National Institute of Environmental Health Sciences

Partnerships for Environmental Public Health Evaluation Metrics Manual Workshop

Materials for the Participants

NIH...Turning Discovery Into Health ®

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Background

The NIEHS (National Institute of Environmental Health Sciences) has developed online workshop materials to help grantees and others learn about developing logic models and evaluation metrics for activities conducted in the Partnerships for Environmental Public Health (PEPH) program (http://www.niehs.nih.gov/pephmetrics). These materials are available to all who wish to download them. This document contains handouts participants will need for the workshop. The Instructor Guidance document (http://go.usa.gov/YckR) and PowerPoint presentation (http://go.usa.gov/YcKz) are also available as part of this package. The participant materials are designed to be printed on both sides of the paper. The three main handouts (A, B, and C) should be stapled separately because they are distributed to participants at different times during the workshop. The Feedback Form and Key points for Logic Modeling should be printed as separate pages. See the Instructor Guidance for more details.

PEPH Evaluation Metrics Manual Workshop: Handout A – Goods Movement Case Study

Introduction

In 2008, the NIEHS held a workshop for grantees to provide input on the development of the PEPH program. Grantees reported challenges in evaluating and documenting achievements related to building community partnerships and to other translation and outreach components of their programs. Many PEPH programs do not publish findings related to their community engagement, so the PEPH Evaluation Metrics Manual provides ideas about how to measure success. This workshop is designed to help grantees, partners, and program staff apply methods and metrics from the PEPH Evaluation Metrics Manual to their own programs.

Purpose of the Training

- To familiarize participants with the PEPH Evaluation Metrics Manual
- To give participants hands-on experience with developing logic models and identifying useful metrics from a real-world project
- To illustrate the utility of the tools in the Manual for program evaluation

Definitions

Logic Model – provides project-specific frameworks in an organized approach that can be used to develop informative metrics for evaluation. The basic components of a logic model include:

- **Inputs** – are the various resources available to a program
- **Activities** – are actions that use available inputs to generate a series of products
- **Outputs** – are the direct products of activities
- **Impacts** – are benefits or changes resulting from the activities and outputs

Metrics – are the measures (such as size, capacity, description, quality, quantity, duration or frequency) of a characteristic or aspect of the program.

Goods Movement – is the flow of global trade goods through ports, trucks, trains, warehouses and stores.

NOTE: Although this case study is based on a real-world research project, the logic model and metrics were developed with an eye to instruction.

This Workshop Handout is intended to serve as a companion to the Partnerships for Environmental Public Health Evaluation Metrics Manual training materials developed by NIEHS, available at: http://www.niehs.nih.gov/pephmetrics.

California Goods Movement Case

Over 40% of all goods imported to the US enter the country through the ports of Los Angeles and Long Beach. These Southern California ports are adjacent to each other in a densely populated region. Environmental health concerns related to the high volume of goods transported through the communities include polluted air, constant noise, heavy traffic, and continuous light from port, rail, and warehouse operations.

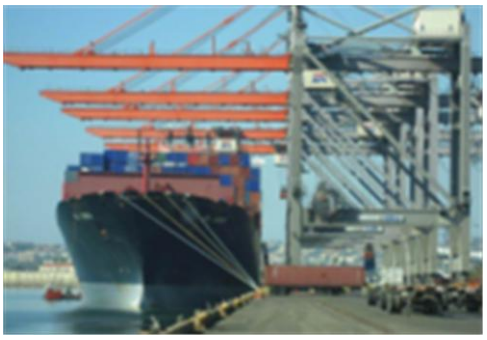


Photo credit: Andrea Hricko – the Port of Los Angeles

In 2001, the NIEHS funded a town hall meeting to discuss environmental health issues in southern California with a focus on air pollution. Participants at this meeting, hosted by the Community Outreach and Engagement Core of the NIEHS Center based at the University of Southern California, were particularly concerned about goods movement as a major issue affecting the community. After this meeting, a group of concerned community groups began working together and with USC to raise awareness about the issue. The partners leveraged their resources of knowledge, time, and funding to ensure that decision-makers understand the health and environmental impacts that goods movement has on the communities around the ports and factor these impacts into their decision-making. More than 10 years after the town meeting, the community and academic groups are still working together to raise awareness of the environmental public health impact of global trade and goods movement and to effect policy change to protect health.

Partners

Several partnerships formed in Southern California during the early 2000s in an effort to shift the focus of the goods movement debate from sole consideration of the economic benefits to considerations of the public and environmental health costs to the community. Some of the groups involved in the early partnerships included the University of Southern California's Children's Environmental Health Center (USC), the Center for Community Action and Environmental Justice, and the Long Beach Alliance for Children with Asthma. These partners developed Neighborhood Assessment Teams to collect air quality data, disseminate those findings amongst the community members, and mobilize the community to take action.

Photo credit: Allison Cook The Trade Health and Environment Impact Project partners after their 2007 Moving Forward Conference.

The partners were particularly successful with sharing information and resources. Scientific partners learned from the community group members about goods movement's impacts to their daily lives. The partners worked together to strengthen the capacity of the communities to use scientific and economic knowledge to mobilize other community members and advocate for policy change. After their initial successes working together, the partners decided to broaden their partnership into a larger collaborative called The Trade, Health & Environment (THE) Impact Project. New partners were included: East Yard Communities for Environmental Justice, Communities for a Safe Environment, and the Urban and Environmental Policy Institute of Occidental College. THE Impact Project partners have been working together since 2005.

Concerns

The project partners were particularly focused on getting the following concerns addressed:

- The impacts of the twin Ports of Los Angeles and Long Beach, including
  - Air pollution
  - Heavy traffic – especially of large trucks and freight trains
  - Noise pollution
  - Bright lights at the docks, rail yards and some warehouses
- The proximity of rail yards, warehouses, and busy freeways to schools and homes
- The lack of regulations regarding the ports and rail yards
- The predominant focus on the economic benefits of the ports and international trade over the environmental public health impacts on the surrounding communities

Photo credit: Andrea Hricko – Scene of a rail yard from a young girl's bedroom in Commerce, CA

Data[1]

- The 2006 California Air Resources Board (CARB) *Emission Reduction Plan for Ports and Goods Movement* indicated that, in California alone, there are:
  - 2,400 premature heart-related deaths related to port and goods movement pollution
  - 62,000 cases of asthma symptoms
  - More than 1 million respiratory-related school absences each year.
- The South Coast Air Quality Management District (AQMD) released a report indicating that diesel emissions account for 70% of the total cancer risk from air pollution and that the most impacted areas are located around the ports and freeways.

[1] Hricko A. 2008. Global trade comes home: Community impacts of goods movement. Environ Health Perspect 116:A78-A81; doi:10.1289/ehp.116-a78. Available: http://ehsehplp03.niehs.nih.gov/article/info%3Adoi%2F10.1289%2Fehp.116-a78 [accessed 20 December 2011].

- The ports are the single largest source of pollution in Southern California, according to the South Coast AQMD.
- Although SB 352, a law prohibiting building new schools within 500 feet of a busy road or freeway, was passed in 2003, some school districts have used loopholes to continue to build schools near busy roads or highways. The law does not address the issue of expanding a highway near an existing school or building a new rail yard near a school.

Photo credit: Angelo Logan (City of Commerce, CA)

Goals

The partners involved with THE Impact Project worked to build the capacity of the community members and leverage their combined resources in order to achieve the following goals:

- Reduce exposure to air pollution and ensure that public and environmental health impacts are considered when transportation and goods movement policies are made.
- Enhance the community-driven focus for the Community Outreach and Engagement Core at USC's Southern California Environmental Health Sciences Center.
- Share research findings with community members and legislators and have the community members help with disseminating those findings throughout their communities.
- Hear community concerns and life impacts from actual members of the communities and elevate those stories/concerns to policy-makers and the scientific communities.
- Obtain additional funding and leverage partner resources in order to sustain project activities.

Group Exercise (20 Minutes)

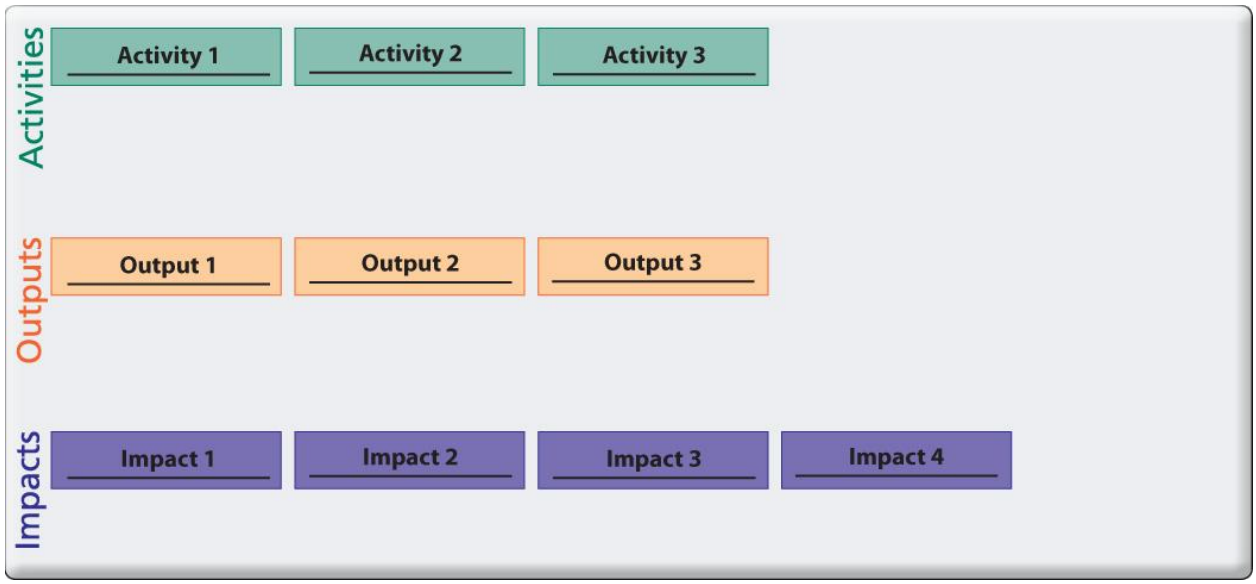
As a group, we will develop a logic model around one or more of these goals. We will choose one of the goals and brainstorm different activities, outputs, and impacts that will define "success" for a project for these goals. Later we will share a logic model developed around the actual program, and develop metrics for the logic models.

