



Flexible Framework for Measurement of EPA's Community-Based Initiatives

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TABLE OF CONTENTS

Preface and Acknowledgements.....	1
Introduction.....	2
Document Purpose.....	2
Intended Audience.....	2
How to Use this Document	3
Framework Roadmap	3
Characteristics of Good Measurement.....	5
Basic Steps in the Measurement Process	7
Developing a Logic Model	8
Planning For Measurement.....	11
What Data Will be Collected to Support the Measures	11
Who Will Collect the Data	12
How the Data Will be Collected.....	12
How the Data Will be Analyzed.....	15
How the Data Will be Stored/Managed.....	15
Frequency of Reporting/Collection	16
How the Data Will be Communicated to Facilitate Use	16
Information Collection Requests	17
Establishing a Baseline or Comparison	18
Field Testing	19
Resource Requirements.....	19
Storytelling	19
Partnerships	21
Overview	21
Measuring Partnership Health	21
Leveraging Resources	27
Overview	27
Measuring Leveraging Resources.....	27
Education and Training.....	30
Overview	30
Measuring Education and Training	30
Capacity Building.....	33

Overview	33
Measuring Capacity Building	33
Customer Satisfaction.....	36
Overview	36
Measuring Customer Satisfaction.....	36
Environmental Outcomes	40
Overview	40
Measuring Environmental Outcomes	40
Economic and Quality of Life Outcomes.....	45
Overview	45
Measuring Economic and Quality of Life Outcomes	45
Additional Resources	48
Program Evaluation and Measurement.....	48
Data Visualization.....	48
Social Network Analysis	49

PREFACE AND ACKNOWLEDGEMENTS

In 2012 EPA's Evaluation Support Division (ESD), located within the Office of Policy, developed a draft *Flexible Framework for Measurement of EPA's Community-Based Initiatives* with contractual support from Industrial Economics, Incorporated (IEc) and in consultation with a cross-agency team (OW, OCFO, Region 2, Region 7, Region 8) and staff involved in EPA's community-based work.

To create the 2012 framework, IEc reviewed publicly-available information on performance measurement for EPA's community-based work and conducted interviews with representatives from nine community-based initiatives. The interviews focused on identifying approaches that the Agency was taking towards measurement and evaluation; specific problems that staff commonly encounter while developing measurement approaches; and lessons learned from previous activities that may be applicable to initiatives still developing their long-term measurement and evaluation approach. Following this research stage, IEc developed an outline of the measurement framework and draft measurement tables. EPA stakeholders provided feedback on these drafts and IEc incorporated this feedback to develop the 2012 framework document.

In 2015, EPA's Making a Visible Difference in Communities cross-agency strategy which provided focused support to approximately 50 over-burdened and under-served communities, prompted renewed interest in the framework within EPA's Office of Policy (OP). EPA contracted with IEc to revise and update the framework to add additional guidance and include recent examples of measurement activities related to EPA's community-based work. IEc's and EPA's efforts resulted in this 2016 *Flexible Framework for Measurement of EPA's Community-Based Initiatives* guidance document.

This document adopts or adapts language from previously developed ESD measurement resources including the training *Logic Modeling, Performance Measurement, and Program Evaluation: A Primer for Managers* and *Guidelines for Measuring the Performance of Partnership Programs*. ESD and OP wish to thank all who assisted in this effort.

INTRODUCTION

EPA administers many programs through which the Agency works in partnership with community organizations to improve the health of local communities and minimize communities' environmental impacts. EPA's portfolio of community-based work is characterized by a significant level of involvement at the community level, with many activities directly implemented by community groups or local governments. Community-based initiatives are often defined by a particular place (e.g., specific geography or political jurisdiction) and sometimes by a specific demography as well (e.g., a specific Tribe). Some examples of EPA's past, and present community-based work includes the Brownfields program, Community Action for a Renewed Environment (CARE), Community-Based Environmental Protection (CBEP), Climate Showcase Communities, Indian Environmental General Assistance Program (GAP), Environmental Justice Showcase Communities, Making a Visible Difference in Communities (MVD), Superfund Jobs Training, and Office of Sustainable Communities technical assistance programs.

When an organization or multiple organizations have programs with similar goals, it is useful to establish a common vernacular for measurement to take advantage of learning that can occur across programs. The measures tables that comprise the heart of this framework, establish a common set of measures for EPA community-based programs and initiatives. The tables also provide examples of how EPA community-based initiatives have customized or added detail to these basic measures to meet their needs.

Document Purpose

This technical document was developed for use by EPA managers and staff supporting Agency community-based programs and initiatives, as well as their measurement and evaluation contractors. Overall this document is intended to support EPA efforts to measure the performance of community-based work.

Intended Audience

The intended audience for this framework includes:

- **Decision-makers** – executives tasked with setting strategic direction and outlining accountability systems

- **Middle managers** – managers who need to ensure resources for practitioners are available and are held accountable for achieving targets by decision-makers
- **Practitioners** – staff delivering services to communities

How to Use this Document

For those new to measurement or those seeking to revisit or refine their measures, this document highlights the key characteristics of good measurement, outlines the basic planning required to set up a measurement system, and provides an inventory of measures as options. This document is not meant to be a complete “how to” resource for establishing a robust measurement system for your initiative. Be sure to consult other materials and experts.¹

Framework Roadmap

The first two sections of this document provide background information on the characteristics of good measurement and the measurement process, respectively. The heart of this framework is made up of short chapters covering seven topic areas of measurement common to many EPA community-based programs:

1. **Partnerships:** EPA often supports partnerships as a means of tackling complex environmental issues, including those in areas with disproportionate burdens. These measures gauge the health and long-term viability of partnerships in which EPA is investing.
2. **Leveraging Resources:** These measures gauge a program or initiative’s use of available resources to leverage additional resources, increasing the benefit of EPA’s investment.
3. **Education and Training:** These measures address training community members to become effective environmental advocates, employees, and leaders.
4. **Capacity Building:** These measures address developing the knowledge, skills, and confidence of community organizations funded by EPA, and the members served by those organizations.
5. **Customer Satisfaction:** These measures address community satisfaction with EPA’s assistance.
6. **Environmental Outcomes:** These are measurable environmental benefits associated with initiative activities.

¹ Additional resources are available at the end of this document and on EPA’s evaluation website: <https://www.epa.gov/evaluate>

- 7. **Economic and Quality of Life Outcomes:** These are measurable economic and quality of life benefits associated with initiative activities.

Each measures table is organized in the same way, in the following columns:

- **Category:** All seven measurement areas are further organized into categories of similar measures. For example, the capacity building measures categories include: empowering partners, increasing organizational capacity among partners, and improving community group physical and communication infrastructure. Each category contains between one and eight measures.
- **Potential Measures:** These are the measures suggested for EPA staff to consider. EPA suggests that staff select a small set of measures, including one or more outcome measure (see below). The measures vary in format; for example, some measures are yes/no while others are framed as a number or proportion. Staff may customize measures to meet the needs of their individual initiatives.
- **Activity, Output, or Outcome:** The framework contains a variety of activity, output, and outcome measures. See sidebar for definitions.

Activity measures refer to what EPA or the community partner does to implement the initiative.

Output measures refer to the things or products that EPA or the community partners produces or delivers.

Outcome measures refer to changes in knowledge, attitude, behavior, or condition.
- **Primary Data Collector:** Notes if EPA or the community partner would likely be in the best position to collect data on the measure.
- **Examples:** Provides examples of where the measure has been used by an EPA community-based initiative. Some of the examples in the tables may be project-specific as opposed to program-wide.

On the environmental outcomes table, each measure category is linked to the goals of EPA's Strategic Plan.

Note that throughout the framework document and tables, the term "partners" refers to the community group or organization that EPA is working with, as distinct from "community members," which refers to individuals residing in the community.

CHARACTERISTICS OF GOOD MEASUREMENT

Performance measurement is the ongoing measurement and reporting of progress and accomplishments using pre-selected measures. All EPA initiatives should develop a performance measurement approach to assess how well EPA activities address its stated goals. Measurement is critical for understanding progress for learning purposes, and for demonstrating value internally and to the public.

The following pages highlight the basic steps for establishing a measurement system for an initiative. This includes key characteristics of good measurement to consider as you select the measures you will use and as you establish your system for measuring performance.

1. Have you involved all relevant stakeholders in a collaborative and transparent process?

The measurement process should engage all relevant stakeholders at appropriate points throughout the process. You should seek to engage, in particular, your community partners to ensure that their views and practitioner experience help shape your approach. All stakeholders should see their relevance to the process and should see some relevance of the measurement process to their own work. Gaining the input and buy-in of community partners and stakeholders in the measurement effort will help ensure the quality of their data collection.

2. Are the measures valid assessments of the program elements you are most interested in tracking?

The measure chosen to assess an element of community-based programs should be a good representation of what it is conceptualized to measure. Validity in the context of measurement describes the degree to which a conceptualization of a community-based initiative element is mapped directly to the operational definition that is captured in the specific measurement. The menu of options in the flexible framework includes those measures that are most likely to be valid representations of key community indicators across situations. It is also of great importance in selecting valid measurement that an initiative's set of performance measures should directly gauge activities, outputs, and outcomes of the most relevance. This particular aspect of validity is referred as content validity and is captured in a measurement's relevance. Staff do not need to gauge the success of every outcome as long as the primary objectives are assessed. For example, land-revitalization work

should have a measure of land revitalized, and a renewable-energy initiative should have measure of renewable energy produced.

3. Are the measures reliable enough to render the same results if they were independently collected by someone else?

An initiative's measurement approach should be implemented similarly within every applicable community touched by EPA's work. Each project should collect the same types of data using the same methods. That way, project-level data can be compiled easily at the initiative level. Furthermore, replicable measurement methods can be used as a model for other EPA work seeking to measure similar activities, outputs, or outcomes.

