construction and demolition (C&D) recycling rates in 2004, 2005 and 2006).
- **Actual performance against targets.** Compare the data collected against a set program goal (e.g. actual C&D recycling rates compared to recycling target of 1.5 million tons per year).
- **Variation across units (internal benchmarking).** Compare the data from program participants with those of non-program participants in the same area (e.g. compare C&D recycling rates for those in the program with other state C&D recyclers not participating).
- **Against benchmarks (external benchmarking).** Compare the data from program participants with similar companies/organizations in other geographic areas. (e.g. compare of C&D recycling rates of Region 2 states to Regions 1, 3 – 10).

Use multiple sources of data to strengthen your findings. For example, you can combine anecdotal information from case studies or focus

groups to support general quantitative findings from reports or administrative records.

Report Results

As discussed in earlier sections, there are potentially multiple uses and audience groups for performance results information. Performance data might be packaged in different ways depending on the audience. Once you have completed the data analysis, the next step is to report your accomplishments to stakeholders (as identified in the planning stages).

Carefully consider the format you will use to present your data. Think about the level of understanding of the audience, the type of data, and how the information will be used. For example, the general public may easily understand simple tables, graphs and pie charts. More complicated diagrams, plots etc. may be more appropriate for individuals with an analytical background. Know your audience and what level of information they need and can easily understand.

In reporting your data it is important to state any assumptions clearly. For example, if you are extrapolating results to your whole membership based on a smaller sample of partners, you should let readers know. In addition, consider any OMB requirements you might have received in your ICR approval. Via the ICR, OMB may have approved only certain uses of data (e.g., making program improvements, but not external publication). You might consider the following ideas for promoting results:

- **An annual report that describes program successes.** Within this report you can discuss major activities conducted by the

program and partners, program accomplishments, including environmental outcomes, and feature top reporting partners. Partners want recognition for their activities and a profile in an annual report is an excellent opportunity to provide some recognition.

- **PART responses.** As mentioned in the introduction, Performance Measurement data can also be used in assisting you in responding to PART. Appendix B contains a full list of PART questions.
- **Recruiting tools.** If you've collected data on partner successes, such as cost savings and environmental outcomes, you can use this information in recruitment materials for new partners. While "target decisionmakers" might only be mildly interested in overall program results, they might be very interested in potential cost savings associated with participation in the program.
- **Case studies.** Existing (and perhaps potential) partners might be very interested in learning more about successful strategies employed by other partners in the program. For example, if performance measurement data indicates that one participating partner reports a cost savings of \$100,000 in paper costs by switching to online phone books, other partners might be interested in learning more details. A case study could spur other partners to follow suit.

In addition to external promotion, consider how you can use the results of measurement activities to improve service delivery or future evaluation efforts. For example, if partners suggested ways to improve services, dedicate time at future meetings to discuss feasibility of these suggestions. While partners often don't

mind providing feedback, they might become frustrated if they do not see their suggestions implemented.

Finally, if you will be collecting data on an annual basis, consider what worked well and what could be improved in future data collection efforts. If surveying partners, you might consider response rate to surveys/reporting forms, data quality problems encountered, areas where partners seemed to misunderstand forms or survey questions, and timing issues (e.g., partners complaining that the deadline established competed with other deadlines that many partners must meet). Recording these issues can assist you in planning efforts in future years so that mistakes are not repeated.

Be sure to send a copy of your report to the Partnership Programs Workgroup.

Develop a Performance Measurement Report

Your final step is to develop a report that presents your data.

- 1. Plan your report.** Consider the report's purpose, deadline, content, format, and cost.
- 2. Define who the report is for and what you want them to do with it.** The who and what will help you make decisions about what to include and what to leave out. For example, a report for EPA management will emphasize different information than a report to target decisionmakers.

Exercise 5 helps you write your performance measurement report.

3. Write a clear, action-oriented report.

Include an executive summary, background on the program, methodology behind the program, the program findings, conclusions, recommendations, and lessons learned.

- 4. Use graphics to show results.** Use tables, charts, graphs, and illustrations, to help your audience “see” the results clearly.

Once you have completed your report, send it to the Partnership Programs Workgroup to help them compile Partnership Program progress reports.

Exercise 5 will guide you through analyzing your data and writing your report.

Exercise 5: Writing Your Report

Purpose: Analyze the data and then present it in a clear, action-oriented report.

1. Analyze the data you have collected.
2. Put data into a graphical format including tables, graphs, charts, and illustrations. Make sure that these graphical displays demonstrate the change over time.
3. Plan your report by identifying the following:
 - Purpose
 - Content
 - Format
 - Estimated Cost
 - Deadline
4. Identify who you will be writing the report for and what you want them to do with it. Use the who and what to help you select details appropriately for them.