For reference, a generic logic model template and all the logic models from the PEPH Evaluation Metrics Manual are provided on the following pages.

Use the paper on your table to propose at least one activity, output, and impact for the goal we select.

Acknowledgement: Special thanks to Andrea Hricko of USC for her assistance in the development of this Case Study.

Logic Model Template



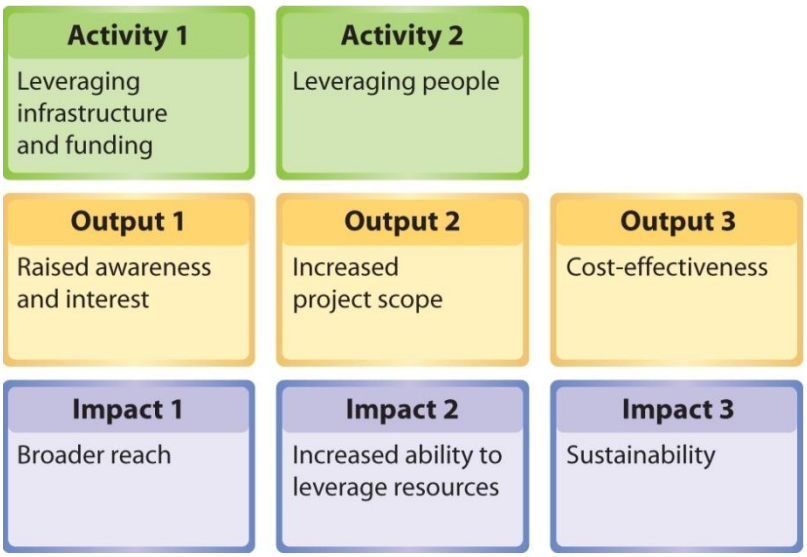
Evaluation Metrics Manual: Partnerships Logic Model

Activity 1	Activity 2	Activity 3	Activity 4	Activity 5
Identify partners	Build relationships with partners	Involve partners	Communicate clearly with partners	Maintain and improve partnerships and processes

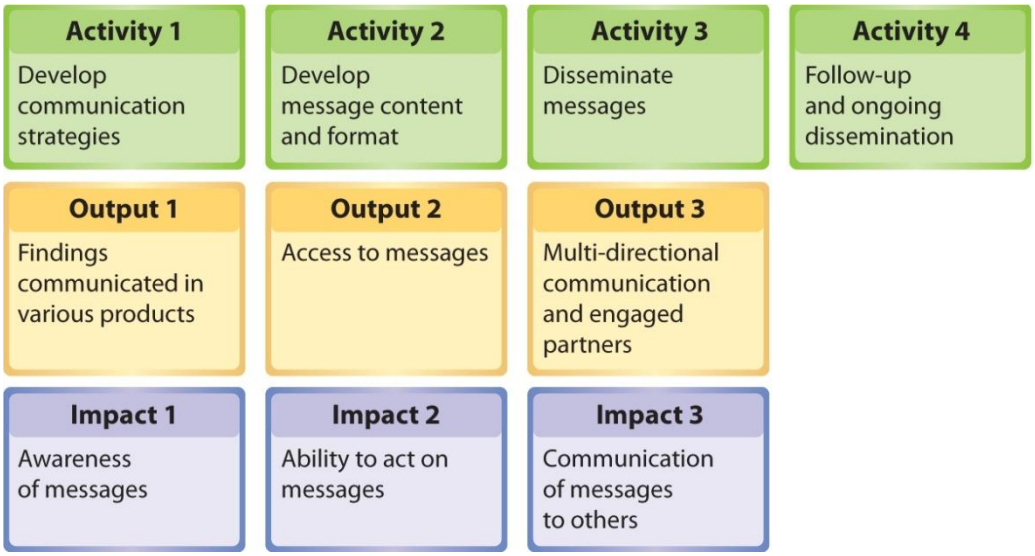
Output 1	Output 2	Output 3	Output 4
Multi-directional communication among partners	Commitment by partners	Translation of scientific findings among partners	Community involvement in research

Impact 1	Impact 2	Impact 3
Sustainable partnerships	Increased awareness of issues and research process	Expanded research collaborations

Evaluation Metrics Manual: Leveraging Logic Model

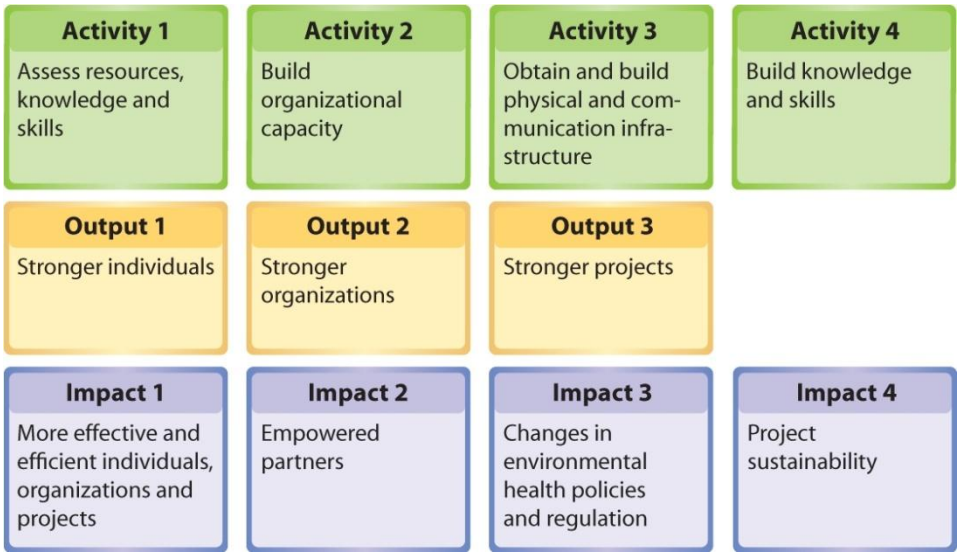


Evaluation Metrics Manual: Products and Dissemination Logic Model



Evaluation Metrics Manual: Education and Training Logic Model

Evaluation Metrics Manual: Capacity Building Logic Model



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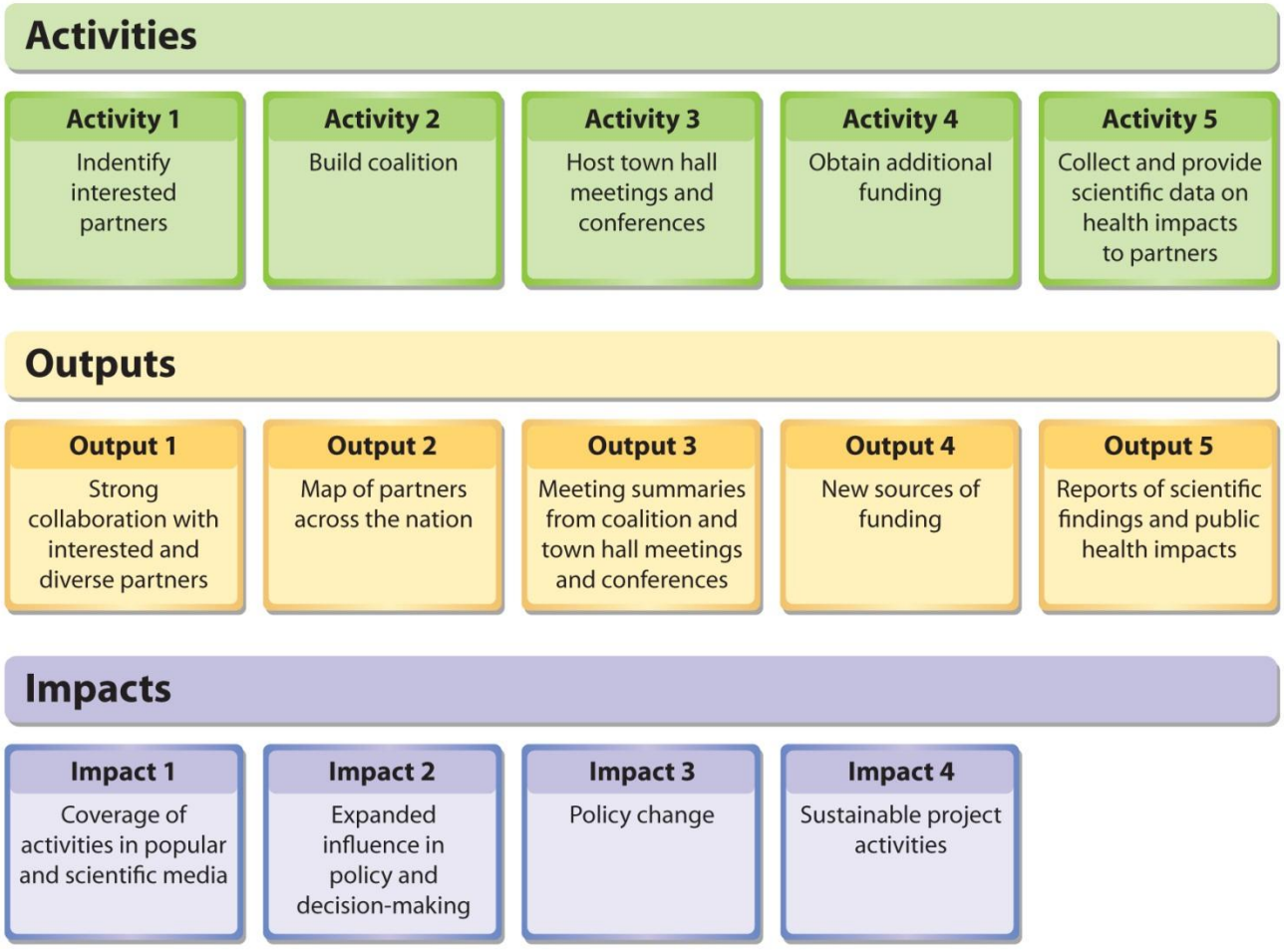
PEPH Evaluation Metrics Manual Workshop: Handout B – Goods Movement Case Study Logic Model

This handout provides some of the actual activities, outputs, and impacts related to the Goods Movement Case study.