4. Do the measures provide information on the most critical junctures to achieving end goals or on the end goals themselves?

An initiative should use a logic model or program theory as a reference point for selecting performance measures. While the logic model identifies the activities, outputs, and expected outcomes, measures quantify the extent to which these activities, outputs, and outcomes are being successfully realized. See information below on logic modeling.

5. Are the measures feasible to implement?

Some metrics may seem highly-relevant to the initiative element they attempt to quantify, but might be overly-burdensome either for community partners or EPA to collect and compile. Before finalizing any measures, EPA should formulate a measurement plan that outlines the intended methods for gathering, analyzing, and compiling measurement data (see the next section, "Planning for Measurement," for more detail). This plan should also include what information EPA will provide to external partners, as well as what information external partners will report to EPA. Additionally, EPA should check with potential community partners to verify the data collection process is feasible.

6. To what will performance be compared?

When sharing performance data, it is important to include a comparison, such as current performance compared to baseline performance (previous performance, or performance at the start of the project or upon joining the initiative), performance over time, or performance compared to a target or an established standard.

7. Is the initiative's role clear in achieving what has been measured?

The initiative may not be the sole causal agent to which outcomes may be attributed. In many cases, the EPA's work is one of multiple factors contributing to trends in natural resources conserved and pollution reduced or avoided. Where there is a

question of what specifically causes a desired outcome, EPA should carefully communicate environmental results. It is appropriate to use language such as “the initiative contributed to (X environmental outcome)” and/or to caveat the other factors that may be contributing to reported results, including other public policies/programs.

In addition to the above information, having a clear plan for how you will measure performance and use performance information is critical to ensuring that the data you need will be accessible when you need it and will be of sufficient quality to act upon. The next section discusses what to consider in planning for measurement.

Basic Steps in the Measurement Process

This section highlights key steps in the process of developing and implementing a measurement system. Be sure to consult more extensive “how to” documents as needed to help you conduct the process yourself.²

1. Identify the Team, Engage in a Logic Modeling Discussion, and Begin a Performance Measurement Plan

Identify individuals who will help you develop measures for your program. Engage the group in a discussion of the theory of program change and consider documenting a visual model that describes the elements of your community-based initiative and 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. Then, think about the audience, purpose, context, roles, and resources for your performance measurement system.

2. Develop Performance Measures and Plan for Measurement

Adopt or 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 and meet the criteria for good measurement. The goal in creating this flexible framework document is for stakeholders in community-based initiatives that work collaboratively to identify a core set of measures that may be broadly applied to programs of diverse characteristics. Plan for measurement by thinking through the data you will need to collect, who will collect it, how it will be collected, where it will be stored, how it will be analyzed, to whom it will be communicated, how it will be communicated, and how often. (See the next section on Planning for Measurement.)

² Additional resources are available at the end of this document and on EPA’s evaluation website: <https://www.epa.gov/evaluate>

3. Collect Data on Measures

Gather data for the measures that you developed. Be sure to field test your measures, data collection processes, and data storage tools before launching your full data collection. A field test can save time, money, and relationships by allowing you to test and correct the process before burdening your entire population with your first information request.

4. Analyze and Interpret Data, Communicate Results, Facilitate Use

Analyze the data you have collected to see whether you are achieving your initiative goals. Then communicate key results to others inside and outside of the agency. In communicating results, help draw attention to results that may indicate a need for follow-up action, and work with stakeholders to ensure that they have all available data and that the data are clear enough to support decision-making and action.

5. Revisit, Revise, Repeat

The steps above describe a sequential process; however, the process of performance measurement is an iterative, ongoing process. It is likely that as you continue the process, you may have to revisit and refine some of the information and processes identified in the early steps.

Developing a Logic Model

An important step to developing a successful measurement approach is to create an initiative logic model. A logic model is an illustration of how a program, initiative, or project is supposed to work; it shows the relationship between an initiative's work and its desired results. A logic model exercise is helpful to develop measures because it outlines all of an initiative's intended activities, outputs, and outcomes, which need to be well-defined to inform measurement. Although developing a full logic model is preferable, in many cases a logic table format is sufficient for helping to identify measures.

A logic model is made up of seven basic elements:

1. **Resources/Inputs:** What the initiative has to complete the work (e.g. people and funding)
2. **Activities:** What the initiative will do
3. **Outputs:** The products the initiative delivers
4. **Target Audience:** The recipients of the initiatives activities and outputs
5. **Short-term Outcomes:** Changes in the target audience's knowledge, attitude, or skills

6. **Intermediate Outcomes:** Changes in the target audience's behavior, practices, or decisions
7. **Long-term Outcomes:** Changes in the environment as a result of the initiative

The logic model describes the causal relationships among these elements to communicate how the initiative is designed to realize its goals. Logic models also document any external influences beyond the control of the EPA that could have bearing on the implementation or outcomes of the initiative. For example, external factors for community-based work may include:

- Changes in funding or personnel at EPA and/or at the community level
- The effect of state or federal policies that address the same environmental issue
- Shrinking or growing local population

The process of developing an initiative's logic model often uncovers subtle but important differences in how different staff members think about how the initiative is supposed to work. These are important conversations to have early on, and come to agreement on, as the ability to measure accomplishments is a natural outgrowth of staff consensus on specific goals, and how the initiative is supposed to achieve them.

A generic logic table for community-based initiatives is displayed on the next page. The logic table incorporates *generic examples* of the items that could be included within each of the logic model elements for an EPA community-based initiative. Actual logic models should have a far greater degree of specificity than this generic table, and should tie specific elements together in a logic chain using individual boxes and arrows. Also, actual logic models may not include all of the activities or produce all of the outputs and outcomes shown in the generic table.

COMMUNITY-BASED INITIATIVE GENERIC LOGIC MODEL

RESOURCES/ INPUTS	ACTIVITIES	OUTPUTS	TARGET AUDIENCE	SHORT-TERM OUTCOMES	INTERMEDIATE OUTCOMES	LONG-TERM OUTCOMES
EPA Staff	Provide technical assistance to community organizations	Program logic model		Growth in the number of community organizations partnering with EPA		
Potential community partners	Select grantees and administer grants	Communication with community partners such as meetings, conference calls, emails, and letters				Environmental benefits
Funding	Undertake research initiatives in partnership with community organizations	Fact sheets, guides, or other initiative materials	Community partner organizations	Community organizations increase use of materials developed through the initiative	Community organizations/ members undertake actions to address local environmental issues	Human health benefits
Institutional knowledge within EPA		Social media presence		Increased community organization/ member knowledge of local environmental issues	Community organizations/ members increase capacity to implement environmental programming	Quality of life benefits
Other potential governmental, business, or NGO partners	Conduct environmental assessment, cleanup, and planning support	Trainings	Individual community members			Local economic benefits
		Action plans		Increased technical knowledge among community organizations/ members (from job training)		Sustainability of community-led environmental programming
		Environmental Reports				
	Develop a measurement approach	Case studies of successful projects				
		Compilations of initiative accomplishments				

PLANNING FOR MEASUREMENT

While selecting your initiative performance measures and before launching full scale data collection to support the measures, it is important to carefully assess and plan for data collection, analysis, and use by considering the following.

What Data Will be Collected to Support the Measures

Staff should identify the specific data to be collected to support each measure selected. Individual measures may require similar data to be collected from different sources. For example, if the initiative selects the partnership communication measure “the number of discrete messages developed and used by others,” then the initiative may need to collect information on messages incorporated into different media, such as online outlets, print media, and radio. Also, more than one type of data may be needed to support a single measure. For example, the economic and quality of life measure “economic output per unit of energy consumption” requires both economic output data and energy use data.

As discussed earlier in this framework, EPA staff should consider data issues during measure selection, including feasibility of collecting data needed for all measures. This is a particular concern for environmental and quality of life outcome measures, for which staff should consider the availability of potential data sources and technical know-how to successfully implement the measure.

For example, if the measure is related to energy use, staff should identify if existing sources of energy use data that would support the measure, such as utility or fuel bills, building energy models, and/or GHG inventories. If these existing sources are not available at the time that a community partner joins an EPA initiative, then EPA staff should consider the feasibility of their use for reporting purposes. Typically, existing sources of data are available for energy use (and through conversion, GHGs), water use, waste minimization, and land restoration and preservation measures. Collection of new data may be necessary for tracking progress on air quality, water quality, and toxics use reduction measures (unless the toxics use of concerns is covered by the Toxics Reporting Inventory).

If new data collection is required for potential measures, then EPA staff should consider the feasibility of collecting these data, including cost and technical expertise required. If collection is not feasible, then EPA could consider a proxy for directly collecting the data for some measures. For example, some EPA community initiatives train individuals on potential impacts of climate change in their

community. EPA is often unable to assess individuals' actual knowledge gained at the end of the training. Instead a proxy measure to assess knowledge gained is "number of individuals that attended the training."

Who Will Collect the Data

The measures tables included in this guide contain a column indicating if EPA or the community partner should collect data over time. This assessment is based on likely access to the data source. For example, community organizations will generally be in the best position to collect data from community members.

You will need to determine what data collection capacity currently exists among your community partners and what capacity may need to be built. This may include putting systematic protocols in place or shaping and developing those already in place.

EPA staff will also need to determine who, specifically, will be in charge of overseeing data collection. It is recommended that EPA staff designate one individual with oversight of implementing the performance measurement plan, including overseeing data reported by partners as well as data to be collected by EPA. This coordinator may need to work with other EPA staff, including regional staff, to collect data within EPA's purview.

How the Data Will be Collected

Regardless of who collects the data, or the form in which the data are collected, EPA staff should develop a standard template or form for measurement data collection, and should provide clear written instructions to reporters, with examples of how to use the template. Developing FAQs is also a good idea, especially if the initiative is using complex measures or is relying mostly on partner organizations to provide data.