Who are you writing the report for?	What do you want them to do with it?	Important details to include for this audience

5. Does your report include the following elements?

- Executive summary
- Background on the program
- Methodology behind the program
- Program findings
- Conclusions
- Recommendations
- Lessons learned

Appendices

- Appendix A: Glossary
- Appendix B: Performance Assessment Rating Tool (PART) Questions on Performance Measurement
- Appendix C: Example Logic Model
- Appendix D: Additional Resources
- Appendix E: Example Performance Measures
- Appendix F: Sample Performance Measurement Plan

Appendix A: Glossary

Activities—The things that you do to conduct a Partnership Program. Activities can include: a program Web site or brochures, trainings offered by program staff, or establishing the necessary relationships with partners to ensure program success.

Baseline Data—Information or data that provide a frame of reference for the change that you want the Partnership Program to initiate. These data represent the current state of the environment, community, or sector before your program begins.

Evaluation—While program evaluation can take many forms, it is generally described as an individual, systematic study that uses objective measurement and analysis to answer specific questions about how well a program is working to achieve its outcomes and why.

ICR—Information Collection Request—A set of documents that describe reporting, record keeping, survey, or other information collection requirements imposed on the public by the Environmental Protection Agency. Each request must be sent to and approved by the Office of Management and Budget before a collection begins. The ICR provides an overview of the collection, and estimates the cost and time for the public to respond. The public may view an ICR and submit comments on the ICR at any time.

Indicator—Measures, usually quantitative, that provide information on program performance and evidence of a change in the “state or condition” in the system.

Logic Model—A diagram with text that describes and illustrates the causal relationships among program elements and the problem to solve, thus defining measurement of success. Essentially, a logic model visually represents how your Partnership Program accomplishes its goals.

Normalization—Organizing data so that they remain relevant and meaningful in describing the effects of a Partnership Program despite changes that may occur in the process or practices used. It allows you to compare data collected from different sources at different times.

Outcomes—Accomplishments of program objectives that are attributable to program outputs (e.g. pounds of pollutants reduced; miles of beaches cleaned). Includes:

- **Short-term Outcomes**—Changes in learning, knowledge, attitude, and skills. Example: Facilities learn about the benefits of Environmental Management Systems (EMS) as a direct result of training.
- **Intermediate Outcomes**—Changes in behavior, practice, or decisions. Example: Facility implements EMS and identifies three process improvements.
- **Long-term Outcomes**—Changes in condition. Example: Facility decreases wastewater discharge by 20 percent and increases hazardous waste generation by 10 percent.

Outputs—Products and services provided as a direct result of program activities (e.g., number of technical assistance requests responded to; number of partnership agreements signed).

Performance Measurement—The ongoing monitoring and reporting of the program progress and accomplishments, using pre-selected performance measures.

Performance Measures—A metric used to gauge program or project performance.

Program Evaluation—The systematic process of collecting and analyzing data to determine whether and to what degree objectives have been or are being achieved and why changes have (or have not) occurred. Program Evaluation is one step beyond Performance Measurement because it investigates not only what changes have taken place, but why.

Resources—Programmatic investments available to support Partnership Programs. Examples include FTE, support staff, extramural funding, grants, outside consultants, and equipment.

Target Decisionmakers—Your target decisionmakers are the “doers” who will help your program achieve success. For example, if you wanted to work with the people manufacturing pharmaceuticals, you may decide to target the vice presidents of manufacturing at the Fortune 500’s most profitable pharmaceutical firms. For more information please see the Guidelines for Designing EPA Partnership Programs.

Value Proposition—The “deal” your program is offering to target decisionmakers—the action steps that you are asking them to take and what they’ll get in return for taking those steps. The best value propositions solve important problems experienced and perceived by decisionmakers (e.g. gaining access to new markets, cutting rising energy bills, or improving supply

chain efficiencies). For more information, see the *Guidelines for Designing EPA Partnership Programs*.

Partnership Programs—Programs that motivate people and organizations to take actions that improve the environment and public health. They focus on convincing decisionmakers to take environmentally significant actions in non-regulatory ways.

Qualitative Data— Qualitative data is data describing the attributes or properties that an object possesses. It is information that is difficult to measure, count, or express in numerical terms and is typically uses observation, interviewing, and document review to collect data.