Goods Movement Case Logic Model



Activities

Photo credit: Jesse N. Marquez (Press conference with Los Angeles Mayor Villaraigosa celebrating the Clean Air Action Plan)

Since the early 2000s, the project partners have focused on raising awareness of the issues and stakes pertaining to international trade and goods movement. Toward that end, the collaborative has engaged in a number of activities, including:

- Identify partners (e.g., community environmental justice groups, community asthma coalition, and university groups)
- Build a coalition
- Obtain additional funding and leverage those resources
- Collect and provide scientific data on health impacts to partners
- Host town hall meetings and conferences (not shown)
- Hire consultants to help with partnership facilitation, creation of logic models for the collaborative, and evaluation of project success (not shown)

Outputs Produced

- THE Impact Project collaborative has continued to grow and strengthen, sponsoring conferences in 2005, 2007, and 2010. The 2010 Moving Forward Together Conference had more than 600 attendees, including several hundred attendees from port and rail yard communities in other states (and countries).
- The collaborative has developed a website that contains multiple resources, such as interactive maps, meeting reports, scientific papers, fact sheets, and press releases.
- Reports from each of the town hall meetings and conferences are prepared and disseminated to partners and are available to the general public.
- In addition to the NIEHS funding, the six partners leveraged their work and were awarded two grants from The California Endowment totaling $1.2 million and one grant from The Kresge Foundation for $900,000.
- Since 2005, the groups have produced multiple reports and delivered hundreds of presentations detailing the environmental public health impacts of ports and goods movement and submitted dozens of detailed comment letters to government agencies about the potential environmental impacts of new port/rail/freeway/warehouse projects.

Open microphone session at Moving Forward Conference 2010. Photo credit: USC

Photo credit: Jesse N. Marquez – The Port of L.A.

Policy Achievements

As a result of the collaborative's involvement and efforts, policies have been changed to protect public health, community members have been trained to advocate for themselves and provided the scientific and regulatory foundation upon which to stand, and a nationwide movement has been established through leveraging materials and information aimed at stopping or mitigating goods movement expansion across the United States. Some of the impacts of the project partners are listed below.

- The work of the collaborative has been featured in multiple publications (*Scientific American*, NIEHS eFactor, etc.) and has received coverage in regional and national news.
- The work of the project partners contributed towards the formation of the historic agreement called the San Pedro Bay Ports Clean Air Action Plan that was signed in 2006 (see photo above). This plan stated that the Ports of Los Angeles and Long Beach would reduce air pollution by 45% by 2011. The partners received U.S. EPA Environmental Justice Leadership awards for their role in having the plan adopted.
- Under the Clean Air Action Plan, both Ports enacted the Clean Truck Programs, which established a progressive ban on polluting trucks. In the first year that the Port of Los Angeles implemented the Clean Truck Program, there was a 70% reduction in port truck emissions.
- Although the partners began by focusing on the Ports of Los Angeles and Long Beach, they ended up spurring a national movement to protect community public health from goods movement expansion through the success they had in effecting policy change in southern California. As part of this national movement, the collaborative is currently working on creating a governance structure for a nationwide communications network.

Acknowledgement: Special thanks to Andrea Hricko of USC for her assistance in the development of this Case Study.

Metrics Activity (20 Minutes)

For this activity, you will work with your neighbor for 5 minutes, using the worksheet below, to identify one or two metrics for one of the components of the logic model. Then, we will discuss the metrics with the group and identify a few more together. Later, we will share some of the metrics from the actual program.

Worksheet for Identifying Metrics

1. Which component of the logic model do you want to use to develop your metric?

   _____

   _____

2. What do you care about?

   _____

   _____

3. What are you trying to measure?

   _____

   _____

4. What data are you going to use and where / how will you get it?

   _____

   _____

5. How will you know if you have achieved success?

   _____

   _____

PEPH Evaluation Metrics Manual Workshop: Handout C – Goods Movement Case Study Metrics

This handout provides example metrics that could be used to measure the progress and program successes of the Goods Movement Case Study.

Goods Movement Case Metrics

Activities

Activity 1: Identify interested partners

- Number of partners identified

Activity 2: Build coalition

- Description of coalition mission and goals
- Schedule of coalition meetings
- Coalition participant contact list circulated among members
- Number of sectors/groups represented on coalition

Activity 3: Host town hall meetings and conferences

- Number of meetings held
- Number of conferences held
- Description of partner input into meeting and conference agendas
- Description of how community partners and academics can share the time at the meetings
- Description of attention paid to date, location of meeting
- Description of feedback trends provided by participants

Activity 4: Obtain additional funding

- Number of grant applications submitted

Activity 5: Collect and provide scientific data on health impacts to partners

- Number of PIs conducting relevant research
- Number of other research staff conducting relevant research
- Description of community involvement in research process
- Description of dissemination techniques (websites, videos produced, fact sheets, presentations)

Outputs

Output 1: Strong coalition with interested and diverse partners

- Number of members in the community organization (change in number as coalition grows)
- Description of financial stability of coalition
- Description of governance rules
- Trends in meeting attendance by members (do members regularly participate in meetings)

Output 2: Map of partners across the nation

- How many groups nationwide are involved in the network and included on the maps
- How to disseminate the maps and make them interactive so that others can add information to them

Output 3: Meeting summaries from coalition and town hall meetings and conferences

- Number and content of meeting summaries
- Description of dissemination plans for summaries
- Description of partner access to summaries
- Results from evaluations/feedback forms and how they are disseminated

Output 4: Reports of scientific findings and public health impacts

- Number of reports produced, presentations made, videos produced
- Description of dissemination plans for reports
- Number of people receiving the report, in attendance at presentations, or who viewed videos

Impacts

Impact 1: Coverage of activities in popular and scientific media

- Number of popular media articles published
- Estimate of number of people who read the articles
- Number of "hits" articles received on popular media websites
- Number of times article got posted to social networking sites

Impact 2: Expanded influence in policy and decision-making

- Number of non-local participants at town hall meetings and conferences
- Number of policy makers at town hall meetings and conferences
- Number of representatives on advisory boards that are tasked with implementing and enforcing policies

Impact 3: Policy change

- Number of meetings conducted with policy makers
- Description of efforts to provide data to policy makers
- Number of policies implemented

Impact 4: Sustainable project activities

- Description of plans to sustain project without initial funding source (that is, when initial funding ends)
- Description of leadership succession plans
- Description of long-term project plans

Acknowledgement: Special thanks to Andrea Hricko of USC for her assistance in the development of this Case Study

The SMART Metrics Rubric

Once you have some metrics identified, it can be helpful to look at them realistically in the context of your program. Do they make sense? Do you have the resources to collect, store, and analyze them? Will they really describe the most important aspect of your project's achievement? The "SMART" metric rubric can help you think critically about your metrics. No metric will be perfect, but given project realities it can be helpful to weigh pros and cons for each metric to choose the most useful set for your goals and situation.

Specific – detail the milestones you expect to achieve, who will achieve them, and how. If your program is addressing exposure to pesticides, a specific measure provides details about what types of pesticides, whom you are trying to target, what level of reduction in exposure you expect to achieve, and how you will achieve that reduction.

Measurable – define exactly what level of change you expect to achieve. For example, rather than say that relationships among partners will improve, a measurable statement might propose that partners will participate in four discussions per year, during which they will identify two areas of conflict or potential conflict and map out at least one strategy for dealing with the conflict.

Attainable – create a metric that your group or organization can actually achieve. Rather than working towards a goal of eliminating all environmental health risks in a community, an attainable goal might be working with partners and community members to identify one environmental health risk and to make the community aware of steps it can take to reduce risk.

Relevant – ensure that your metric is connected to your goal. If your goal is to improve air quality around schools' bus areas, then a relevant metric might measure partnership activities with schools and school-bus companies, school-bus idling times, or air quality. Be careful what you choose: e.g., a metric related to the number of school bus drivers with CPR training is not relevant because it does not relate to air quality.

Timely – limit your metrics to those measures that you can reasonably collect within the time frame of the project. If your project deals with reducing blood lead levels in young children, you might want to measure blood lead levels at six months, one year, and two years post intervention. Although you may be interested in blood lead levels ten years from the intervention, it is not likely that you will be able to follow your participants that long.

PEPH Evaluation Metrics Manual Workshop: Handout A – Encuentros Network Case Study

Introduction

In 2008, NIEHS held a workshop for grantees to provide input on the development of the PEPH program. Grantees reported challenges in evaluating and documenting achievements related to building community partnerships and to other translation and outreach components of their programs. Many PEPH programs do not publish findings related to their community engagement, so the PEPH Evaluation Metrics Manual provides ideas about how to measure success. This workshop is designed to help grantees, partners, and program staff apply methods and metrics from the PEPH Evaluation Metrics Manual to their own programs.

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Encuentro – is a Spanish term term for a process that brings together community members, researchers, policy makers, and others in a facilitated small group setting to discuss and collectively address the issues a community is facing.

NOTE: Although this case study is based on a real-world research project, the logic model and metrics were developed with an eye to instruction.

This Workshop Handout is intended to serve as a companion to the Partnerships for Environmental Public Health Evaluation Metrics Manual training materials developed by NIEHS, available at: http://www.niehs.nih.gov/pephmetrics.

Encuentros Network

The University of Texas, Medical Branch (UTMB) has a long history of working with Gulf Coast communities to address environmental public health concerns through its Environmental Health Sciences Core Center. The communities along the Alabama, Louisiana, Mississippi and Texas coasts boast enormous environmental resources. However, the same factors that create these natural resources also put them at high risk of natural and man-made disasters, such as hurricanes and oil spills. These disasters have the potential to impact the capacity and infrastructure available to the community.

The Encuentros Network is a consortium of university and community partners working together to build capacity in these gulf coast areas to understand the interplay and effects of multiple stressors on human health, build community resilience, and address environmental health concerns. This work aims to understand how local populations respond to and recover from disasters. Through their partnerships with community-based organizations, researchers assess and strengthen the ways that culture, social networks, and other determinants may enhance pre-event preparedness and post-event recovery.

Playground at Carver Terrace Projects; Port Arthur, TX

Encuentro

As a way to build partnerships around environmental health concerns, UTMB began developing a series of community interactions a process called Encuentros. The term Encuentro, which is based on the ideas of engagement and discovery, is a Spanish term for a process that brings together community members, researchers, policy makers, and others in a facilitated small group setting to discuss and collectively address the issues a community is facing. UTMB has hosted annual Encuentros since 2008. The group formed with the intent to transmit skills, share news and successes, promote collaboration among communities and regional researchers, and extend the scope of a regional network of community based Environmental Justice organizations using credible environmental science as the basis for public health advocacy.

As the meetings evolved over several years, community partners assumed responsibility for organizing the meeting and identifying topics. Following each Encuentro, community partners work with UTMB to host Community Science Workshops that partner communities with scientists who have the expertise to help them address the concerns identified during the Encuentro process.