Common options for collecting measurement data include:

- **Online reporting.** Online reporting has many advantages over other forms of reporting because it is often the most user-friendly option for both community organizations and EPA staff to report information. Online reporting systems are also preferable for the performance measurement coordinator because, among other benefits, the systems can require users to supply needed data before submitting the form and remind users of reporting responsibilities via email. Most importantly, online systems also eliminate the cost, time, and potential error associated with data entry. The EPA Brownfields program has used online reporting for many years to simplify reporting and manage information.

Several off-the-shelf, free or low cost “form builder” options are available to facilitate online reporting. Common examples include:

- **Google Forms** is a free basic form builder that includes nine different question types (e.g., multiple choice, open text). Reported data are automatically exported to Google sheets, which can be easily exported to MS Excel if desired. As a free service, Google Forms lacks features of other form builders, including the ability to: apply multi-column or tabular layouts; apply sophisticated “skip” or “conditional” logic to change what question a respondent sees next based on multiple responses; allow users to save partial entries and resume work later; or track who participated in a data collection.
- **Survey Monkey** is a commonly used online survey software that allows users to customize 15 different question types, track who participated in a data collection, apply sophisticated skip logic, and export results into a variety of software including MS Excel and PowerPoint, SPSS, and PDF. Survey Monkey offers a free version, but it has more limited features than paid versions that currently range from \$26-\$85/month. Some EPA offices already have paid Survey Monkey accounts that may be accessible to community-based initiatives.
- **Formstack** is similar to Survey Monkey, but it offers a larger number of question types, extensive layout design tools, data encryption, automated calculations on the form (such as unit conversions), and it offers a variety of plugins and extensions, including for Facebook and Google Analytics. Pricing for Formstack currently ranges from \$39-\$250/month.
- ***Customized online reporting solutions*** are another option. Advantages to a customized approach include the ability to pre-populate participant forms with previously reported data (such as baseline reporting or previous year reporting); automatic performance of complex calculations; and the ability to provide instructions in a customized manner. In addition, customized solutions have virtually no restrictions of types of questions that can be asked, or form format; Customized online reporting systems can also include administrative functions such as tracking performance measurement work flow. These systems typically populate a back-end database, as opposed to off-the-shelf solutions, which typically provide raw data in spreadsheet form. The downside to customized online reporting systems is that they require up-front investment of program funds, and typically require hiring a contractor to build and maintain the system. Moreover, systems housed on the EPA website require compliance

with Agency technology restrictions, and regular coordination with managers of EPA's website and information management infrastructure.

- ***Emailed MS Word or Excel forms.*** If an initiative cannot implement online reporting due to resource or other limitations, an alternative solution is to develop a reporting form in MS Word, distribute it over email or through an EPA SharePoint page, and have individuals return the completed form to the performance measurement coordinator. Microsoft "form" templates and Developer tools can be used to guide users to providing data in the correct boxes. The downside to this approach is that it is more burdensome than online reporting for the reporter and for initiative staff, and requires data entry of reported data into a data management spreadsheet or database. A variant is to develop a reporting form in MS Excel or Access instead of MS Word, which allows initiative staff to embed any calculations and minimizes data entry. However, the developer of an MS Excel or Access form needs advanced skills to develop a reporting form with the same user-friendly look and feel as an MS Word form.
- ***Grant reporting using the universal federal grant reporting form.*** Federal form SF-PPR is a universal performance progress report form that must be completed for grants that exceed \$100,000 or more per grant period. Although agencies provide customized instructions, the form fields are universal.³ The form has a narrative section where grantees are required to enter information per agency instruction; agencies can require performance information to be reported here, eliminating the need for an additional reporting form. This is the approach that HUD used to collect measurement data from recipients of Sustainable Communities Regional Planning grants.⁴ However, the format of the narrative area is completely unstructured, and thus not ideal for reporting performance data. Alternatively, agencies can require grantees to attach forms, such as a performance reporting form. Given the \$100,000 grant threshold, this reporting option is not applicable to most EPA community-based initiatives. This form may be emailed or may be incorporated into an online system. Using this form may address ICR issues; see discussion below.

³ An example of the SF-PPR form is available at:

http://www.na.fs.fed.us/fap/SF-PPR_Cover%20Sheet.pdf

⁴ HUD, Program Policy Guidance OSHC-2012-05, Semiannual Progress Reporting Requirements for FY2011 OSCH Regional Planning and Community Challenge Grantees. Available at:

http://portal.hud.gov/hudportal/documents/huddoc?id=OSHC2012-05_RepReqFY2011.pdf

- ***Using social media in measurement activities.*** This document contains some social media-related performance metrics, including the number of people following an initiative's Twitter feed or Facebook page, and the number of posts on social media pages. These metrics, as well as many additional metrics of social media reach, are easy to track by applying [Google Analytics](#). Google Analytics is a free tool that tracks information on who is visiting an initiative's website and social media sites, how long visitors are staying, what visitors are doing on the site (e.g. download activity), where the traffic is being referred from and where visitors go to after leaving the site or social media page. As noted above, Formstack has plugins and extensions for Google Analytics and for Facebook that may make data collection more seamless.

EPA staff should test new reporting forms and systems with their target audience, including community organizations and other EPA staff as applicable. EPA staff should also check with potential community partners to verify the data collection process is feasible. Regardless of the measures selected and method employed, performance measurement coordinators should expect inquiries from community organizations or other staff regarding reporting data, and should be prepared to spend time fielding questions.

How the Data Will be Analyzed

Common performance analyses include comparison to baseline data and trend assessment over time. The community-based initiative should consult with a data analyst who will determine the analyses that are best suited to answer the measurement questions of greatest importance to the initiative. The data analysis should be conducted with clear caveats about what types of claims can be made with the measurement strategy employed. It is very important that the conclusions drawn from the measurement do not include claims that overreach the type of data analysis conducted.

How the Data Will be Stored/Managed

Community-based initiatives need a place to store and manage data. For small initiatives with few measures, an Excel workbook may suffice. But for larger ones with many partners and/or many measures, a database is a better tool for data storage because it is more flexible and allows for easier querying of available data, and thus easier data analysis. If the initiative uses online reporting, data will automatically populate a back-end database. In cases where EPA anticipates collecting and organizing large (often multi-year) data sets,

information may be stored through the Central Data Exchange (CDX), the Agency's electronic reporting site.⁵

Frequency of Reporting/Collection

EPA staff should develop a consistent measurement data collection schedule, and communicate it to data reporters. Annual reporting is often the easiest schedule to implement and communicate. However, EPA staff should carefully calendar the schedule so that it comports with any internal or external reporting deadlines. Also, if the initiative is using existing data to track progress over time, staff will need to make sure that the initiative's data collection schedule comports with update schedule for those data. When there is flexibility, initiative staff should consider pursuing the minimum amount of collection needed to meet program management requirements.

How the Data Will be Communicated to Facilitate Use

Performance measurement data can be used by community-based programs in a variety of ways. At a minimum, results are used to inform initiative staff about progress towards goals, identify any areas where progress is not being made, and start an internal conversation about barriers to progress and potential solutions. Whether and how an initiative reports results externally depends on the situation. Some programs may want to package and share some or all results with a wider audience, such as other Regions within the Agency or its community partners through an annual report or fact sheets. For example, EPA MVD staff utilized the internal SharePoint *Community Resource Network* site to share information about their successes and best practices. Some initiatives may also share results with the public on EPA's website. In addition, if any of the initiative's measures are included in the official EPA strategic planning and annual reporting process, or feed into measures that are included in that process, initiative staff will need to provide applicable results to others in the Agency.

When determining how best to convey performance measurement data, always consider the particular data needs of the audience, any format and data visualization preferences, and best practices on data reporting as shown in the literature or through consultations with someone trained in the subject matter.⁶ Effective data visualization helps communicate findings to maximize reader engagement and comprehension of key information. Some select data visualization best practices include:

⁵ Information on EPA's CDX is available on their website: <https://cdx.epa.gov/>

⁶ Additional resources on effectively presenting data are available in the *Additional Resources* section of this report.

- Alignment of the most important information in the top half (particularly left-side) of a page and/or emphasized using color or size;
- Use of graphics in combination with written text to convey information;
- Simple graphics that eliminate gradation and textures as background;
- Avoiding the use of pie charts to present more than two categories of data;
- Visual theme and/or repetition of some graphic elements throughout a document to build unity and memorability;
- Black or dark gray color for narrative text to increase comprehension levels;
- Selected use of color to emphasize important information; and
- Avoidance of red-green and yellow-blue combinations to accommodate difficulty that people with colorblindness have with these colors.⁷

Take care in conveying data about your particular initiative or set of initiatives. In many cases, there may be multiple potential factors *contributing* to environmental outcomes reported in association with a community-based initiative. In other words, the program or initiative may not be the sole causal agent to which outcomes may be attributed. In some cases, other public policies/programs may have more of an influence than community-based efforts. In other cases, economic factors may come into play (e.g., a reduction in air pollution from industrial sources due to a reduction in economic activity). Where there is a question of what specifically causes a desired outcome, EPA should carefully communicate environmental results. It is appropriate to use language such as “the initiative contributed to (X environmental outcome)” and/or to caveat the other factors that may be contributing to reported results, whether they be other public policies/programs.