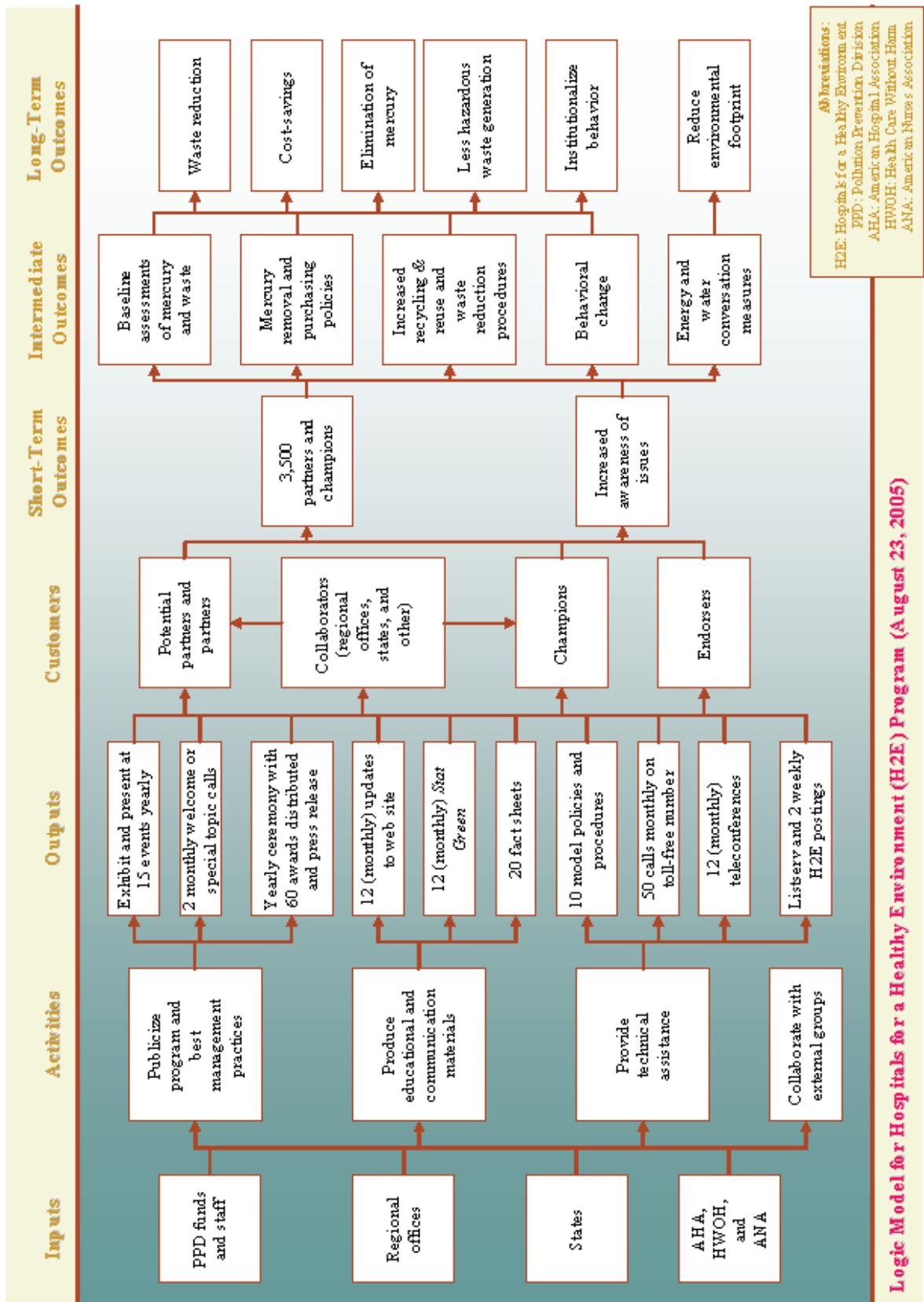
Quantitative Data— Quantitative data is data expressing a certain quantity, amount or range. Usually, there is measurement units associated with the data, e.g. meters, in the case of the height of a person.

Appendix B: PART Questions on Performance Measurement

This appendix includes the PART questions that pertain to efforts to measure the results of Partnership Programs. Therefore, it is a selected list of PART questions, but not the whole list.

1. Is the program design free of major flaws that would limit the program's effectiveness or efficiency?
2. Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly?
3. Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program?
4. Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the programs' long-term goals?
5. Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?
6. Has the program demonstrated adequate progress in achieving its long-term performance goals?
7. Does the program achieve its annual performance goals?
8. Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?
9. Does the performance of this program compare favorably to other programs including government, private, etc., with similar purposes and goals?

Appendix C: Example Logic Model



Appendix D: Additional Resources

Publications

2002 User-Friendly Handbook for Project Evaluation—The National Science Foundation

Taking Stock: A practical guide to evaluating your own programs—Horizon Research Inc.