Partners

University of Texas Medical Branch at Galveston (UTMB) has established relationships with the coastal communities because of their involvement in the recovery efforts after Hurricanes Katrina, Rita, and Ike. Early partners in the *Encuentros* / Community Science Workshops included:

Doris Bagsby, of St. Vincent's House in Galveston, TX talks about toxics found in storm surge sediment on the site of the former Las Palmas public housing project.

- T.e.j.a.s. (Texas Environmental Justice Advocacy Services) (Houston, TX)
- NIEHS CET-COEC (@ UTMB)
- GHASP / Air Alliance Houston (Houston, TX)
- Southwest Workers Union (San Antonio, TX)
- De Madres a Madres (Houston, TX)
- Texans Together (Houston Branch)
- Down-Winders @ Risk (Midlothian, TX)
- St. Vincent's House (Galveston, TX)
- Louisiana Bucket Brigade (New Orleans, LA)
- Community In-Power & Development Association (Port Arthur, TX)
- Citizens for Environmental Justice (Corpus Christi, TX)
- Citizens League for Environmental Action Now (Houston, TX)
- Mothers for Clean Air / 5 Ward Chapter (Houston, TX)
- Galveston Baykeeper (La Porte-Shore Acres, TX)
- Bayou Interfaith Shared Community Organizing (Thibodaux, LA)
- Louisiana Environmental Action Network (Baton Rouge, LA)

Concerns

The primary focus of the early Encuentro Network was the plight of petrochemical, heavy industrial, or military installation fence line neighborhoods and communities in Texas and Louisiana. Specific concerns included the health effects of chronic low level ambient exposures to known carcinogens (e.g., BTEX), multiple chemical exposures, upsets-spills-fires-explosions-excessive flaring from proximate facilities, shelter-in-place & evacuations, density of facilities, diesel traffic / diesel particulate exposure, perceived high incidence of various cancers, and high incidence of respiratory problems including asthma, chronic bronchitis. Through the encuentro process, community members also identified concerns with quality of life issues including industrial noise, blowing dust, possible metals exposure pathway, the high density of rail lines carrying hazardous stock chemicals, and legacy pollution from previous casting, smelting, processing industrial operations.

Goals

Progress and product of pre-Encuentro community mapping workshop.

The partnership goals are to:

- Facilitate community ownership in identifying solutions to environmental health concerns
- Build and strengthen relationships between community partners and researchers
- Identify parameters that help or hinder community response to natural and man-made disasters that impact the Gulf Coast
- Help communities improve resilience to future disasters
- Disseminate scientific findings to community stakeholders

Acknowledgement: Special thanks to John Sullivan and Sharon Croissant University of Texas Medical Branch, Galveston, and to Juan and Bryan Parras of the Texas Environmental Justice Advocacy Services for their assistance in the development of this Case Study.

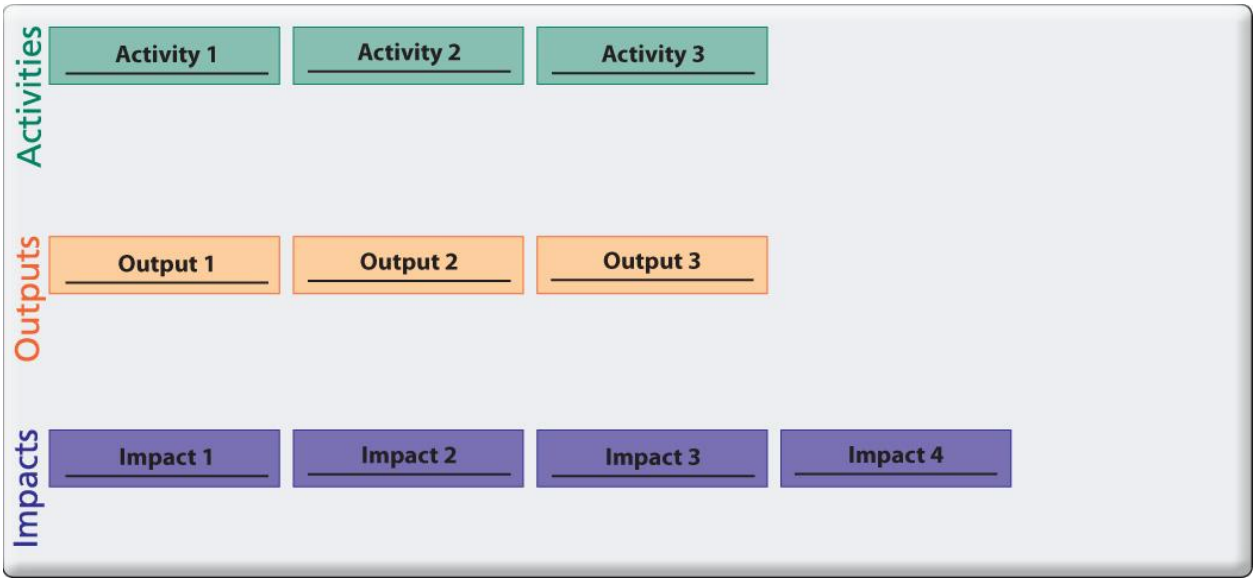
Group Exercise (20 Minutes)

As a group, we will develop a logic model around one or more of these goals. We will choose one of the goals and brainstorm different activities, outputs and impacts that will define "success" for a project for these goals. Later we will share a logic model developed around the actual program, and develop metrics for the logic models.

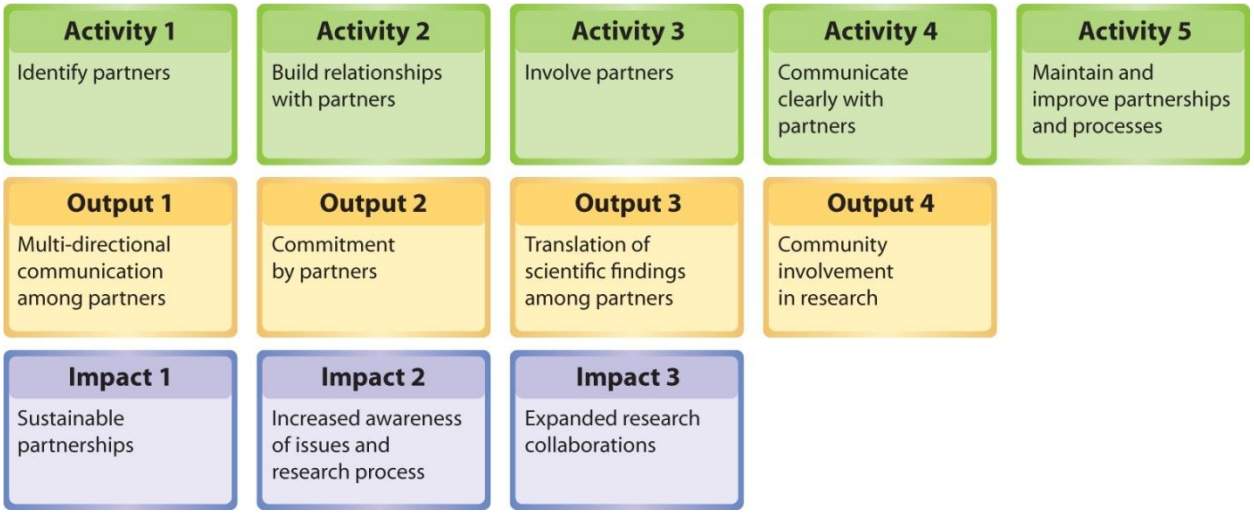
For reference, a generic logic model template and all the logic models from the PEPH Evaluation

Community members participating in the Community Environmental Theatre Forum in Buffalo, NY act out the progression from engagement to rejection of collaboration in response to power imbalances between community & university participants.

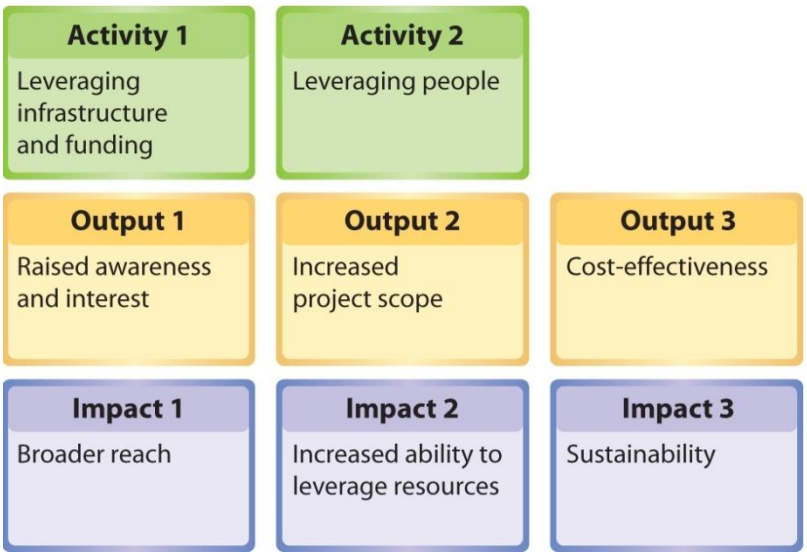
Logic Model Template



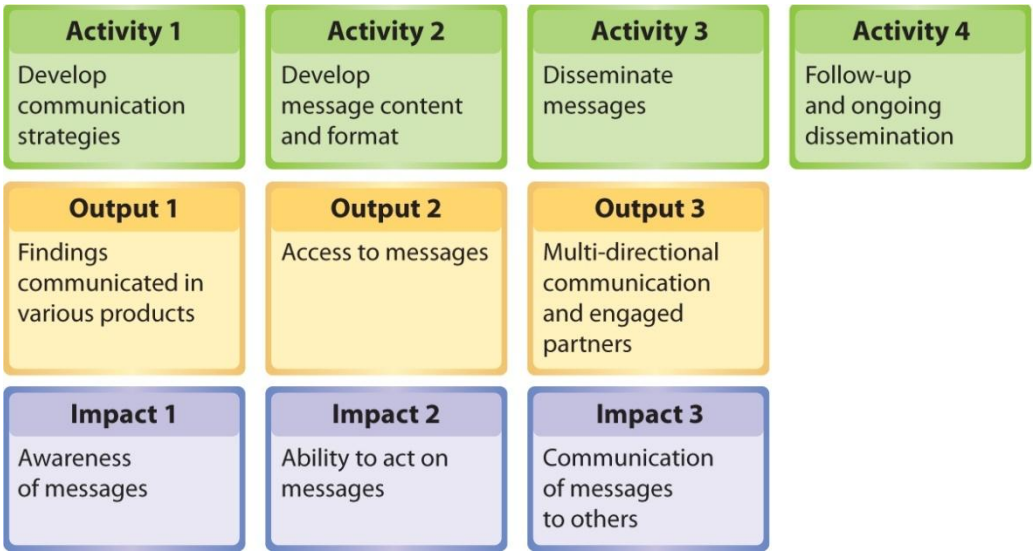
Evaluation Metrics Manual: Partnerships Logic Model



