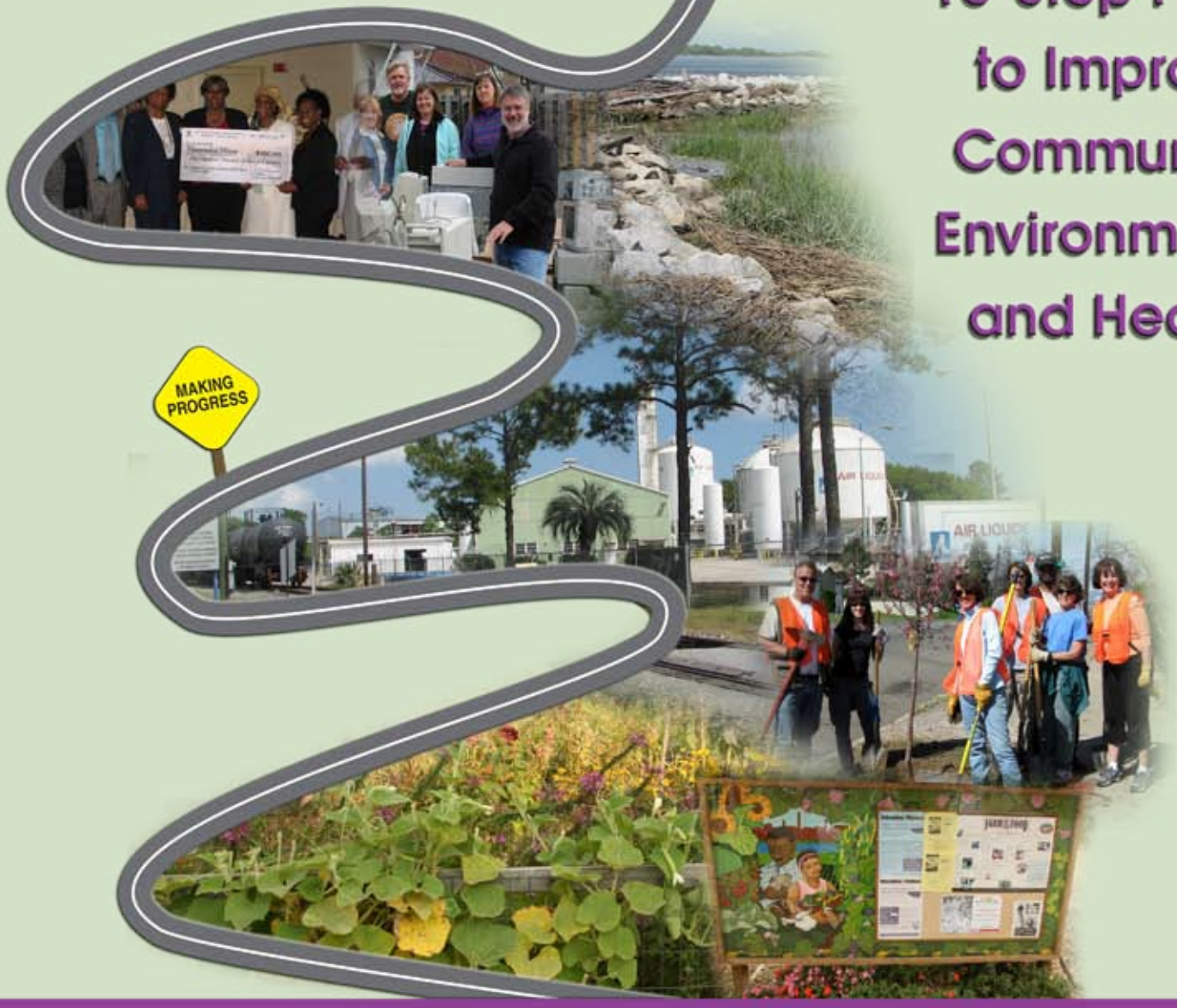
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

CARE

LOCAL PARTNERSHIPS. HEALTHY COMMUNITIES.