Measuring Performance in Public and Nonprofit Organizations—Theodore H. Poister, 2003

W. K. Kellogg Foundation Logic Model Development Guide—www.wkkf.org

“Measuring progress: program evaluation of environmental policies” — Lori Snyder Brennear and Cary Coglianesi (March 2005 Volume 47 Number 2 of *Environment Journal* pages 22 to 39.)

Web Sites

Performance Assessment Rating Tool. 2006. Office of Budget and Management
<<http://www.whitehouse.gov/omb/part/>>

Evaluation of Environmental Programs. 2005. U.S. Environmental Protection Agency
<<http://www.epa.gov/evaluate>>

Others

This OECA guide contains useful information on surveys and responses: <http://www.epa.gov/compliance/resources/publications/assistance/measures/comeasuring.pdf>

The Climate Change Program has developed WARM (Waste Reduction Model) to assist programs in translating Partnership Program results into greenhouse gas reduction equivalents. WARM calculates GHG emissions for baseline and alternative waste management practices, including source reduction, recycling, combustion, composting, and landfilling. If you have data on changes in waste management behavior, you can enter these data into WARM and convert the figures to GHG reductions. For more information see: <<http://yosemite.epa.gov/oar/global-warming.nsf/content/ActionsWasteWARMUsersGuide.html>>.

The Office of Solid Waste and Emergency Response (OSWER) is developing the Federal Electronics Challenge (FEC) Calculator to assist institutional purchasers in measuring the environmental and economic benefits of purchasing environmentally preferable products, in addition to improvements in equipment operation and end-of-life management practices. For more information see: <<http://www.federalelectronic-challenge.net/tools/enbencalc.pdf>>.

Appendix E: Example Performance Measures

Suggested Performance Measures²

The measures listed in this table are meant to serve as examples which would be applicable to most partnership programs. It is possible that your program may identify other measures that are necessary to show program performance. In addition the definitions provided are an attempt to clarify what we mean by each type of metric they are not absolute and will need to be defined specifically by each program.

Level 1: Activity Measures

Metric	Definition	Unit of Measure
Trainings, Workshops, Meetings, and Conferences	Planned event drawing attendance from multiple participants and designed to disseminate program information.	Number of attendees
Site Visits	A visit made by a program representative to participants, either at client request or program solicitation.	1) Number of visits 2) Site visit hours
Brief Assistance	A reply to any electronic or personal inquiry providing relevant program information.	Number of responses
Program Information Developed	Any publication, paper or electronic, including but not limited to a handout, presentation, fact sheet, case study, pamphlet, manual, video tape, slide show, CD-ROM, Web page or computer program etc., specifically designed and disseminated to inform participants about program opportunities.	Number of unique documents developed
Program Information Distributed	Any publication, paper or electronic, including but not limited to a handout, presentation, fact sheet, case study, pamphlet, manual, video tape, slide show, CD-ROM, Web page or computer program etc., designed and disseminated to inform participants about program opportunities.	Number of documents distributed
Grants Awarded	Any grant awarded, by a program or agency, to small businesses and others to support program activities.	1) Number of grants awarded 2) Total amount of grant, including match
Web Visitors to Online Information	A visit to the program Web site whose purpose is to disseminate information. These visits are most commonly tracked as "page impressions."	1) User sessions 2) Page views (page impressions)
Award programs	Any program implemented with the stated goal of regularly providing recognition for successfully meeting program goals.	Number of applications
Leadership programs	Any leadership program. Any program implemented with the stated goal of regularly providing recognition for environmental leadership activities.	Number of participants

² Adapted from performance measures developed by the P2 Results Task Force facilitated by the National Pollution Prevention Roundtable (NPPR) and eight regional Pollution Prevention Resource Exchange (P2RX) centers, with funding from the EPA Office of Pollution Prevention and Toxics. For more information see: <http://www.p2.org/workgroup/DataDictionary.cfm>

Level 2: Behavioral Change Outcomes

Metric	Definition	Unit of measure
Participants Reporting Adoption of program goals	Any program goal adopted by a client.	Number of participants
Participants have Developed a program implementation Team	Any participant creating a group whose stated purpose is to perpetually seek ways to reduce pollution.	Number of participants
Participants reporting that they implemented program elements	Any implementation of program elements by a participant.	1) Number of participants 2) Number of elements implemented
Participants reporting increased awareness and understanding of program opportunities	Any improvement by a participant in comprehension and knowledge of pollution reduction opportunities as a result of one of your activities.	Number of participants