Evaluation Metrics Manual: Leveraging Logic Model

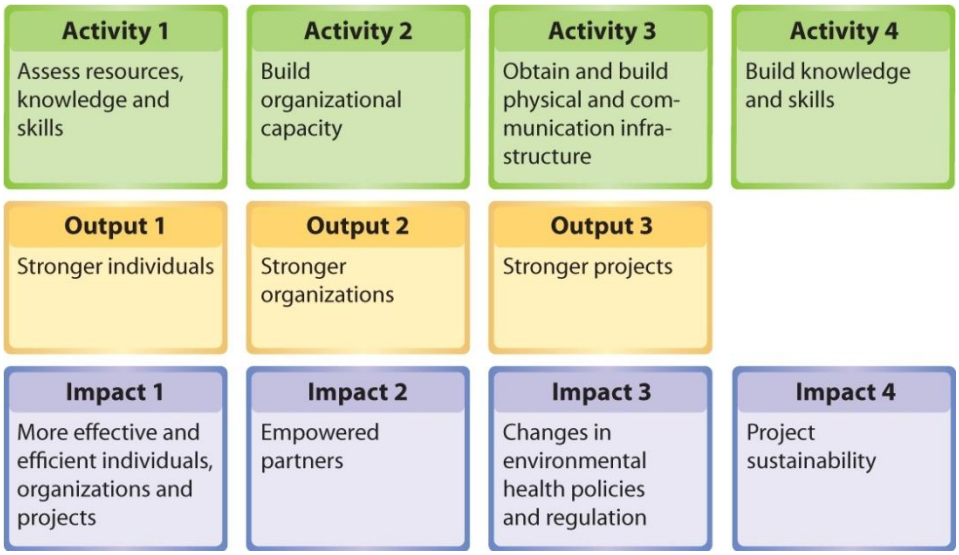


Evaluation Metrics Manual: Products and Dissemination Logic Model



Evaluation Metrics Manual: Education and Training Logic Model

Evaluation Metrics Manual: Capacity Building Logic Model



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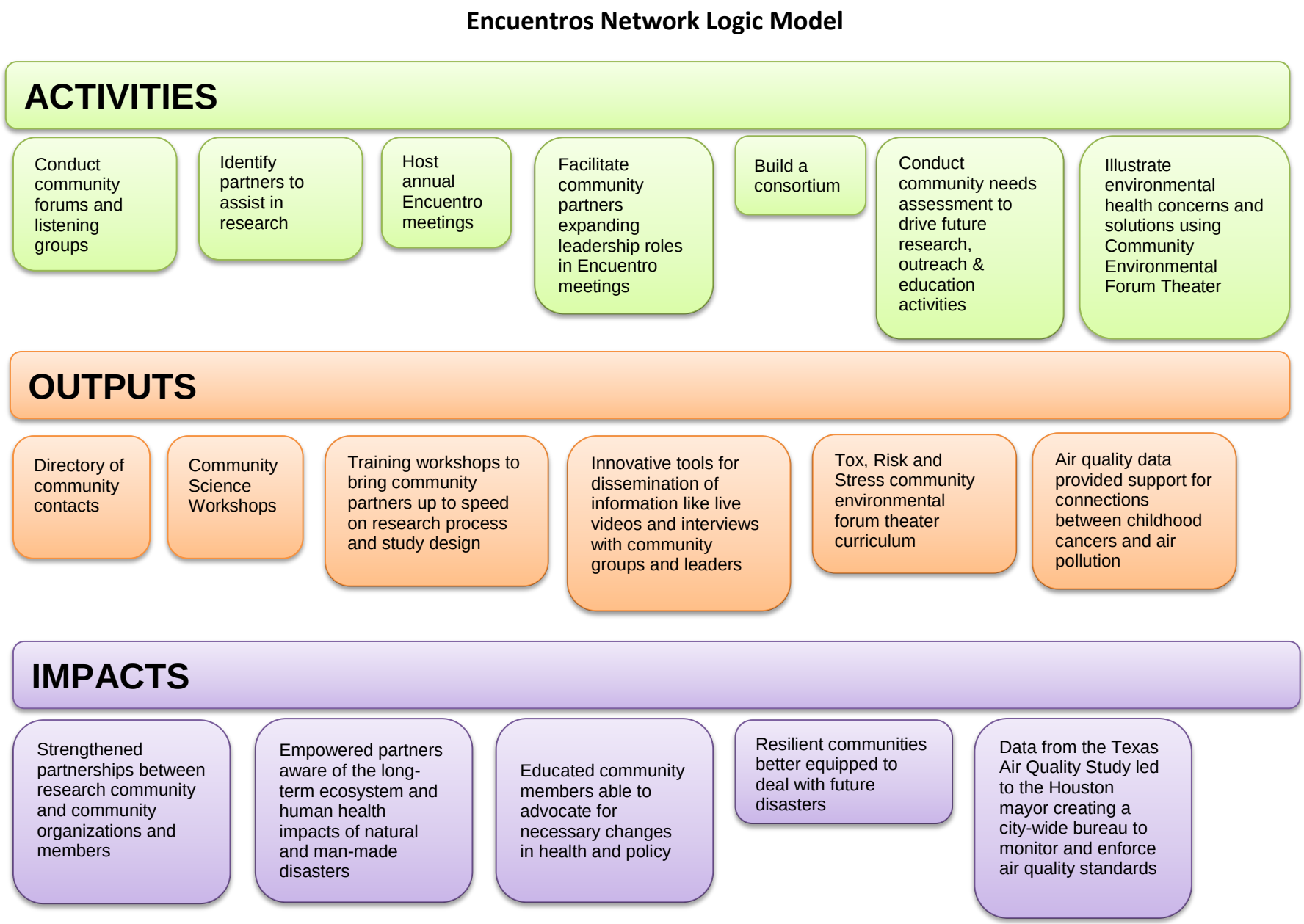
PEPH Evaluation Metrics Manual Workshop: Handout B - Encuentros Network Logic Model



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Metrics Activity (20 Minutes)

For this activity, you will work with your neighbor for 5 minutes, using the worksheet below, to identify one or two metrics for one of the components of the logic model. Then, we will discuss the metrics with the group and identify a few more together. Later, we will share some of the metrics from the actual program.

Worksheet for Identifying Metrics

1. Which component of the logic model do you want to use to develop your metric?

   _____

   _____

2. What do you care about?

   _____

   _____

3. What are you trying to measure?

   _____

   _____

4. What data are you going to use and where / how will you get it?

   _____

   _____

5. How will you know if you have achieved success?

   _____

   _____

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PEPH Evaluation Metrics Manual Workshop: Handout C – Encuentros Network Case Study Metrics

This handout provides example metrics that could be used to measure the progress and program successes.

Activities

- Conduct community forums and listening groups
    - Number of community forums and listening groups conducted
    - Description of topics discussed
    - Description of community members participating
    - Number of community members participating
    - Description of efforts made to make the forums accessible
- Identify partners to assist in research - community partners, university
    - Description of potential partners
    - Description of resources potential partners would bring to effort
    - Description of efforts to contact partners
    - Log of partner contacts
- Host annual Encuentro meetings
    - Number of meetings conducted
    - Description of topics discussed
    - Description of participants, including geographic representation
    - Number of participants
    - Description of efforts made to make the meetings accessible
    - Copy of meeting agendas
- Facilitate community partners expanding leadership roles in Encuentro meetings
    - Description of leadership roles and responsibilities
    - Defined terms of leadership
    - Description of requirements for assuming leadership
    - Description of methods of selecting leadership positions
    - Number of community partners in leadership roles
- Build a Consortium
    - Number of partners participating in the consortium
    - Description of partners participating in the consortium
    - Description of consortium responsibilities and activities
    - Description of consortium leadership and financial management plans
- Conduct comprehensive community needs assessment to drive future research, outreach and education activities
    - Description of needs and resources identified

- Illustrate environmental health concerns and solutions using Community Environmental Forum Theater/Theater of the Oppressed
    - Number of theater forums conducted
    - Description of curriculum/content of theater forums
    - Number of participants in theater forums
    - Description of participants in theater forums
    - Description of topics and issues raised during the sessions

Outputs

- Directory of community contacts
    - Number of copies distributed
    - Description of how directory is used
    - Description of who uses the directory
- Community Science Workshops
    - Number of workshops conducted
    - Description of participants
    - Number of participants
    - Description of workshop curriculum
    - Description of efforts to make workshops accessible to community partners
- Training workshops to bring community partners up to speed on research process and study design
    - Number of workshops conducted
    - Description of participants
    - Number of participants
    - Description of workshop curriculum
    - Description of efforts to make workshops accessible to community partners
    - Number of Theater of the Oppressed workshops hosted by communities
    - Description of topics/issues raised during the Theater workshops
- Innovative tools for dissemination of information like live videos and interviews with community groups and leaders
    - Number of tools created
    - Description of tools created
    - Description of those who use the tools
    - Descriptions of how the tools are used
- Tox, risk and stress community environmental forum theater curriculum
    - Description of curriculum
    - Number of curriculums developed
- Air quality data provided support for connections between childhood cancers and air pollution
    - Description of data provided
    - Description of who the data was provided to
    - Description of the methods by which the data was provided

Impacts

- Strengthened partnerships between researchers, community organizations and members
    - Change in the number of partnerships
    - Description of how the partnerships have evolved over a certain timeframe
    - Description of how researchers' understanding of community concerns has changed in a way that allows them to operationalize CBPR principles in studies
- Empowered partners aware of the long-term ecosystem and human health impacts of natural and man-made disasters
    - Description of change in knowledge
    - Description of changes in behavior
- Educated community members able to advocate for necessary changes in health and policy
    - Description of examples of community partners relaying information to others
    - Description of data used to advocate for change
    - Description of advocacy efforts of community members
    - Number of community members able to advocate
- Resilient communities better equipped to deal with future disasters, such as the Deep Water Horizon Spill in 2010
    - Descriptions of how communities demonstrate their resiliency
    - Descriptions of key skills or knowledge communities now posses
- Data from the Texas Air Quality Study led to the Houston mayor creating a city-wide bureau to monitor and enforce air quality standards
    - Description of policy passed
    - Description of efforts partners made to provide mayor with appropriate data

Epilogue

After several years of relationship and capacity building, the Encuentros Network has cycled through the logic model and now has a second set of activities, outputs and impacts guiding their work.