The CARE Roadmap:

10-Step Plan to Improve Community Environment and Health



Community Action for a Renewed Environment (CARE)
www.epa.gov/CARE

Introduction

Purpose

This roadmap will provide you and your community with a process to:

- Learn about local environmental and environmental health risks and impacts
- Build the community consensus necessary to take effective action
- Mobilize a community partnership to take action to reduce impacts and risks
- Build long-term capacity within your community to understand and reduce environmental impacts and risks

Origin of the Roadmap

The roadmap is the result of an effort by the CARE (Community Action for a Renewed Environment) Program of the Environmental Protection Agency (EPA) to develop a practical tool for communities to identify, prioritize, and address environmental health risks. It incorporates the perspective of the National Environmental Justice Advisory Council (NEJAC) report on ensuring risk reduction in communities with multiple stressors (http://www.epa.gov/compliance/resources/publications/ej/nejac/nejac-cum-risk-rpt-122104.pdf) and EPA's Framework for Cumulative Risk Assessment (http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=54944). With permission of the author, the Roadmap also incorporates and builds on the Community Environmental Health Assessment Workbook published by the Environmental Law Institute. To find more information on the CARE Program and these documents, please see the General Resources section on page 17.

About EPA's CARE Program

If your community wants to reduce levels of toxic pollution, the CARE program can help. CARE assists communities by providing technical assistance and resources to local organizations which form stakeholder groups to address and reduce their most significant risks, especially through voluntary programs. For more information, see www.epa.gov/CARE.

This Roadmap is essential reading for any community that has received a CARE grant. It also can be used by any group wishing to improve local environmental quality even without funding through CARE. Participation in EPA's CARE Program is not a requirement for putting this Roadmap to good use.

How this Roadmap differs from existing guides

This Roadmap differs from previous assessment guides in two ways. First, it looks at risk from the community perspective by outlining a method to develop a comprehensive understanding of local environmental risks and impacts: it considers combined risk resulting from multiple sources and risk resulting from community vulnerabilities. This comprehensive overview of concerns gives the community the information it needs to ensure that its efforts will have the greatest positive impact on local health and the environment.

Second, it incorporates a "bias for action" perspective. This means that the Roadmap encourages communities to take action to reduce risk as soon as possible. This does not mean that collecting and analyzing information is not important—in fact, a community's work to improve its understanding of risk is an essential part of the "bias for action." Without a shared understanding of risk, mobilizing the community will not be possible, and without a clear understanding of the sources of risk, community actions may not be focused where they can do the most good. The Roadmap encourages communities to take action on known risks from the start, and suggests practical ways to collect and analyze the information needed to build consensus and target risk reduction efforts where they will do the most good.

A summary of the Roadmap process

1. **Build a Partnership:** Build a collaborative partnership representing a broad range of interests that is able to identify environmental risks and impacts, build consensus, and mobilize all the resources necessary to achieve community goals.
2. **Identify Community Concerns:** Identify the environmental, health, and related social and economic concerns of the community.
3. **Identify Community Vulnerabilities:** Identify community vulnerabilities that may increase risks from environmental stressors.
4. **Identify Community Assets:** Develop a list of community assets in order to build on the existing strengths of the community.
5. **Identify Concerns for Immediate Action:** Identify and begin to address immediate concerns and vulnerabilities.
6. **Collect and Organize Information:** Collect and summarize available information on stressors, concerns, and vulnerabilities. Identify gaps where the information on stressors, concerns, and vulnerabilities is missing or inadequate.
7. **Rank Risks and Impacts:** Compare and rank community concerns to help identify those that have the greatest impact.
8. **Identify Potential Solutions:** Identify and analyze options for reducing priority concerns and vulnerabilities and for filling information gaps.
9. **Set Priorities for Action and Begin Work:** Decide on an action plan to address concerns, fill information gaps, and mobilize the community and its partners to carry out the plan.
10. **Evaluate Results & Become Self-Sustaining:** Evaluate the results of community action, analyze new information, and develop a plan to restart the Roadmap process. You can restart the process as needed to reestablish priorities, develop new plans for action, collect information, and make your partnership self-sustaining.

The Roadmap: Ten Steps to a Healthier Community and Environment

1. Build a partnership.
2. Identify community concerns.
3. Identify community vulnerabilities.
4. Identify community assets.
5. Identify concerns for immediate action.
6. Collect and organize information.
7. Rank risks and impacts.
8. Identify potential solutions.
9. Set priorities for action and begin work.
10. Evaluate results and become self-sustaining.