Information Collection Requests

An issue worthy of particular note is the Information Collection Request (ICR). Federal agencies are restricted under the Paperwork Reduction Act from collecting similar information from 10 or more non-federal persons or entities unless they receive Office of Management and Budget approval to do so. The Paperwork Reduction Act is intended to reduce the burden on the public from unnecessary, poorly designed and duplicative requests for information from the federal government. To seek approval, initiative staff must prepare an Information Collection Request (ICR) and submit it to EPA’s desk officer in the Office of Environmental Information. Seeking ICR approval can be a lengthy process; it may

⁷ Evergreen, Stephanie D.H. (2014). *Presenting Data Effectively: Communicating Your Findings for Maximum Impact*. Thousand Oaks, California: SAGE Publications, Inc.

take up to nine months for OMB to approve requests. Once granted, ICR clearances are typically good for three years. EPA's Generic Customer Service ICR (described in more detail in the Customer Satisfaction section of this document) may be applicable to community-based measurement activities. More information on the ICR process can be found on EPA's Intranet site.⁸

Establishing a Baseline or Comparison

As mentioned earlier in this framework, collecting baseline data is important because it provides a frame of reference, and facilitates comparison of conditions prior to the initiative to conditions after the initiative is implemented. EPA staff should establish a baseline for all measures selected, including output and outcome measures. In some cases, the baseline for measures may be equal to zero, but this should not be assumed. For example, if an initiative that includes job training is using the indicator "average starting wage of training participants," the baseline is not zero, it is the average wage that participants earned prior to receiving job training, which are data that must be collected from participants.

Baselines can be constructed using a single year of data, or by using multiple years of data. Initiatives should build baseline data collection into the process of joining the initiative, by collecting data on measures as part of a grant or other application, or immediately upon joining the initiative. In many situations, it is preferable to use a multi-year baseline, as analyzing trends in reference to past data as well as current data generally can provide for more robust measurement. A multi-year baseline is particularly important in cases where single-year data are spotty, or if external factors vary from year to year. A single-year baseline should be used when data from previous years are no longer applicable to current conditions. It should be noted that multi-year baselines require additional data collection and analysis; hence, EPA staff will need to assess feasibility of collecting these data.

In many cases, EPA staff will collect some baseline data, and measurement data, from partner organizations. EPA should clearly document data collection expectations and communicate expectations to community organizations, and include these expectations within formal agreements such as grant agreements and MOUs. As an alternative to collecting baseline data from partner organizations, in some cases, EPA may also be able to collect baseline data from existing data sources, such as publically available databases and reports.

If the community-based initiative is already established, it may not be feasible to pursue a baseline. Consider identifying a "control" group or establishing other

⁸ The EPA Information Collection Request (ICR) Center website is: <http://www.epa.gov/icr/>

means of comparison to put program performance into context. For site-specific community-based initiatives, a control group may be a set of similarly sized communities where the initiative is not active.

Field Testing

Do not expect to get your measurement process right the first time out of the box. A field test can save time, money, and relationships by allowing you to test and correct the process before burdening your entire population with your information request. By running through the entire process with a small group of volunteer respondents or colleagues that provide a fresh pair of eyes you will get critical feedback on what may not be working about the system you have designed. It is important to test the communication aspects in addition to the data collection pieces. By sharing a straw report with decision-makers and discussing the implementation decisions they might make based on the data, you will ensure that the information your system provides is right for your key audience(s) or that necessary improvements can be made before the system is fully ramped up.

Resource Requirements

Resource requirements for implementing a performance measurement plan vary depending on the sophistication of the approach and the size of the initiative (and thus number of people reporting information). For small initiatives with a few relatively straightforward performance measures, and less than 20-30 reporters, the role of the performance measurement coordinator may require a small fraction of one FTE per year. Initial staffing demands may be higher for selecting new measures, developing new data collection forms, developing a data management system (which may or may not include an online reporting component), developing communications on performance measurement, and seeking initial ICR clearance. In addition, contractual help may be required to develop more sophisticated measurement approaches, or to develop a database or online reporting system.

Storytelling

Case studies and success stories are common examples of stories (or narratives) used to communicate a program's processes, outcomes and impacts. Stories provide an opportunity for EPA to engage with program participants and allow participants to describe program processes and outcomes in their own words. Stories can be used to develop information not readily available through more traditional, quantitative-based performance measurement, or can serve to provide greater context and/or interpretation of quantitative data. Unlike quantitative-based measurement, stories are not confined to measuring certain parameters. Stories can therefore provide a means by which to identify unintended consequences or unexpected outcomes of program activities.

Stories can take a variety of different forms, from in-depth case studies to short ‘vignettes’ that focus on a specific program element, event or topic. Stories can be collected through surveys, individual interviews or focus groups. Regardless of the approach, stories should be collected as consistently and systematically as possible. When collecting stories, consider the types of information that you need to build meaningful stories, for example, stories should be recorded with a clear understanding of who is telling the story and the timeframe under which the story evolved. In some cases, it may be helpful to identify specific topics or issues for which stories would generate valuable information. Are you interested in program outcomes, strengths and/or weaknesses, or are you more interested in understanding how a program (or specific program element) changed a participant’s knowledge, awareness, attitudes or behaviors? While open-ended questions are the most effective approach for collecting stories, to the extent that you can create consistency in the type of information that each story contains, it will be easier to identify patterns and trends across a collection of stories.

When collecting stories, more meaningful information can be developed by collecting multiple stories on the same topic. By their nature stories represent the perspective of one individual at a single point in time. As such, while one or two stories may provide interesting insights, a collection of stories on the same topic can be used to identify patterns and trends that help initiative staff to evaluate program activities, outcomes, successes and/or weaknesses. In most cases, when you listen to enough stories on the same topic, a defined set of common themes will emerge. When you reach this point, you will notice that stories from ‘new’ interviewees fall within a known range of responses and/or experiences. At this point, staff may have greater confidence that the stories they have collected represent a broad range of experiences, rather than a small subset of perspectives or opinions.

EPA staff should also consider the timing of story collection. Asking program participants to remember details is harder the further back in time you go. Similarly, depending on the longevity of the project, information gathered through stories may be more helpful if stories are gathered at multiple points over a time.

Take care when communicating stories collected from a particular program or initiative. Qualitative stories should be used to complement (not replace) quantitative data. When paired with quantitative measures, qualitative stories can communicate a more complete and rich ‘story’ of EPA’s work in community-based programs.

The next section of this document covers the seven topic areas of measurement common to many EPA community-based programs.

1. PARTNERSHIPS

Overview

Nearly all of EPA's community-based initiatives establish partnerships with community organizations. EPA may also partner with businesses, universities, government agencies, and/or NGOs as well. The complexion of these partnerships varies widely, although EPA typically serves as a grantor, advisor, or provider of technical assistance to some extent. The level of EPA partners' expertise can vary from startup groups organized solely to partner with EPA on the initiative to large, well-established community organizations.

Community-based initiatives conduct activities to identify the appropriate partners to help reach identified goals, build relationships with them, and maintain and improve the partnership over time. The community-based initiatives that establish and maintain mutually-beneficial partnerships most effectively will see the greatest contribution to outcomes from its partners, and will be able to collect data more effectively to inform other measures.

Measuring Partnership Health

EPA needs measures to gauge the health and long-term viability of partnerships in which EPA is investing. EPA and partners should document planned activities and divisions of responsibilities. Partners that engage community members through formal meetings should track the frequency of and attendance at these events. Throughout the partnership process, EPA should assess the sustainability and endurance of partnerships. EPA may also want to assess the extent to which community members are represented by partnering organizations in the context of work that the organization is conducting with EPA. Finally, EPA may want to measure the extent to which partners take actions indicating a long-term commitment to the goals of the EPA community-based initiative. See the Partnership menu on the next page for ideas and examples of applicable measures.

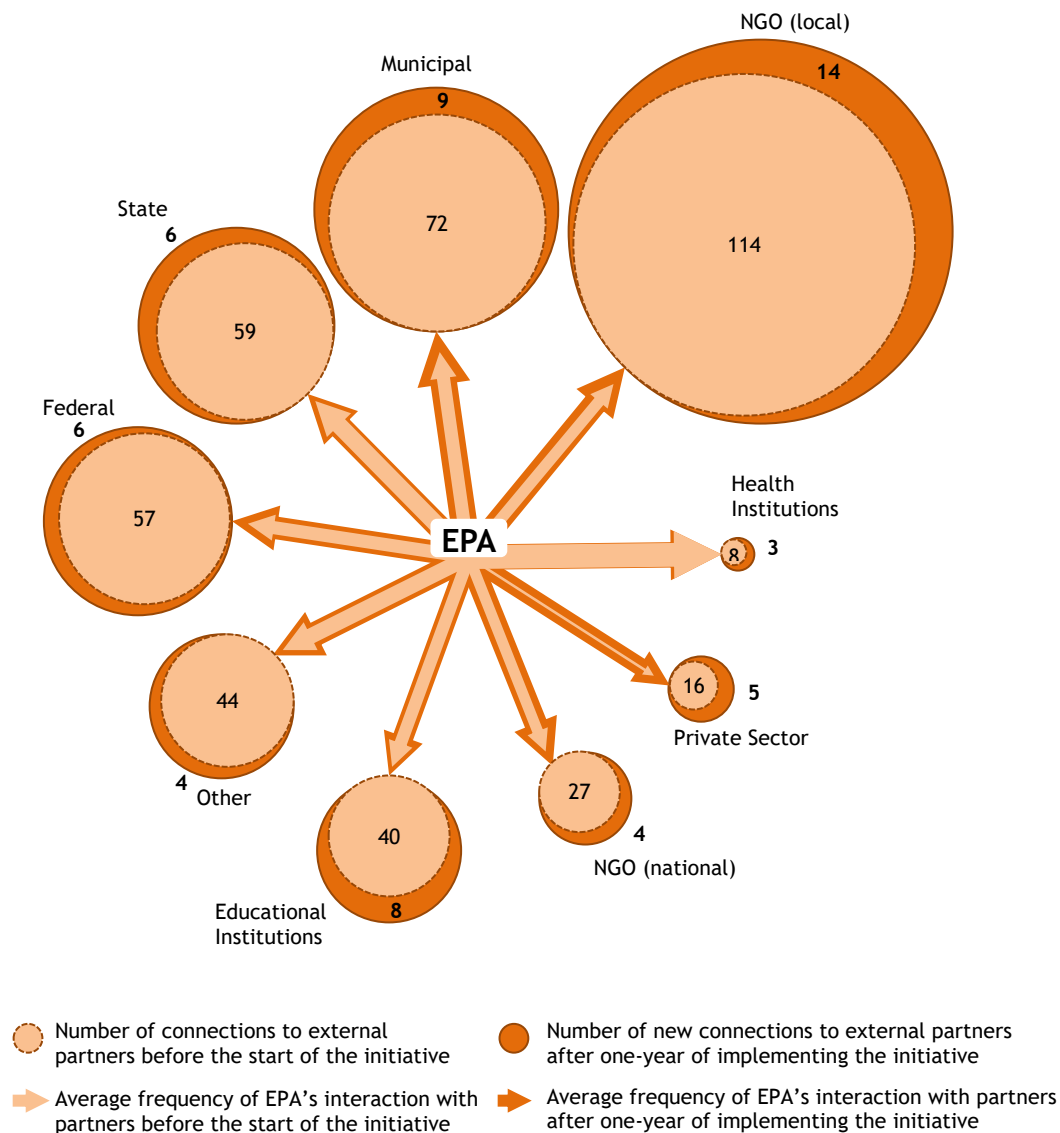
Partnership commitment example:

The Community-Based Childhood Asthma Program tracks the number of schools using organized indoor air quality management practices consistent with the *EPA Tools for Schools* approach.

EPA may also consider analyzing and visualizing partnership data using social network analysis (SNA) tools. SNA can show network structure, information flows, and indicate key actors or organizations in a community network. Information can often be collected through surveys of EPA staff and/or community members. Once

the information is gathered, data can be used to produce visual maps that illustrate the presence and strength of relationships in the network, often at different points in time (see the example from EPA's MVD initiative in Exhibit 1). Using specialized software, higher-level analyses can also produce more detailed, complicated network maps and quantitative measures to describe the network structure and strength. SNA is useful when a program needs to assess network relationships or flows of information in a manner that is comprehensive, quantitative, and/or relatively consistent over time. More information on SNA is located in the *Additional Resources* section of this report.

Exhibit 1. EPA's external partners before the MVD initiative and after one year of implementing the initiative: number of partners and average frequency of interaction.



PARTNERSHIPS

Often EPA supports partnerships as a means of tackling complex environmental issues, including those in areas with disproportionate burdens. These measures gauge the health and long-term viability of partnerships in which EPA is investing.

CATEGORY	POTENTIAL MEASURES	ACTIVITY, OUTPUT, OR OUTCOME?	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
Identifying Partners	Number of potential partners who express interest in the initiative	Output	EPA	▲ MVD: Total number of partners
	Have contacts been made with all potential partners? (Yes/No)	Activity	EPA	
Building Relationships with Partners	Is there clear agreement among partners about planned activities? (Yes/No)	Activity or Output	EPA	▲ CARE: Number of CARE cooperative agreement projects managed in order to obtain toxic reductions at the local level
	Is there clear agreement among partners about who is responsible for implementing planned activities? (Yes/No)	Activity or Output	EPA	
	Do all stakeholders have access to formal agreements (they have copies, know what the agreements are, or where to find them)? (Yes/No)	Activity or Output	EPA	
	Frequency with which mission and goals are revisited (e.g. once per year)	Activity	EPA	
Maintaining and Improving Partnerships	Proportion of partners retained per year	Outcome	EPA	▲ MVD: Frequency of communication with partners
	Increase in number of partner communications (number of emails, phone calls, etc.)	Outcome	EPA	
Depth and Breadth of Community Partnerships	Are the needs of engaged community stakeholders being addressed by the initiative? (Yes/No)	Outcome	EPA	▲ EJ Small Grants: Percent of groups (nonprofit, government, etc.) represented in partnerships ▲ MVD: Number of partners by partner type
	Extent of representation among diverse partners (does this initiative have input from core types of organizations e.g., funders, church-based organizations (CBOs), governmental and nongovernmental organizations, universities, etc.)	Output	Either	
	Is the initiative addressing all of the needs it was intended to? (Yes/No)	Outcome	EPA	

CATEGORY	POTENTIAL MEASURES	ACTIVITY, OUTPUT, OR OUTCOME?	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
Partner Engagement	Are there indicators that partners are engaged (are meetings with partners occurring regularly)? (Yes/No)	Output	EPA	<ul style="list-style-type: none"> Superfund JTI: Number of individuals who attend training Superfund JTI: Number of individuals who attend orientation Superfund JTI: Number of individuals who attend tryouts to be accepted into the training program Urban Waters: Number of people who attended a summit meeting that focused on flooding, industrial contaminants, bacteria and storm water, and reconnecting people to a river CBEP: Partnerships developed with organizations outside of EPA to leverage resources and/or expertise
	Proportion of partners in attendance at formal and informal interactions	Output	EPA	
	Proportion of partners at a community forum	Output	EPA	
	Proportion of partners who voice their opinions and needs, and descriptions of those opinions and needs	Output	EPA	
	Proportion of and types of partners participating in meetings (e.g. ethnic, cultural, and geographic diversity)	Output	EPA	
	Proportion of partners asking for information/attending trainings	Output	EPA	
	Proportion of partners reporting increased awareness and understanding of initiative opportunities	Outcome	EPA	
	Proportion of partners reporting adoption of initiative goals	Outcome	EPA	
Partner Commitment	Proportion of partners participating in the research effort and grant application process	Output	EPA	<ul style="list-style-type: none"> MVD: Total and type of resources provided by EPA partners for initiative activities CARE: Number of communities that, through CARE, implement local solutions to address an agreed upon list of priority toxic and environmental concerns using the CARE partnership K34 CBEP: Number of joint projects among municipal, county, and state governments
	Proportion of partners at meetings over time (i.e. do partners continue to participate?)	Output	EPA	
	Dollar amount of funding contributions from partners	Output (or Resource)	EPA	
Partnership Sustainability	Number of years the initiative has been in operation	Outcome	EPA	<ul style="list-style-type: none"> MVD: Number of new communities EPA became involved in as part of the initiative MVD: Increase in the number of organizations involved from baseline MVD: Percent increase in EPA's relationships from baseline CARE: Number and groups of residents reached with environmental health information
	Proportion of geographic regions the initiative has reached (e.g. states, counties)	Outcome	EPA	
	Diversity of individuals the initiative has reached	Outcome	Partners	
	Proportion of the target audience being reached	Outcome	EPA	
	Percent increase in the number of individuals or organizations involved from baseline	Output	EPA	

CATEGORY	POTENTIAL MEASURES	ACTIVITY, OUTPUT, OR OUTCOME?	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
	Number and descriptions of new connections with other initiatives (e.g., relationships or resource sharing)	Output	EPA	
	Number and descriptions of additional projects and partners	Outcome	EPA	
Leveraging Social Networks to Enhance the Partnership	Number of people following initiative Twitter feed	Outcome	Depends upon Twitter account owner	
	Number of people included in the initiative's Facebook or other social media group	Outcome	Depends upon group owner	
	Number of posts from community members on initiative Facebook or other social media page	Outcome	Depends upon group owner	
Behavior Change	Percent increase in the number of people or partners taking action to change workplace, school, or community processes or policies	Outcome	Either	<ul style="list-style-type: none"> ▲ MVD: Number of new projects initiated from baseline ▲ CARE: Percentage of partners who reported changing their behavior ▲ CBEP: Number of participants in environmental volunteer activities
Reporting of Findings	Number of partner findings reported in materials, websites, and messages (e.g. number of case studies, number of partners reporting findings in an online database)	Outcome	EPA	
Expanded Research Collaborations	Proportion of partners who apply for additional funding over time	Outcome	EPA	
	Number of new partners who join the research project and/or partnership	Outcome	EPA	
Setting and Meeting Partnership Goals	Did the initiative set goals for developing and maintaining partnerships? (Y/N)	Output	EPA	
	Proportion of partnership goals met	Outcome	EPA	
Resources Devoted to Partnerships	Dollars spent developing and maintaining partnerships	Output	EPA	
Community Involvement in Research	Proportion of partners who participate in collecting data	Output	EPA	
	Number of new organizations who become involved in research and outreach	Outcome	EPA	

CATEGORY	POTENTIAL MEASURES	ACTIVITY, OUTPUT, OR OUTCOME?	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
Communication of Partnership Messages and Materials	Number of tools utilized to enhance awareness and knowledge of research and environmental health risks (e.g. radio, television, live performances, websites, and paper materials for dissemination)	Activity	Either	
	Number of documents distributed (e.g. handout, presentation, fact sheet, case study, pamphlet, manual, video tape, slide show, CD-ROM, Web page or computer program)	Activity	Depends upon document owner	▲ Community-Based Childhood Asthma Program: Number of schools newly using organized indoor air quality management practices consistent with EPA Tools for Schools.
	Measures of tool use (e.g. number of website hits, number of pamphlets printed)	Outcome	Depends upon tool owner/developer	
	Number of downloads of initiative outputs	Outcome	Depends upon host site	▲ CARE: Number of green maps distributed
	Number of website hits	Outcome	Depends who runs website	▲ CARE: Number of workshops hosted for residents on specific issues
	Number of other groups or initiatives that adopt initiative materials	Outcome	EPA	
	Number of discrete messages developed and used by others for radio, newspaper, pamphlets and television	Outcome	EPA	
	Number of citations to initiative outputs	Outcome	EPA	

2. LEVERAGING RESOURCES

Overview

Leveraging resources is the process of using existing resources – including funding, staff time, existing relationships, and communications – to grow and strengthen an initiative. Common approaches used by EPA’s community-based work to leverage resources include: raising awareness of the work via social or conventional media, identifying new funding sources, and increasing an initiative’s network of partners.