- Conducted a "Toxic Tour" of Houston's Industrial Ship Channel communities (Galena Park, Manchester, La Porte, Bayport & Baytown with focus on petrochemical fence-line emissions, diesel particulates exposure, excessive noise and neighborhood encroachment by Port of Houston container facilities, lack of access to wholesome food, access to health care)
- Conducted a community mapping workshop with Community In-Power & Development Association (Port Arthur TX) and the Pacific Institute of Oakland CA
- Conducted a regional community networking and reciprocal education sessions
- Conducted a symposium on possible hydrocarbon exposures and health effects stemming from the Macondo Oil Spill in the Gulf of Mexico
- Conducted CBPR story-telling presentations in 2010, 2011 and 2012 on building sustainable research relationships, featuring speakers from a range of national EHS organizations
- Invited Margaret Gordon (Port Commissioner, Oakland CA) to share experiences re: community access & input; outreach & education, and development of community-based political leverage

Acknowledgement: Special thanks to John Sullivan and Sharon Croissant University of Texas Medical Branch, Galveston, and to Juan and Bryan Parras of the Texas Environmental Justice Advocacy Services for their assistance in the development of this Case Study.

The SMART Metrics Rubric

Once you have some metrics identified, it can be helpful to look at them realistically in the context of your program. Do they make sense? Do you have the resources to collect, store and analyze them? Will they really describe the most important aspect of your project's achievement? The "SMART" metric rubric can help you think critically about your metrics. No metric will be perfect, but given project realities it can be helpful to weigh pros and cons for each metric to choose the most useful set for your goals and situation.

Specific – detail the milestones you expect to achieve, who will achieve them and how. If your program is addressing exposure to pesticides, a specific measure provides details about what types of pesticides, whom you are trying to target, what level of reduction in exposure you expect to achieve and how you will achieve that reduction.

Measurable – define exactly what level of change you expect to achieve. For example, rather than say that relationships among partners will improve, a measurable statement might propose that partners will participate in four discussions per year, during which they will identify two areas of conflict or potential conflict and map out at least one strategy for dealing with the conflict.

Attainable – create a metric that your group or organization can actually achieve. Rather than working towards a goal of eliminating all environmental health risks in a community, an attainable goal might be working with partners and community members to identify one environmental health risk and to make the community aware of steps it can take to reduce risk.

Relevant – ensure that your metric is connected to your goal. If your goal is to improve air quality around schools' bus areas, then a relevant metric might measure partnership activities with schools and school-bus companies, school-bus idling times or air quality. Be careful what you choose: e.g., a metric related to the number of school bus drivers with CPR training is not relevant because it does not relate to air quality.

Timely – limit your metrics to those measures that you can reasonably collect within the time frame of the project. If your project deals with reducing blood lead levels in young children, you might want to measure blood lead levels at six months, one year and two years post intervention. Although you may be interested in blood lead levels ten years from the intervention, it is not likely that you will be able to follow your participants that long.

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PEPH Evaluation Metrics Manual Workshop: Handout A – Cincinnati Anti-Idling Campaign Case Study

Introduction

In 2008, NIEHS held a workshop for grantees to provide input on the development of the PEPH program. Grantees reported challenges in evaluating and documenting achievements related to building community partnerships and to other translation and outreach components of their programs. Many PEPH programs do not publish findings related to their community engagement, so the PEPH Evaluation Metrics Manual provides ideas about how to measure success, other than through analysis of peer-reviewed literature. This workshop is designed to help grantees, partners, and program staff apply methods and metrics from the PEPH Evaluation Metrics Manual to their own programs.

Purpose of the Training

- To familiarize participants with the PEPH Evaluation Metrics Manual
- To give participants hands-on experience with developing logic models and identifying useful metrics from a real-world project
- To illustrate the utility of the tools described in the Manual to participants in evaluating their programs

Definitions

Logic Model – provides project-specific frameworks in an organized approach that can be used to develop informative metrics for evaluation. The basic components of a logic model include:

- **Inputs** – the various resources available to a program
- **Activities** – are actions that use available inputs to generate a series of products
- **Outputs** – are the direct products of activities
- **Impacts** – are benefits or changes resulting from the activities and outputs

Metrics – are the measures (such as size, capacity, description, quality, quantity, duration or frequency) of a characteristic or aspect of the program.

NOTE: Although this case study is based on a real-world research project, the logic model and metrics were developed with an eye to instruction.

This Workshop Handout is intended to serve as a companion to the Partnerships for Environmental Public Health Evaluation Metrics Manual training materials developed by NIEHS, available at: http://www.niehs.nih.gov/pephmetrics.

Cincinnati Anti-Idling Campaign Study

Children spend roughly 35 hours a week at school, and while schools generally can provide valuable education and social supports, they can sometimes pose environmental health problems. One of the exposures children in school face is traffic related air pollution (TRAP), which can be a risk factor for asthma. Asthma is the most common chronic childhood illness, accounting for 12.8 million missed school days each year and 10.1 million lost work days for adults.[2] Many schools, especially those in urban areas, border major roads which handle high bus and truck traffic. Diesel exhaust from idling school busses is another common source of polluted air. This project was designed to reduce children's exposure to TRAP in the school environment by developing and implementing an anti-idling campaign that targeted the busses used in the school system.

Photo Credit: Cynthia Eghbalnia, Co-Investigator, CPS

Partners

This Cincinnati-based project involved the collaboration of the three primary partners: researchers at the University of Cincinnati (UC) and Cincinnati Children's Hospital Medical Center (CCHMC), the Cincinnati Health Department (CHD), and the Cincinnati Public Schools (CPS). These partners had already formed a collaborative relationship prior to obtaining funding for this project. They met regularly to discuss opportunities for collaboration on environmental health research.

The research team at UC/CCHMC, led by Patrick Ryan, Ph.D., provided the scientific foundation for the project as well as the data collection and analysis. UC also secured the primary project funding. CPS provided educational expertise, access to schools, students, and staff, and also hosted the project website. CHD provided healthcare expertise and support. The partners collaborated well, each bringing its expertise to bear on creating high quality products to serve the project needs.

The anti-idling campaign also had significant support from the community. School staff and bus drivers were invested in the project due to the potential impact on their own health. Policy makers were interested in the project due to the public health and economic implications. And community members and families of students were interested in the project because of the potential for improvements in their children's health.

[2] American College of Allergy, Asthma & Immunology (ACAAI). 2010. Asthma Fact Sheet. Available: http://www.acaai.org/press/Pages/asthma-facts.aspx [accessed 3 July 2012].

Data

Graphic designed by: Hamilton County Department of Environmental Services

Some of the data used to justify the implementation of the anti-idling campaign included:

- The prevalence of asthma in children has more than doubled in the past two decades, with urban populations experiencing the highest increase in disease prevalence and severity.
- Children are more susceptible to air pollution than adults because they breathe 50 percent more air per pound of body weight than adults, their lungs are still developing, and they are more likely to play actively outdoors.
- Almost 40% of public schools in Cincinnati are located near major roads, which is 10% higher than the national average.
- 24% of Cincinnati public school children have asthma, which is almost double the nationwide statistic for children.
- An EPA study[3] found that the emissions from a school bus that is restarted contain less carbon monoxide, nitrogen oxides, and other pollutants than from a school bus that idled continuously for 10 minutes. The analysis showed that continuous idling for more than three minutes emitted more fine particle (soot) emissions than at restart.
- A prior UC study[4] found a significant association between school bus traffic and idling and particle number concentrations outside of the school.

Goals

Project goals included:

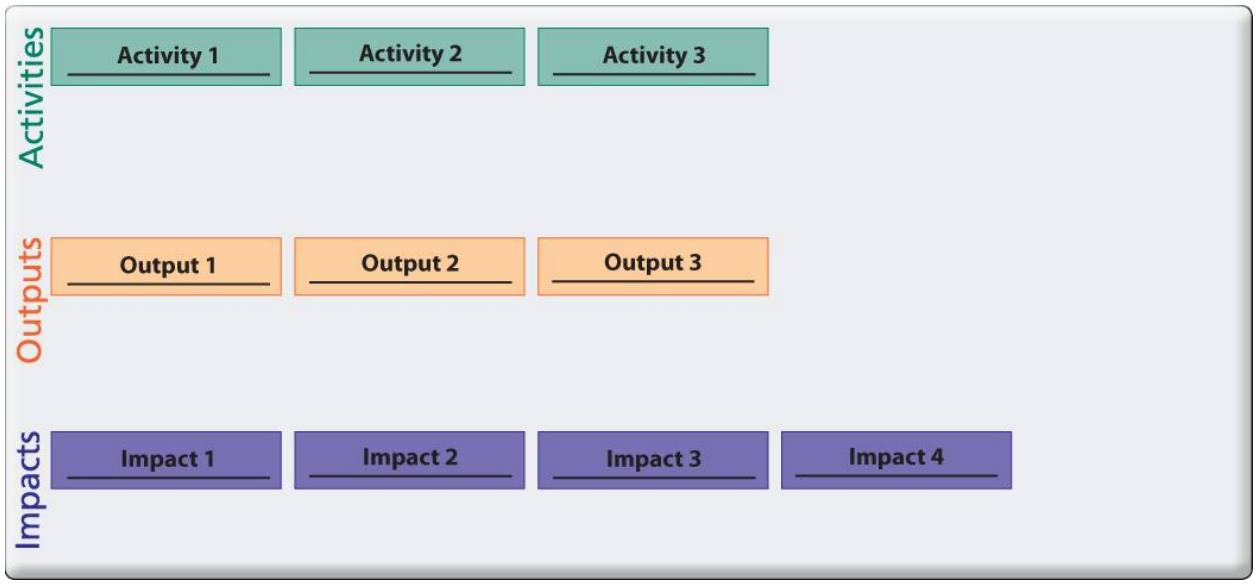
- Determining if children are exposed to increased TRAP at schools.
- Developing and implementing a community-driven anti-idling campaign to reduce children's exposure to TRAP at schools.
- Measuring the impact of an anti-idling campaign on children's exposure to TRAP at schools.
- Determining the impacts of an anti-idling campaign on asthma morbidity.
- Measuring the impact an anti-idling campaign has on idling practices by school busses and passenger vehicles at schools during pick up and drop off times.