Basic elements of the process

- **Organize** a broad partnership needed to reach community goals (Step 1)
- **Collect** the information needed to understand community impacts and risks (Steps 2–6)
- **Analyze** the information to identify community priorities and identify options for reducing risks (Steps 7–8)
- **Mobilize** the community partnership to take action (Step 9)
- **Evaluate** the work of the community partnership, measure progress, and begin a new process to address remaining risks (Step 10)

Tips on using the Roadmap

- **How can we build an effective partnership?** Broad and effective partnerships are the key to mobilizing the whole community to take action. Because strong partnerships are key, all the work described in this Roadmap should be done in a way that builds both the partnership and trust among the partners. This can be accomplished if everyone in your partnership has the opportunity to be heard and to participate fully as equals. Since partnership members will bring different backgrounds and resources, your partnership must find ways to work with these differences. All the time and effort required up-front to build real trust and a strong partnership will pay off in the long run when the broader community is mobilized to take on efforts that make a long-lasting difference. Such collaborations have the greatest potential for sustaining their activities over the long term.
- **Do the steps need to be done in order?** No. The order in which a community takes the steps listed below will vary depending on the situation in the community. For example, some residents will want to begin with Step 2 and develop a summary of environmental and health concerns and community assets before starting the work to form a partnership. In other communities, the work to form a partnership will come first and all parts of the community will work together to complete Step 2. You and your community partners will have to decide how to sequence the steps, choosing the approach that best provides the necessary information and builds the broad partnerships necessary to reach community goals. Communities may also choose to combine steps. For example, the work to identify concerns, vulnerabilities, assets, and issues that need immediate attention, Steps 2 through 5, could be done simultaneously. And most importantly, communities will almost certainly have to revisit different tasks as the work progresses. For example, as new concerns are identified and new solutions are proposed, the work to build the partnership, Step 1, will need to be revisited so that members of the community affected by these decisions are brought into your partnership.
- **What should the scope of the environmental and health assessment be?** What should the scope of the environmental and health assessment be? The definition of "environment" varies from community to community so the scope of the assessment will also vary. In communities that have ongoing development, crime prevention, or education projects, the scope of the environmental health assessment may stick to traditional environmental concerns (e.g., ecological, pollution risks). But communities without these efforts underway may need to interpret "environment" more broadly to include such things as jobs, lack of adequate health care, and crime to motivate and enroll the support of the community. Having other partners at the table is important to the process, especially if the community chooses to

address issues outside of EPA's authority. And even in communities that define environment more narrowly, when addressing vulnerabilities you may end up broadening the scope of work.

- **Should all local communities do an assessment?** A comprehensive environmental and health assessment is especially valuable as a tool to get everyone in a community on the same page in their understanding of environmental and health risks. A comprehensive assessment also helps a community to set priorities and focus resources where they will do the most good. But, some communities may already agree on the priority of a particular risk. Other communities may need a fairly long trust-building process before they can agree to work collectively to do a comprehensive assessment. So, making the judgment about when to do a comprehensive assessment will depend on the situation in each community.
- **How can we incorporate a bias for action?** The steps of the Roadmap should be completed from existing data and the knowledge of the participants in a short time frame so that priorities can be quickly identified and actions taken to reduce risks and impacts. In your first pass along the Roadmap, you will also identify data gaps and areas where there is not consensus. Once preliminary priorities are identified, your partnership should create a plan to fill in significant gaps while at the same time taking action on the identified priorities. Once your community has new information, you will need to repeat the assessment steps using the more complete information in order to reestablish the priorities and actions as needed.
- **How can we fund and sustain this work?** Aspects of this Roadmap process can be built into any existing project addressing local environmental concerns. Implementing the entire process can often require additional planning and resources, however. Several agencies and foundations provide funding for partnership- and capacity-building work, including EPA's CARE program described above. As your community partnership grows in size and strength through implementation of the Roadmap process, you should be able to sustain yourself with greater investments made by partners and new funders. Further, partnership members should pay careful attention to retaining skills and knowledge acquired through the Roadmap's implementation so that this enhanced capacity remains in the community.

The Roadmap: More on Each Step

The following brief descriptions are designed to provide communities with an overview of the steps needed to build consensus on community environmental and health priorities and take action to reduce them. A list of general resources with more detailed information and guidance can be found on page 17. Links to additional resources to help communities accomplish these steps can be found on the CARE website at: www.epa.gov/CARE, under Resource Guide.

1. Build a partnership.

Build a collaborative partnership that is able to identify environmental risks and impacts, build consensus on priorities, and mobilize all the resources necessary to achieve community goals.