Level 3: Outcome Measures

Metric	Definition	Unit of Measure
Reduced Operating Costs	Financial savings derived from implementing a program activity. (including materials, labor, energy, machinery, administrative, waste management, or other process costs).	Dollars
Non-hazardous Materials Generated	Supplies and feed stocks that are not toxic or hazardous used in processes. Examples include packaging, building materials, aqueous cleaners, etc.	Pounds
Hazardous Materials Generated	Supplies and feed stocks that are toxic or hazardous used in processes. Examples include chemicals, solvents, pesticides, etc.	Pounds
Hazardous Wastes Generated	State and/or federally listed hazardous or toxic wastes or wastes meeting the criteria for ignitability, toxicity, corrosivity or reactivity.	Pounds

Metric	Definition	Unit of Measure
Air Emissions (includes mobile sources)	<p>The release of any of the following:</p> <p>Toxic air emissions (includes CAA 112b HAP,TRI, and others)</p> <p>VOCs (carbon-based compounds that are photo-chemically reactive (may be some double counting of HAP within VOC))</p> <p>Nitrogen Oxides</p> <p>Sulfur Oxides</p> <p>Carbon Dioxide</p> <p>PM</p> <p>Other air emissions not included above</p>	Pounds
Solid Waste Generated	Wastes other than RCRA hazardous wastes.	Pounds
Energy Use	Energy is any source providing usable power.	Therms, kilowatt hours, or MMBTUs
Green Energy Generated or Purchased	Energy produced from renewable sources such as solar, wind, geothermal, low-impact hydro, and biomass.	Therms, kilowatt hours, or MMBTUs
Water Use	Incoming raw water, from outside sources, for operations, facility use and grounds maintenance.	Gallons
Water Pollution Generated (includes point sources, nonpoint sources, and stormwater)	Quantity of pollutant discharged (for example, BOD, COD, toxics, nutrients, TSS, contaminants in stormwater and pathogens. Includes discharges to sewer systems, septic systems, injection wells, ground water, etc.).	Pounds

Examples of Other Types of Measures

Category	Definition	Examples
Efficiency	The ratio of the amount of input to the amount of output. Focus is on operating efficiency. Relating output to some specific resources in terms of cost and time.	Cost per workbook; cost per technical assistance visit
Productivity	Measure of the rate of production per some specific unit of resource (e.g., staff or employee). The focus is on labor productivity.	Number
Cost Effectiveness	Measure that relates outcomes to costs.	Cost per pounds of pollutants reduced cost per mile of beach cleaned
Service Quality	Measure of the quality of products and services produced.	% of technical assistance requests responded to within one week.

Appendix F: Sample Performance Measurement Plan

The program described below is a hypothetical program used to give an example of what a performance measurement plan might look like.

1. Describe your program's *mission*.

- The purpose of this program is to teach facility managers to make chemical substitutions and reduce the amount of hazardous waste at their facilities.

2. Describe your programs primary stakeholders both internal and external (target decisionmaker, trade association, key environmental NGO, EPA management, etc.).

- The facility manager at participating companies.
- Environmental, Health and Safety people at a facility.
- EPA management chain.

3. Describe the purpose of your performance measurement system—e.g. how you plan to use the results.

- Results will be used to show if chemical emissions change and if company operating costs are reduced.
- Results will also be used to prove we are achieving environmental results and justify the existence of the program to EPA management.

4. Describe the context (organizational, management, political) in which you are developing your performance measurement system? Is the culture supportive or resistant to performance measurement? Is this a first attempt at measurement?

- Facilities will likely be somewhat resistance at first to our collecting data. We intend to try to use existing reporting requirements to get the data we need.
- We will work with program stakeholders to determine what data they are willing to provide and identify other ways to get alternative data.
- We will collect activity and output data.
- There are very few resources currently available to develop measures.

5. Describe the roles for program staff, participants, and key stakeholders in the

performance measurement system. Who will be responsible for collecting, analyzing and reporting the performance measurement information? Will this be done in-house or by a contractor?

- Performance measurement data will be reported by participants based on discussions in stakeholder groups.
- We will use some contractor support to help develop surveys and possibly analyze data.
- The performance report will be developed by program staff.

6. Describe the resources (staff and budget) you have for performance measurement.

- **Staff:** 1 FTE and a volunteer stakeholder workgroup.
- **Expertise:** Minimal contractor resources are available to help where needed.
- **Budget:** A very small budget is available.
- **Information:** Yes, there is an existing database that tracks this information on what chemicals are being used. A database will also be set up to track activities and output information.
- **Timeline:** In the next 6 months.