The ability to successfully leverage resources is particularly important to EPA community-based initiatives, which often have limited in-house resources and rely on community groups and members to implement many programmatic aspects. With these limited base resources, community-based initiatives are often expected to achieve goals that would not be possible without expanding to involve community partners and others with additional resources.

Measuring Leveraging Resources

The ultimate goal in measuring leveraged resources is to show how effectively an initiative used its initial resources to maximize total additional resources or total benefits. The first step is to determine the size and scope of in-house resources.

Next, staff might measure the leveraged activities conducted or leveraged outputs generated. Typically, initiative measures leverage by comparing a measure of effort or resources expended to a measure of outcome. The desired outcome is to show an overall increase in the initiative’s resources or environmental impact as a result of its efforts. To take things a step further, staff may want to measure how efficiently EPA resources have been spent.

Leverage ratio example:

Based on data from EPA regional staff, for every EPA dollar spent, external resources contributed an additional \$2.80 to implement activities in MVD communities since the start of the initiative.

Leveraging resources is an important aspect of most community-based initiatives, but few of them have the same leveraging approach. There is no singular approach to measuring how effectively initiatives leverage resources; each one should determine how to best measure its own leveraging approach.

See the Leveraging Resources menu on the next page for ideas and examples of applicable measures.

LEVERAGING RESOURCES

Leveraging resources is using available resources to leverage additional resources, increasing the benefit of an investment.

CATEGORY	POTENTIAL MEASURES	ACTIVITY, OUTPUT, OR OUTCOME?	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
Cost-Effectiveness	Payback period	Outcome	EPA	<p>▲ Urban Waters: Have city ordinances been passed to further initiative goals? (Yes/No)</p> <p>▲ Superfund JTI: Percentage of trainees from the initiative who have been placed into jobs and maintained employment for at least one year</p> <p>▲ Brownfields: Billions of dollars of cleanup and redevelopment funds leveraged at Brownfields sites</p> <p>▲ MVD: ratio of EPA resources to external</p>
	Return on investment	Outcome	EPA	
	Ratio of initiative funding to key outcomes (e.g., jobs created or energy conserved)	Outcome	EPA	
Raising Awareness and Interest Among Community Partners	Number of individuals and organizations who collaborate for the first time to accomplish a common goal	Output	EPA	
	Number of repeat collaborations between partners	Output or Outcome	EPA	
	Number of new volunteers after efforts to increase awareness and interest	Output	EPA	
Broader Reach	Number of news stories referencing initiative	Outcome	Either	
	Number of community members that are positively impacted by the results of the initiative	Outcome	Partners	
	Number and types of policies or regulations that can be or have been influenced by the initiative	Outcome	EPA	
Financial Viability	Growth in initiative funding	Outcome	EPA	
	Does the initiative have adequate resources to implement future planned activities? (Yes/No)	Outcome	EPA	
Setting and Reaching Goals for Leveraging Resources	Did the initiative set goals for leveraging resources? (Y/N)	Output	EPA	
	Proportion of leveraging resources goals met	Outcome	EPA	
Leveraging Infrastructure and Money	Funds obtained as investment in the initiative (dollars)	Output	EPA	
	Number of grants awarded	Output	EPA	
	Total amount awarded in grants	Output	EPA	

CATEGORY	POTENTIAL MEASURES	ACTIVITY, OUTPUT, OR OUTCOME?	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
	Leverage ratio: Ratio of EPA initiative funding to leveraged funding (e.g. ratio of grant money to match money)	Outcome	EPA	resources ▲ CARE: Amount of funding provided through grants ▲ CARE: Number of communities who received funding ▲ EJ Small Grants: Number of dollars awarded in grants ▲ EJ Small Grants: Number of grant recipients ▲ CBEP: Financial resources (e.g., grants, contracts, travel) directed toward CBEP activities
Leveraging People (Human Capital)	Number of Full Time Employees (FTEs)	Resource	EPA	▲ CBEP: Resources and expertise leveraged through established partnerships with organizations outside EPA
	Number of new people contacted in leveraging efforts	Activity	EPA	
	Number of new people brought into the initiative	Activity	EPA	
	Number and types of formal advisory board activities conducted to leverage relationships, ideas, and knowledge	Activity	EPA	
Leveraging Social Networks to Seek Additional Funding	Number of posts to initiative Facebook page	Output	Depends upon page owner	
	Number of posts to initiative Twitter page	Output	Depends upon page owner	

3. EDUCATION AND TRAINING

Overview

One focus of some of EPA's community-based initiatives is to enable community members to have a larger role in the implementation of environmental initiatives in their community. One of these potential roles is for community-members to obtain gainful employment in association with environmental initiatives. It is important for a training initiative to demonstrate that it benefits trainees and the local economy. Measuring the results of education and training efforts is typically more straightforward than measuring other types of impacts, as the most common way of measuring impact is to look at measures of gainful employment of trainees over time. However, EPA must rely heavily on its community-based partners to collect education and training outcome information, which can pose coordination challenges.

Measuring Education and Training

The goal in measuring education and training is to show how well the training initiative directly enables local community members to become effective environmental advocates, employees, and community leaders. One area of measures for education and training is to assess the appropriateness of training materials for target audiences. Typically, initiatives track how the reach of its training grows over time. Growth metrics demonstrate that the training is well-received and sustainable. Finally, training should measure how effectively the initiative has directly improved employment outcomes among trainees.

Training Effectiveness Example Measures:

The Superfund Job Training Initiative tracks the number of trainees who have completed training, the percentage of trainees that have been placed into jobs, and the percentage of trainees retained in jobs for over one year.

See the Education and Training menu on the next page for ideas and examples of applicable measures.

EDUCATION AND TRAINING

These metrics address training community members to become effective environmental advocates, employees, and community leaders.

EPA QUESTION	POTENTIAL MEASURES	ACTIVITY, OUTPUT, OR OUTCOME?	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
Measuring Effectiveness of Education and Training	Percent of trainees with passing scores on quizzes or tests pre and post training	Outcome	Partners	▲ Superfund JTI: Number of trainees who have completed training
	Percent of trainees that provide satisfactory ratings of education or training initiative	Outcome	Partners	▲ Superfund JTI: Percentage of trainees who have been placed in jobs
	Number of job training initiative participants hired	Outcome	Partners	▲ Superfund JTI: Percentage of trainees retained in jobs for over 1 year
	Number of job training initiative participants retained for at least 1 year	Outcome	Partners	▲ Brownfields Workforce Development and Job Training: Number of participants that have completed EPA-funded training
	Average starting wage of training graduates	Outcome	Partners	▲ Brownfields Workforce Development and Job Training: Number of training graduates that have obtained employment after training
	Percent increase in post-training test scores over time	Outcome	Partners	▲ Brownfields Workforce Development and Job Training: Average salary of training graduates
	Percent increase in job training initiative participants hired	Outcome	Partners	▲ CBEP: Number of users of selected CBEP training tools
	Percent increase in job training initiative participants retained for at least 1 year	Outcome	Partners	
Reach of Training Impacts	Number of follow-up training events	Activity	Partners	
	Number of follow-up materials to participants	Activity	Partners	
	Number of community employers that support initiative through reimbursement or credit	Outcome	Partners	
	Percent increase in attendance at trainings over time	Output or Outcome	Partners	
	Percent increase in training/education material downloads over time	Output or Outcome	Partners	
Training Materials Appropriate for Particular Audience in Community	Did the initiative gather data on the target audience (language, literacy, education levels, etc.) that might influence beliefs and values? (Y/N)	Activity	Partners	
	Percent of community members in the target audience involved in the development process	Activity	Partners	

EPA QUESTION	POTENTIAL MEASURES	ACTIVITY, OUTPUT, OR OUTCOME?	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
	Did the initiative identify the preferred training methods of target audience? (Y/N)	Activity	Partners	
	Number of website hits or training material downloads originating from the target geographic area	Output	Depends on who runs website	<ul style="list-style-type: none"> ▲ Superfund JTI: Number of individuals that attend orientation ▲ Superfund JTI: Number of individuals that attend tryouts to be accepted into the training initiative
	Percent of training participants that are residents of the target geographic area	Output	Partners	<ul style="list-style-type: none"> ▲ Superfund JTI: Number of individuals that attend training
	Percent of training participants from the target age group	Output	Partners	<ul style="list-style-type: none"> ▲ EJ Small Grants: Percent of students graduating from training initiative of Native Hawaiian descent
	Percent of trainees that fall into the target income group	Output	Partners	<ul style="list-style-type: none"> ▲ EJ Showcase Communities: Number of inner city youths trained in stormwater management
	Number of languages in which initiative materials are translated	Output	EPA	
Setting and Reaching Goals for Education and Training	Did the initiative set goals for education and training? (Y/N)	Output	EPA	
	Proportion of education and training goals met	Outcome	EPA	
Resources Devoted to Education and Training	Dollars spent on developing education and training initiative	Output	EPA	

4. CAPACITY BUILDING

Overview

EPA community-based initiatives are designed to improve the ability of communities to achieve initiative goals. Building capacity in communities encompasses empowering community members to become effective advocates for community needs, increasing organizational capacity of partner organizations, and improving the community's physical and communication infrastructure. By building capacity, EPA helps to ensure that progress made during community-based projects can be sustained even after EPA's role in projects is reduced or ends. Moreover, communities with sufficient capacity to implement more advanced initiative activities are better partners and add value to initiative outcomes. Most importantly, capacity building is designed to impart skills and knowledge that community organizations and members can apply to many contexts, not just the context of a specific EPA-community project or initiative.