Acknowledgement: Special thanks to Patrick Ryan of UC/CCHMC and Cynthia Eghbalnia of CPS for their assistance in the development of this Case Study.

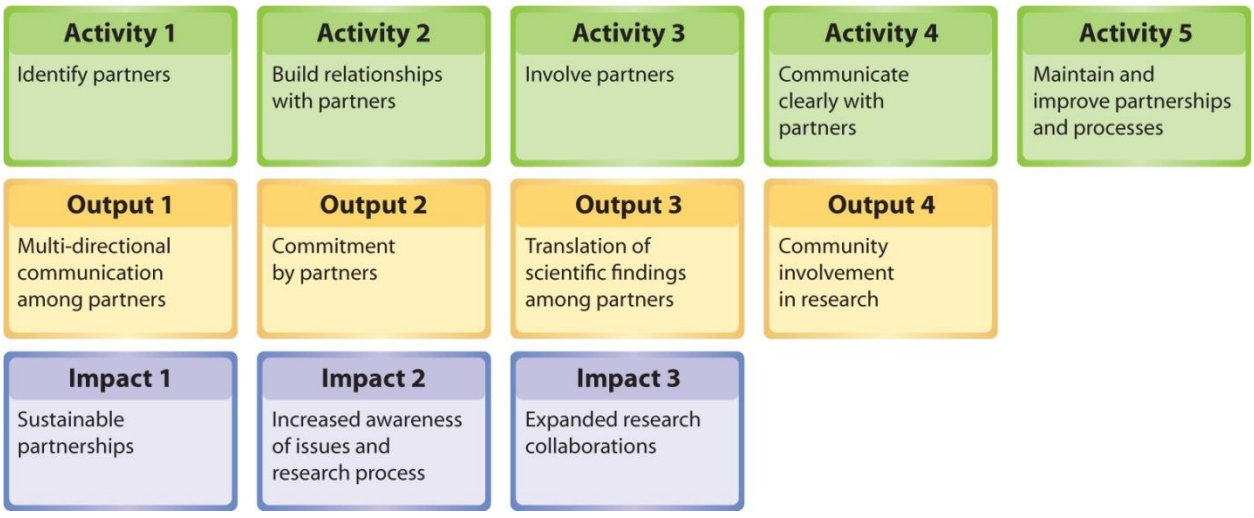
[3] U.S. Environmental Protection Agency (EPA). 2010. Region 2's School Bus Study Supports Idling Reduction in a Big Way. Available: http://www.epa.gov/Region2/cleanschoolbus/study.htm [accessed 14 May 2012].

[4] Li C, Nguyen Q, **Ryan PH**, LeMasters GK, Spitz H, Lobaugh M, Glover S, Grinshpun SA. 2009. School bus pollution and changes in the air quality at schools: a case study. Journal of Environmental Monitoring 11:1037.

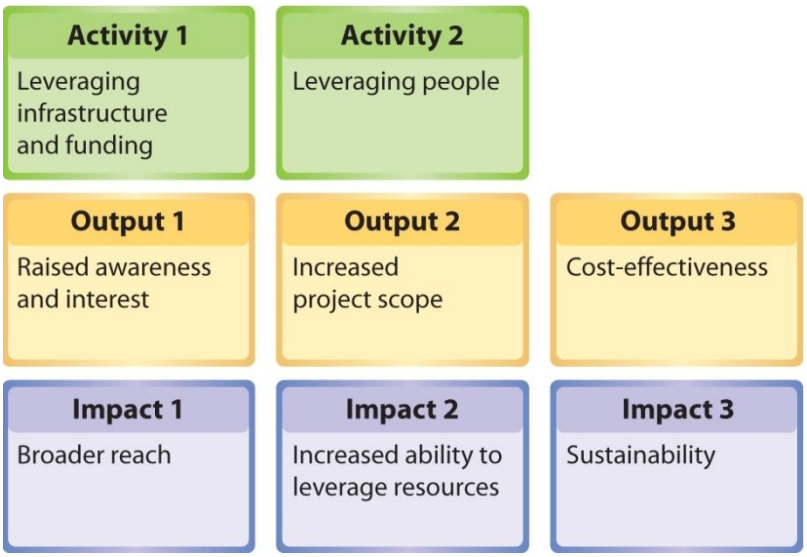
Logic Model Template



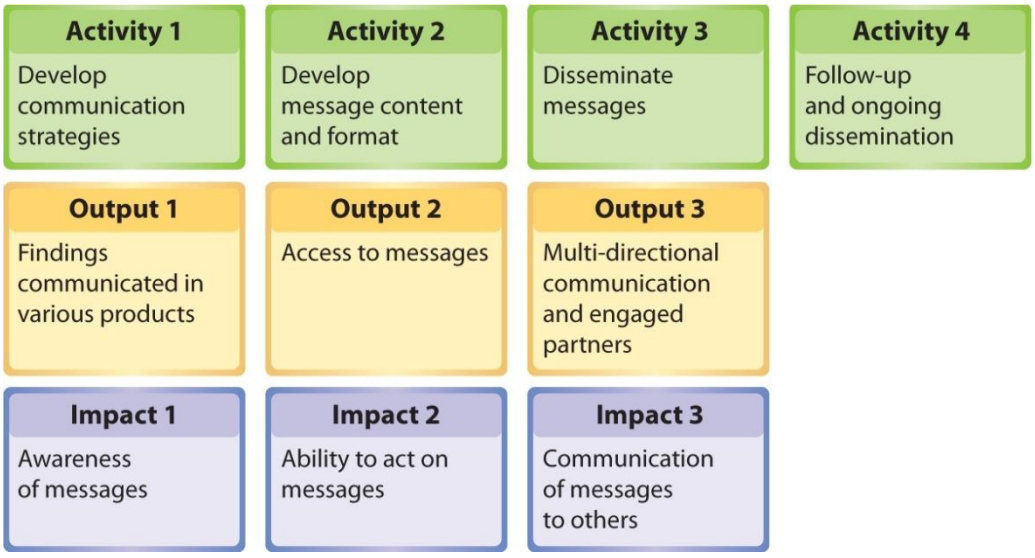
Evaluation Metrics Manual: Partnerships Logic Model



Evaluation Metrics Manual: Leveraging Logic Model

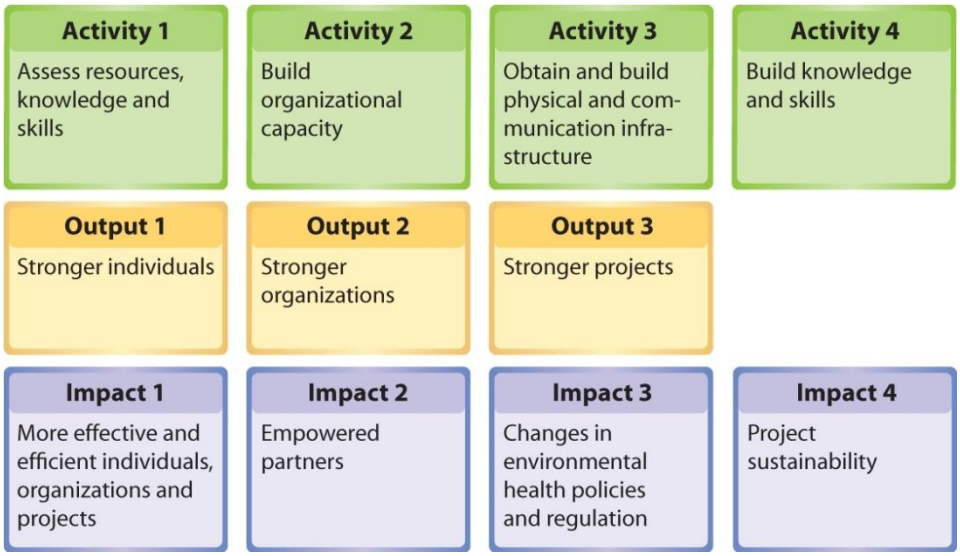


Evaluation Metrics Manual: Products and Dissemination Logic Model



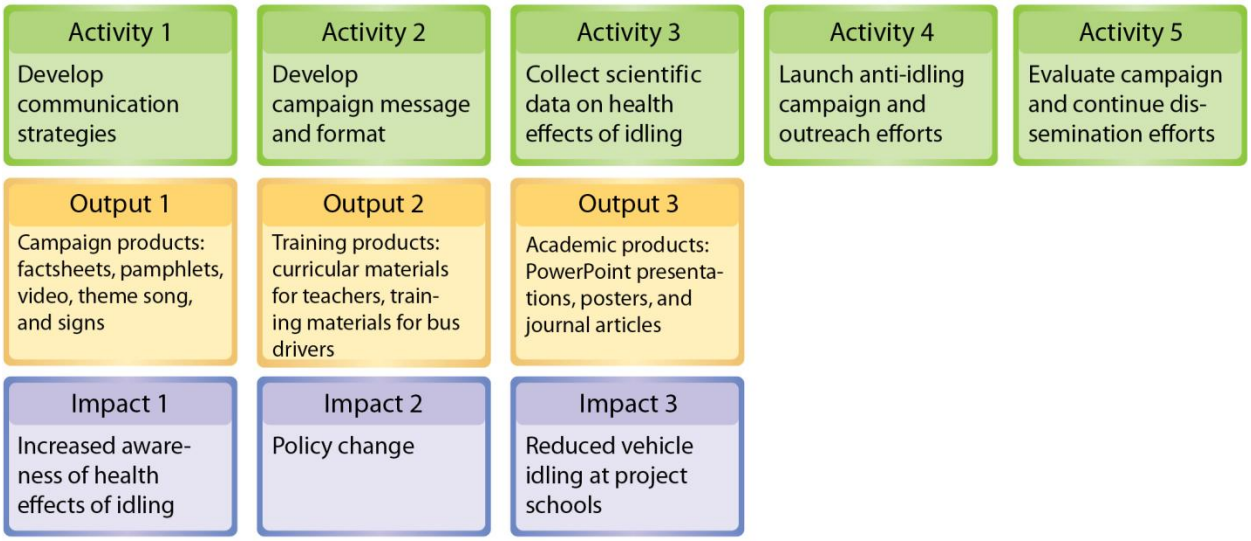
Evaluation Metrics Manual: Education and Training Logic Model

Evaluation Metrics Manual: Capacity Building Logic Model



PEPH Evaluation Metrics Manual Workshop: Handout B – Cincinnati Anti-Idling Campaign Case Study Logic Model

Anti-Idling Campaign Logic Model



Activities

To protect the health of students and other community members and reduce environmental exposure to TRAP, the partners collaborated on a number of activities, including:

- Developing communication strategies for their audience members (school staff, students, healthcare workers, policy makers, and community members)
- Developing the anti-idling campaign message and choosing appropriate formats (print, Web-based, or video) for its distribution
- Collecting scientific data on health effects due to bus and vehicle idling
- Launching the anti-idling campaign and performing outreach activities, such as bus driver training and air quality assemblies, at project schools
- Evaluating the campaign through surveys, another round of air quality data collection, and health assessments
- Continuing dissemination efforts to promote long-term behavior changes

Outputs Produced

The partners created more than 15 products to address the needs of their audiences.