Your partnership should include a broad cross-section of community members who are concerned and involved with the environment, as well as the human and socio-economic health and well-being of the community. Involving all sectors of the community, including residents, churches, businesses, schools and colleges, and government, will help ensure that your partnership has the knowledge and resources necessary to succeed. To get your partnership off to a strong start, it will be important to clarify the roles and expectations of each of your partners and establish clear procedures for making partnership decisions. Special efforts to involve some sectors of the community may be necessary, especially sectors not used to being involved in partnership efforts—such as the residents most impacted by environmental stressors or small, local businesses. Lay out clear plans for involving these members of the community and provide the support they need to participate fully in all aspects of the partnership's work, including its leadership.

Plan for ongoing partner recruitment, as needs change and some initial partners drop off. In addition, project partners will have to find creative ways to fund the process. Successful partnerships draw human and financial resource support from multiple sources to sustain themselves over the multiple iterations prescribed by the Roadmap. Remember to build the philosophy of self-sustainability into every step of the Roadmap, being careful not to become dependent solely on any one funding source or member of the collaborative.

POTENTIAL PARTNERSHIP MEMBERS

- Local community members
- Minority members of the community
- Local environmental justice organizations
- Local, regional, and national environmental organizations
- Health care providers
- Faith-based organizations
- Local churches
- Local Chambers of Commerce and other business organizations
- Civic organizations
- Local economic development organizations
- Educational institutions (schools, universities, and colleges)
- Community development groups
- Environmental and natural resource agencies (local, state, federal, and tribal)
- Health agencies (local, state, and federal)
- Elected officials
- Local governmental and tribal agencies
- Business owners and managers
- Unions

2. Identify concerns.

Identify the environmental, health, and related social and economic concerns of the community.

Community groups often focus on one or a few environmental issues of greatest interest or immediate concern. In order to address community environmental health issues on a comprehensive and cumulative basis, a broader look at community issues will be needed. Taking a broader view will ensure that important risks are not overlooked and that the actions that can most effectively improve community health can be identified.

These broader issues can be identified by drawing on the knowledge and resources of all of your partners. Create opportunities for residents and experts to share information and learn from each other to identify all the environmental stressors facing the community. Ensure that partners are working together to consider types of concerns such as:

- Community environmental health
- Disease incidence in the community
- Sources of pollution
- Routes of exposure
- Effects of chemical and biological hazards on the community and its natural environment
- Social and economic conditions

Assembling these issues into a matrix format may enable your partnership to better appreciate the scope of issues impacting the environment and health of the community. As an example, the following page shows a matrix prepared by a community group for the Vietnamese Fisherman Community in Louisiana:

Potential Multiple, Aggregate, Cumulative Risks and Impacts in Vietnamese Fishermen Community, Louisiana

Demographics	Pollution Sources	Existing Health Problems and Conditions
Vietnamese: 100% • Read and write English/Non-English speaking: 95% • English speaking: 5%	• Commercial hazardous waste incinerator, imported hazardous waste from across the U.S. and foreign countries • Large number of hazardous and waste dump sites in residential areas • Drinking water source (surface water) contaminated with organic toxins and heavy metals from upstream industrial and agricultural sources • Runoff or drift of pesticides or fertilizers from agricultural fields • Burning of agricultural fields and marsh ecosystem • Improper sewage and sanitary infrastructure in community — raw sewage flowing in ditches	• Lack of proper nutrition due to long periods of time on fishing boats • Lack of access to proper health care and lack of medical insurance • Drug addiction • Alcoholism • Medical conditions including cancer, respiratory diseases, skin rashes, asthma, and frequent bacterial infections

Unique Exposure Pathways	Social/Cultural Conditions	Community Capacity and Infrastructure/Social Capital
Air • Emissions of hazardous chemicals from the hazardous waste incinerator • Burning of the agricultural fields and marshes releasing toxic chemicals and particulate matter • Potential drift of pesticides from agricultural spraying **Water** • Contaminated drinking water sources • Contaminated food resources—garden crops, terrestrial animals, aquatic species	• Vietnamese fishing community must compete with white fishermen from Louisiana and Texas. • Large investment in boats; unable to make payments due to dumping of foreign imports of seafood. Banks are repossessing boats. • If the community members cannot fish, there is no way to make a living and remain together as a society • Live in clusters and small towns with life centered around their churches; priests serve in community leadership roles • Community members are hard workers and willing to work under substandard conditions • Low economic conditions and hard lives takes thier toll on the fishers and their families even in good times • Fishing trips require the men to be away from their families for 2 to 3 weeks at a time • Lack of environmental/biological diversity awareness • Lack of technical assistance to identify and apply for assistance resources	• Substandard housing • Many generations living in single dwellings • Children perform well in school and provide assistance to adults. Deep respect on the part of the younger generations for elders. • Lack of social capital/assets • Lack of economic capital • Lack of medical insurance • Lack of adequate processing plants for harvested seafood • Lack of financial resources to capitalize investments • Lack of infrastructure to ensure ability to sell harvested seafood • Severely impacted by the dumping of foreign seafood on U.S. markets

3. Identify vulnerabilities.

Identify community vulnerabilities that may increase risks from environmental stressors.