Measuring Capacity Building

The goal in measuring capacity building is to assess the extent to which community organizations funded by EPA, and the members served by these organizations, develop knowledge, skills, and confidence to take a larger role in environmental initiatives.

Staff working with community-based initiatives should decide whether its capacity building efforts will focus on increasing organizational capacity, physical infrastructure, individuals' knowledge, or some combination of all three. After staff identify the areas in which they expect to build capacity, they should adopt a strategy to collect data about communities' baseline levels of capacity so that changes in capacity can be gauged over time.

See the Capacity Building menu on the next page for ideas and examples of applicable measures.

CAPACITY BUILDING

These metrics address developing the knowledge, skills, and confidence of community organizations funded by EPA, and the members served by these organizations.

EPA QUESTION	POTENTIAL MEASURES	ACTIVITY, OUTPUT, OR OUTCOME?	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
Empowering Partners	Increase in percent of community members within affected communities who speak to government leaders about environmental issues from baseline	Outcome	Partners	▲ CBEP: Membership in environmental/conservation/wildlife organizations ▲ CBEP: Number of public/private partnership efforts to protect the environment
	Increase in percent of community members within affected communities who have sought community leadership positions or have run for local office	Outcome	Partners	
	Increase in percent of community members within affected communities who speak at conferences or other public venues about environmental issues	Outcome	Partners	
	Increase in the number of community members occupying project leadership roles from the baseline	Outcome	Partners	
	Number of community members who received leadership training	Output	Partners	
	New research project, support group, or enforcement committee established by initiative partners	Outcome	Partners	
Increasing Organizational Capacity Among Community Partners	Proportion of partners involved that have developed bylaws	Output	EPA	
	Proportion of partners involved that have developed a voting process	Output	EPA	
	Proportion of partners involved that have developed conflict management procedures	Output	EPA	
	Proportion of partners involved that have developed capacity-building goals	Output	EPA	

EPA QUESTION	POTENTIAL MEASURES	ACTIVITY, OUTPUT, OR OUTCOME?	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
Improving Community Group Physical and Communication Infrastructure	Proportion of partner organizations with access to adequate space and any other necessary physical structures	Output	EPA	
	Proportion of partner organizations with a website	Output	EPA	
	Proportion of partner organizations with a listserv	Output	EPA	
	Proportion of partner organizations with a social media presence (e.g. Facebook page, Twitter feed)	Output	EPA	
Setting and Reaching Goals for Capacity Building	Did the initiative set goals for capacity building? (Y/N)	Output	EPA	
	Proportion of capacity building goals met	Outcome	EPA	
Resources Devoted to Capacity Building	Dollars spent on capacity building	Output	EPA	

5. CUSTOMER SATISFACTION

Overview

A key goal of EPA's community-based initiatives is to ensure that community partners and members have a trusting relationship with EPA and are satisfied with the services that EPA is providing through its programing. Community partners that are satisfied with EPA's role in the partnership are more likely to maintain a high level of engagement in initiative activities. Additionally, communities with a good relationship with EPA are more likely to broadly work in collaboration with EPA regarding environmental issues in their community.

Measuring satisfaction provides EPA with an important indication of the community's current attitude toward EPA. Furthermore, it provides a feedback loop through which EPA can identify areas of community concern and adjust initiative practices to strengthen its relationship with its community partners.

Measuring Customer Satisfaction

The goal in measuring customer satisfaction is to assess how effectively EPA or its contractors carried out their initiative responsibilities in the eyes of community partners. While surveys are the most direct way to measure customer satisfaction, customer satisfaction can also be measured by collecting information on the level of engagement and participation by community members. See the Customer Satisfaction menu on the next page for ideas and examples of applicable measures.

EPA maintains a Generic Customer Service ICR that covers data collection of customer service information. OMB agrees that it is impractical to go through the entire ICR process for every such collection. Under EPA's generic ICR, this class of survey is pre-approved and has a simplified, expedited OMB review process for individual requests. To use the Customer Service ICR, see the overview posted on EPA's Intranet.⁹

Customer Satisfaction Survey Question Example:

How satisfied were you with the contractor's ability to explain EPA's remedy selection at the site:

- (1) Very Dissatisfied
- (2) Dissatisfied
- (3) Somewhat Satisfied
- (4) Satisfied
- (5) Very Satisfied

⁹ Overview of the Generic Customer Satisfaction Survey ICR and How-To Guide, available at: <http://intranet.epa.gov/icrintra/guidance.html>

When developing surveys to measure customer satisfaction, initiative staff should consider the feasibility of collecting honest feedback on a community's satisfaction with EPA's activities. Anonymous surveys can help to produce a higher response rate, and/or more honest feedback. Further anonymity can be granted by conducting national surveys as opposed to community-level surveys.

CUSTOMER SATISFACTION

These metrics assess communities' satisfaction with EPA's assistance.

EPA QUESTION	POTENTIAL MEASURES	ACTIVITY, OUTPUT, OR OUTCOME?	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
Satisfaction with EPA Services and Decision-Making	Percent of partner organizations and/or community members surveyed about customer satisfaction in the last 2 years.	Output	EPA	<p>▲ Superfund TAGS collects satisfaction data but does not report these data as part of their measurement process. Other initiatives may do the same.</p> <p>▲ CBEP: Customer satisfaction with EPA tools and information systems</p>
	Percent of partner organizations responding to survey that state they are "highly satisfied" with assistance received, training, or project outcomes	Outcome	EPA	
	Percent increase of community members responding to a survey that state they are "highly satisfied" with assistance received, training, or project outcomes from a baseline survey	Outcome	EPA	
	Percent of community members responding to survey that state they are "highly satisfied" with the frequency and consistency of information dissemination	Outcome	EPA	
	Percent increase of community members responding to survey that state they are "highly satisfied" with the frequency and consistency of information dissemination compared to a baseline survey	Outcome	EPA	
Setting and Reaching Goals for Customer Satisfaction	Did the initiative set goals for customer satisfaction? (Y/N)	Output	EPA	
	Proportion of customer satisfaction goals met	Outcome	EPA	
Resources Devoted to Customer Satisfaction	Dollars spent on measuring customer satisfaction	Outcome	EPA	

EPA QUESTION	POTENTIAL MEASURES	ACTIVITY, OUTPUT, OR OUTCOME?	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
Community Engagement and Participation	Increased percent of community members or target audience that attend public meetings from baseline	Output	Partners	
	Increased percent of community members or target audience that sign up for a listserv	Output	Partners	
	Increased number of community organizations that are initiative partners from year 1	Output	EPA	

6. ENVIRONMENTAL OUTCOMES

Overview

All EPA initiatives are designed with the core goal of protecting human health and the environment. An initiative's ability to accurately measure and report human health and environmental outcomes can be very helpful in bolstering support for the work from both EPA and outside entities. Initiatives that can demonstrate their environmental impact are more likely to receive sustained funding and encourage confidence in EPA from its community partners. As previously mentioned, demonstrating definitive causal impact of an initiative on long-term environmental outcomes can rarely be achieved outside of controlled experimental demonstrations. With a strong program theory and measurement system in place, an initiative often can plausibly establish that it contributes to the long-term environmental outcomes that it purports to change. To be able to demonstrate claims of contribution, it is advisable to track long-term environmental indicators that you can correlate with your program's activities over time.

Measuring Environmental Outcomes

The goal in measuring environmental outcomes is to characterize the environmental benefits related to initiative efforts. See the Environmental Outcomes menu on the next page for ideas and examples of potential measures.

Environmental Outcome

Example:

In fiscal year 2015, the Superfund Redevelopment Initiative declared 45 sites as "Sitewide Ready for Anticipated Use."

ENVIRONMENTAL OUTCOMES

Measurable environmental benefits associated with initiative activities

CATEGORY	POTENTIAL MEASURES	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES BEING USED BY EPA COMMUNITY BASED INITIATIVES	GOAL IN EPA STRATEGIC PLAN
Energy Conservation	Transportation energy conservation (kWh/MWh, gallons, cubic feet)	Typically, partners will collect and report environmental outcome data, using instructions and/or a standard template provided by EPA	<ul style="list-style-type: none"> ▲ Sustainable Communities: City Fleet, Gas Mileage 	Goal 1: Addressing Climate Change and Improving Air Quality
	Number of kilowatt-hours of electricity conserved		<ul style="list-style-type: none"> ▲ Sustainable Communities: Fuel Consumption/Purchase 	
	Reduction in number of gallons of oil used		<ul style="list-style-type: none"> ▲ Sustainable Communities: Residential Energy Use 	
	Reduction in number of therms of natural gas used		<ul style="list-style-type: none"> ▲ CARE: Cost of fuel saved 	
	Total energy conservation (kWh/MWh or Btu/MMBtu)		<ul style="list-style-type: none"> ▲ CARE: Kilowatt-hours of electricity saved per year 	
Renewable Energy Development	Kilowatt-hours, therms, or MMBTUs of renewable energy generated (solar, wind, geothermal, low-impact hydro, biomass)		<ul style="list-style-type: none"> ▲ RE-Powering America's Land: Renewable energy generated on each site ▲ CARE: Number of households that made a renewable energy purchase commitment ▲ CARE: Percentage of renewable energy purchased by a city 	Goal 1: Addressing Climate Change and Improving Air Quality
GHG Reduction	Percentage change in vehicle miles traveled per capita		<ul style="list-style-type: none"> ▲ Climate Showcase Communities: Expected GHG reductions (metric tons CO2e annually or total) ▲ Climate Showcase Communities: Actual GHG reductions (metric tons CO2e annually or total) 	Goal 1: Addressing Climate Change and Improving Air Quality
	Tons of CO2 emissions reduced or avoided		<ul style="list-style-type: none"> ▲ U.S. –Mexico Border 2020 Program: Actual and potential greenhouse gas emissions reductions from global methane initiative projects in the border region. 	