Campaign Products

- Web repository of materials (http://www.cps-k12.org/general/antiidle/antiidle.htm)
  - Factsheet
  - Newsletter
  - Brochure
  - Video, including theme song (http://www.cetconnect.org/video/cincinnati-anti-idling-campaign-video)
  - Links to relevant information
- Hardcopy distribution of above materials and anti-idling pledge forms
  - In student book bags
  - At open houses
  - At assemblies/community meetings
- Anti-idling signs posted in bus and carpool lanes
- Banners posted in schools

Training Products

- Curricular materials for teachers
- Training materials for bus drivers
- Pre- and post-tests for training participants

Academic Products

- PowerPoint presentations
- Conference posters
- Journal articles

Bus driver training workshop
Photo credit: Cynthia Eghbalnia, Co-Investigator, CPS

Project Achievements

Measuring the impact of community-based research is always a challenge. To make it simpler, this section focuses on short-term impacts.

Increased awareness of health impacts of idling

In the school environment, awareness of the health effects of idling was raised through air quality assemblies (total attendance at these assemblies exceeded 1,600 people), campaign materials that were sent home, and "Idle-Free Zone" signs posted in carpool lanes. Project partners received over 900 signed pledge forms stating a commitment to reducing idling in the school environment. The school bus drivers were reached through training workshops; post-training surveys indicated that the workshops successfully communicated the health effects and school policies associated with idling. The anti-idling video on the CPS website helped spread the campaign's message both in the school environment and in the larger community. Finally, the anti-idling campaign's reach was expanded by receiving coverage in newspapers, websites, and a public service announcement by a councilwoman.

Graphic designed by: Kavan Eghbalnia, CPS student

Policy Change

To promote these behavior changes in the long-term, the partners incorporated strict anti-idling language into the CPS policy. This policy affects all the busses (approximately 336) in the Cincinnati Public School system and is in effect from 2009-2014.

Reduced Idling

The partners collected data that indicated a short-term change in behavior as a result of the anti-idling campaign. Post-campaign, school bus idle time decreased 60-80%, and passenger vehicle idle time decreased 15-68% among the project schools. Additionally, the levels of traffic related air pollution decreased at the schools with the most busses after the anti-idling campaign was launched.

Sustained Project Support

As a result of this study, UC obtained additional funding to field-test personal sensors for students with asthma who participated in the anti-idling study. The partners also discussed collaborating on other public health projects in the future.

Acknowledgement: Special thanks to Patrick Ryan of UC/CCHMC and Cynthia Eghbalnia of CPS for their assistance in the development of this Case Study.

Metrics Activity (20 Minutes)

For this activity, you will work with your neighbor for 5 minutes, using the worksheet below, to identify one or two metrics for one of the components of the logic model. Then, we will discuss the metrics with the group and identify a few more together. Later, we will share some of the metrics from the actual program.

Worksheet for Identifying Metrics

1. Which component of the logic model do you want to use to develop your metric?

   _____

   _____

2. What do you care about?

   _____

   _____

3. What are you trying to measure?

   _____

   _____

4. What data are you going to use and where / how will you get it?

   _____

   _____

5. How will you know if you have achieved success?

   _____

   _____

PEPH Evaluation Metrics Manual Workshop: Handout C – Cincinnati Anti-Idling Campaign Case Study Metrics

Activities

Activity 1: Develop communication strategies

- The objective was to effectively communicate the campaign message to as many members of the target audience as possible.
- Target audiences:
  - CPS administrators, students, staff, and bus drivers.
  - Community members.
  - Policy makers/public health officials.
  - Healthcare workers.

Activity 2: Develop campaign message and format

- Project partners met with CPS administrators to develop anti-idling campaign.
- Anti-idling campaign print products: factsheet, brochure, newsletter, pledge form, signs, banners, journal articles, conference posters, surveys, and revised CPS school bus policy.
- Anti-idling audio-visual products: video, theme song, and PowerPoint presentations.
- Anti-idling in-person products: training materials and surveys for school bus drivers and teachers.

Activity 3: Launch anti-idling campaign and outreach efforts

- Products were disseminated through the Web, the students, school events/ conferences, and training workshops.
- More than 15 products were distributed.
- All of the school bus drivers in the CPS system were given an hour-long training about the health effects and policies associated with idling.

Activity 4: Evaluate campaign and continue dissemination efforts

- Results from the pre- and post-test surveys conducted during the bus driver training: the school bus drivers scored 73% on the pretest, and 85% on the post test.
- Based on the survey results, the partners were able to add the bus driver training to the annual refresher course required for school bus drivers.

Stock photo

Outputs

Output 1: Campaign products: factsheets, pamphlets, video, theme song, pledges, and signs

- 9 products distributed in anti-idling campaign.
- Over 900 signed pledges supporting the anti-idling campaign were returned.
- The campaign was covered in news articles and in a public service announcement.
- CPS held air quality assemblies at the project schools to disseminate information about the health effects associated with idling busses and vehicles. Attendance at the assemblies exceeded 1,500 students and 90 school staff.

Output 2: Training products: curricular materials for teachers, training materials for bus drivers

- A pre- and post-training survey was created to assess school bus driver knowledge and behavior.
- 397 school bus drivers in the CPS system attended the anti-idling training session.
- There was a question and answer session at the bus driver training workshop.

Output 3: Academic products: PowerPoint presentations, posters, and journal articles

- The partners presented their findings at the 2011 American Public Health Association conference and the 2011 International Society for Environmental Epidemiology annual conference.
- The partners presented their findings through a 2011 Web seminar to the NIEHS PEPH community and through the 2012 conference for NIEHS and EPA Children's Environmental Health and Disease Prevention Research Centers.
- One paper published[5], one paper in review[6], and one abstract presented[7].

Impacts

Impact 1: Increased awareness of health effects of idling

- The anti-idling campaign was covered in news stories, websites, and a public service announcement by a councilwoman.
- School staff communicated their understanding of the campaign message by providing positive reinforcement to drivers who didn't idle their vehicles.

---

[5] Hochstetler HA, Yermakov M, Reponen T, **Ryan PH**, Grinshpun SA. 2011. Aerosol particles generated by diesel-powered school buses at urban schools as a source of children's exposure. Atmospheric Environment 45: 1444-1453.

[6] Eghbalnia C, Sharkey K, Garland-Porter D, Alam M, Crumpton M, Jones C, **Ryan PH***. In review. A community-based participatory research partnership to reduce vehicle idling near public schools. Conference.

[7] **Ryan PH**, Reponen T, Borton E, Schaffer C, Simmons M, Whitehead B, Yermakov M, Grinshpun SA. 2011. Traffic-related air pollution at home and school and lung function in children with asthma: the cincinnati anti-idling campaign study. In: 2011 International Society for Environmental Epidemiology Annual Conference, 13-16 September 2011, Barcelona, Spain.

Impact 2: Policy change

- New anti-idling language incorporated in CPS school bus policy and signed by CPS in 2009. This affects approximately 336 busses and is in effect for 5 years.
- The CPS school bus policy was revised to specifically mention the time limit (no more than 5 minutes) allowed for school bus idling.

Impact 3: Reduced vehicle idling at project schools

- Post-campaign, bus idling times decreased 60% at student drop off in the morning and 80% at afternoon pick up.
- Post-campaign, passenger vehicle idling times decreased 15% at drop off in the morning and 68% at afternoon pick up.
- School staff are aware of the health effects and policies associated with idling vehicles and have a procedure in place to reduce exposure.

Acknowledgement: Special thanks to Patrick Ryan of UC/CCHMC and Cynthia Eghbalnia of CPS for their assistance in the development of this Case Study.

The SMART Metrics Rubric

Once you have some metrics identified, it can be helpful to look at them realistically in the context of your program. Do they make sense? Do you have the resources to collect, store, and analyze them? Will they really describe the most important aspect of your project's achievement? The "SMART" metric rubric can help you think critically about your metrics. No metric will be perfect, but given project realities it can be helpful to weigh pros and cons for each metric to choose the most useful set for your goals and situation.

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PEPH Evaluation Metrics Manual Workshop 3-2-1 Feedback

Pre-Workshop

	Very little knowledge or understanding	Some basic understanding	About in the middle	Am getting more comfortable with it	Am pretty confident in my ability
Rate your understanding of logic models	○	○	○	○	○
Rate your understanding of metrics	○	○	○	○	○

Post-Workshop

Rate your understanding of logic models	○	○	○	○	○
Rate your understanding of metrics	○	○	○	○	○

What were the three most useful things you learned?

_____

_____

_____

What two things would you have liked to learn but didn't?

_____

_____

What one thing can we do to improve the training?

_____

Please use the back of the page to provide additional feedback.

Key Points for Logic Modeling

There is no one “right” answer for a logic model!

Remember that we are creating goal-based logic models. First, think of the goal for which you want to create an activity, output, and impact. Then, you can work forwards from your activities to the impacts or you can work backwards from your impacts to your activities, whichever is most natural to you.

When filling in the boxes of your logic model, ask yourself these questions:

Is the Activity a verb?

Is the Output something tangible?

Is the Impact a change?

Key Points for Evaluation Metrics

Metrics can be qualitative or quantitative. It is good to have some of both built into your project.

Every aspect of the logic model can be measured.

Focus on the nouns, verbs, adverbs, and adjectives of your logic model to create your metrics.

When looking at the logic model, think about what is important to the partners. Those will be the metrics.

Good metrics are those that can be achieved within the context of the project. Ask yourself if the metrics you create are achievable.