CATEGORY	POTENTIAL MEASURES	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES BEING USED BY EPA COMMUNITY BASED INITIATIVES	GOAL IN EPA STRATEGIC PLAN
Air Quality	Days in the past year with Air Quality Index (AQI) in the good range	Typically, partners will collect and report environmental outcome data, using instructions and/or a standard template provided by EPA	<ul style="list-style-type: none"> ▲ School Monitoring Initiative: Air quality monitoring data (VOCs and carbonyls in ppbv, etc.) ▲ U.S. –Mexico Border 2020 Program: Number of Days Exceeding Air Quality Standards in Border Monitoring Areas 	Goal 1: Addressing Climate Change and Improving Air Quality
	Hospitalization for asthma per 10,000 residents			
Water Conservation	Reduction in pounds of toxic air emissions (VOCs, nitrogen oxides, sulfur oxides, carbon dioxide, PM, etc.)		<ul style="list-style-type: none"> ▲ CARE: Tons of nitrogen oxide, particulate matter, and/or carbon dioxide reduced through anti-idling zones ▲ CARE: Percent reduction in fugitive air emissions from a local coal distributor ▲ CARE: Percent reduction in particulate emissions inside buses 	Goal 2: Protecting America's Waters
	Acres of impervious surface reduced in targeted geographic area			
Water Quality	Square meters of impervious surface replaced with pervious surface		<ul style="list-style-type: none"> ▲ Specific MVD Community: Gallons of storm water retention capacity of green infrastructure ▲ Number and percent of schools and childcare centers that meet all health-based drinking water standards. (ACS measure; may or may not be affiliated with the Lead in Drinking Water in Schools and Child Care Facilities program) ▲ U.S. –Mexico Border 2020 Program: Percent of Mexico border beach sampling events above enterococcus standard ▲ Urban Waters: Number of gallons of sewage stopped per day from being discharged to the watershed 	Goal 2: Protecting America's Waters
	Change in residential water consumption efficiency (gallons per person per year)			
	Reduction in number of gallons of water used (per household)			
	Percent decrease in fecal coliform found in the watershed			
	Soil erosion: suspended solids (TSS in mg/L), turbidity (FTU, NTU, etc.)			
Water Quality	Change in percentage of assessed rivers and streams that do not meet state and federal water quality standards			
	Decrease in the concentration of a particular toxin in the water supply			
	Decrease in pounds of pollutant discharged in targeted geographic area (for example, BOD, COD, toxics, nutrients, TSS, contaminants in storm water and pathogens. Includes discharges to sewer systems, septic systems, injection wells, ground water, etc.).			

CATEGORY	POTENTIAL MEASURES	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES BEING USED BY EPA COMMUNITY BASED INITIATIVES	GOAL IN EPA STRATEGIC PLAN
Land Restoration	Number of acres of unusable land converted to usable land	Typically, partners will collect and report environmental outcome data, using instructions and/or a standard template provided by EPA	<ul style="list-style-type: none"> ▲ Brownfields: Number of properties cleaned up using Brownfields funding ▲ Brownfields: Number of acres of brownfields property made ready for reuse ▲ Superfund Redevelopment Initiative: Number of Superfund sites ready for anticipated use site wide ▲ Five Star Restoration Grants Program: Number of acres restored and improved, under the 5-star, NEP, 319, and great water body programs (cumulative). 	Goal 3: Cleaning Up Communities and Advancing Sustainable Development
	Number of acres of unusable land converted to renewable energy development			
	Decrease in the concentration of a particular toxin in soil			
	Number of acres of developed land converted to open space			
Land Preservation	Percentage of land preserved as open space	Typically, partners will collect and report environmental outcome data, using instructions and/or a standard template provided by EPA	<ul style="list-style-type: none"> ▲ Partnership for Sustainable Communities: Acres of Parks and Protected Space per Capita ▲ Sustainable Communities: Growth in previously-developed areas 	Goal 3: Cleaning Up Communities and Advancing Sustainable Development
	Number of acres of farmland			
	Pounds/tons/cubic ft. of wastes reduced		<ul style="list-style-type: none"> ▲ U.S. –Mexico Border 2020 Program: Percent adequate solid waste disposal in Mexico’s 30 km border zone ▲ U.S. –Mexico Border 2020 Program: Number of scrap tires removed during clean up at two of the largest, selected tire piles in the Border Region ▲ CARE: Tons of e-waste collected and disposed of properly ▲ CARE: Gallons of food waste diverted from landfill 	Goal 4: Ensuring the Safety of Chemicals and Preventing Pollution
Waste Minimization	Change in pounds/tons/cubic ft. of waste recycled			

CATEGORY	POTENTIAL MEASURES	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES BEING USED BY EPA COMMUNITY BASED INITIATIVES	GOAL IN EPA STRATEGIC PLAN
Toxics Use Reduction	Pounds/ tons of a target toxin reduced	Typically, partners will collect and report environmental outcome data, using instructions and/or a standard template provided by EPA	<ul style="list-style-type: none"> ▲ U.S. –Mexico Border 2020 Program: Amount of pesticides used in U.S. Border Counties: California and Arizona ▲ U.S. –Mexico Border 2020 Program: Total toxic releases from reporting facilities in the Border Region ▲ CARE: Pounds of hazardous chemicals removed from local schools 	Goal 4: Ensuring the Safety of Chemicals and Preventing Pollution

7. ECONOMIC AND QUALITY OF LIFE OUTCOMES

Overview

All EPA initiatives are designed with the core goal of protecting human health and the environment. In addition, some EPA initiatives are also explicitly designed to improve local economies and enhance quality of life, especially in communities that have been disproportionately affected by environmental burden. Community-based initiatives that are designed to cleanup and reuse contaminated sites, or draw development into existing areas, are often associated with job creation and economic impacts during construction, as well as long-term economic benefits. In addition, some community-based initiatives aim to enhance community quality of life by improving access to transportation options, essential services (e.g., grocery stores, healthcare), or recreational space and opportunities.

Some community-based initiatives or projects may confer multiple economic and quality of life benefits. For example, a project to redevelop an abandoned facility into a park would create local jobs during the redevelopment process. Once developed, the new park has the potential to improve the quality of life residents within walking distance of the park, and may improve the economic competitiveness of local businesses around the park.

Measuring Economic and Quality of Life Outcomes

The goal in measuring economic and quality of life outcomes is to capture benefits that are additional to those related to human health and the environment. See the Economic and Quality of Life Outcomes menu on the next page for ideas and examples of applicable measures.

Example economic outcome measure:

As of July 2016, nearly 109,000 jobs have been leveraged through the Brownfields Program since its inception.

ECONOMIC AND QUALITY OF LIFE OUTCOMES

Measurable economy and quality of life benefits associated with initiative activities

CATEGORY	POTENTIAL MEASURES	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
Economic Benefits	Number of jobs leveraged, created, or retained at a target site	Partners will collect and report this information, but may need instructions and/or a standard template from EPA.	<ul style="list-style-type: none"> ▲ Brownfields: Jobs leveraged from Brownfields activities ▲ Partnership for Sustainable Communities: Combined Housing + Transportation Costs as a proportion of area median income (derived from the H+T Affordability Index)
	Number of jobs leveraged, created, or retained by the initiative		
	Economic output per unit of energy consumption		
	Housing and transportation costs as a proportion of area median income		
	Revenues created by local businesses that inhabited a redeveloped site or an area targeted by the initiative		
	Percent employment in locally- owned and operated businesses		
Quality of Life Benefits	Number of new residences constructed in targeted geographic area	Partners	<ul style="list-style-type: none"> ▲ Partnership for Sustainable Communities: Percent of household income spent on housing and transportation costs ▲ Partnership for Sustainable Communities: Percent of total regional population that reside in a low income census tract AND reside more than one mile from a supermarket/large grocery store (for rural census tracts, the distance is more than 10 miles) ▲ Partnership for Sustainable Communities: Percent of population that reside within ¼ mile of a park or open space ▲ CBEP: Percent of commuters living within 30 minutes of work ▲ CBEP: Ratio of energy extracted to renewable resource amount generated ▲ CBEP: Percent of population within ½ mile of green/open space
	Total percentage of people commuting via walking, biking, or transit		
	Increase in miles of road with bike lanes	Partners	
	Change in average wait time for bus (minutes)	Partners	
	Change in average wait time for train (minutes)	Partners	
	Increase in housing (number of units) for low income, medium income, and high income residents	Partners	
	Net acres of agricultural and natural resource land lost annually to development per new resident	Partners	
	Percent of population that is low income and does not live close to a supermarket or large grocery store	Partners	
	Amount spent on infrastructure repair relative to the amount of infrastructure in need of repair or replacement	Partners	
	Percent of new housing units built in previously	Partners	

CATEGORY	POTENTIAL MEASURES	PRIMARY DATA COLLECTOR (EPA OR PARTNERS)	EXAMPLES PREVIOUSLY OR CURRENTLY USED BY EPA COMMUNITY BASED PROGRAMS
	developed space		
	Percent of population within walking distance of a park or open space	Partners	
	Density of environmental hazards	Partners	
	Change in park and recreation space (acres) per capita (1000 people) within a ¼ mile radius.	Partners	
	Change in percent of population within walking distance of public transportation	Partners	

ADDITIONAL RESOURCES

Program Evaluation and Measurement

American Evaluation Association www.eval.org

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Social Network Analysis

Brieger, Ronald L. (2004). *The Analysis of Social Networks*. pp. 505-526 in Handbook of Data Analysis, edited by Melissa Hardy and Alan Bryman. London: SAGE Publications, 2004.

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