A community or part of a community may be vulnerable if it is more likely to be adversely affected by poor environmental conditions than the general population. Disadvantaged, underserved, and overburdened communities may have physical and social conditions that make the effects of environmental pollution (or "stressors") more, and in some cases unacceptably, burdensome. Also, children and older members of the community are at greater risk from some environmental stressors. Consider these conditions when determining the extent of risks or impacts. Understanding community vulnerabilities may also allow communities to identify effective options for risk reduction. For example, if a group within the community has a language barrier that impacts its ability to understand the potential health effect of lead paint, increasing access to health-care materials in the appropriate language may be an effective option to reduce risk. Use the following sample lists to generate your own list of factors.

EXAMPLES OF VULNERABILITY FACTORS

Susceptibility/Sensitivity. Pre-existing health conditions can make a group more sensitive to negative impacts from environmental health issues than the general population. These susceptibility/sensitivity factors could include:

- Genetic predisposition to disease
- A young population—infants and children may experience different impacts
- An elderly population
- Compromised immune system
- Other preexisting health conditions

Exposure Conditions. Living or working near a source of pollution could lead to exposure to a higher level of pollution than the general population. For example, higher exposure could be due to:

- Proximity to pollution sources
- Employment in jobs that involve hazardous chemicals
- Past exposure to environmental pollutants
- Multiple routes of exposure to one chemical
- Multiple exposures to different pollutants
- Subsistence food production and consumption
- Lack of information needed to avoid exposures because of poor education, unavailability, or language factors

Preparedness/Ability to Recover. In addition to increased sensitivity and exposure, other conditions in some communities make them less prepared than the general population to withstand and recover from environmental stressors. Such conditions could include:

- Poor nutrition
- Compromised health/immune system
- Limited health care
- Cultural practices
- Lack of recreational facilities
- Poor community services
- Low income
- Low education
- Poor housing conditions
- Emotional stress
- Crime
- Vermin (insects and rodents)
- Unemployment or underemployment
- Discrimination
- Lack of information
- Lack of social capital

4. Identify community assets.

Develop a list of community assets in order to build on the existing strengths of the community.

Assets are your community's existing strengths, skills, and resources. Communities with environmental, social, and economic problems and stressors still have many assets. Develop a list of your community's strengths to help in choosing an action plan later in the process. For example, if your community has a strong network of churches, the network's ability to communicate effectively with large sections of the community is an asset that can be used to meet partnership goals.

EXAMPLES OF COMMUNITY ASSETS

- Special skills and capacities of community members
- Detailed knowledge of all aspects of community
- Ability and networks to communicate with community members
- Culture
- Longevity
- Neighborhood associations
- Religious institutions
- Business and industry
- Civic and community leaders
- Political abilities
- Community building resources
- Human resources
- Outreach networks and skills
- Historical information

5. Identify concerns for immediate action.

Identify and begin to address immediate concerns and vulnerabilities.

After your group has identified environmental, health, and other concerns (Step 2), as well as vulnerabilities and assets that can impact the risks from those concerns (Steps 3 and 4), it is time to identify any risks that need immediate attention. Working as a group, evaluate these stressors, concerns, and vulnerabilities. Identify those that everyone (or a majority) agrees are a high priority and need immediate attention; risk-reduction actions to address these items should begin as soon as possible. Starting work on pressing community concerns will demonstrate your partnership's commitment to improving community health. Early successes will also build trust in the community and help to strengthen and sustain the partnership.

As your partnership takes action on some key concerns, all the stressors, concerns, and vulnerabilities should be analyzed further using Steps 6 and 7. Once this analysis is completed and additional priorities are identified, existing efforts to address the concerns identified for immediate action can be adjusted as necessary.

6. Collect and organize information.

Collect and summarize information on environmental health concerns (or stressors), taking into account the factors that may make the community more vulnerable.

For the community to rank its concerns and identify those that have the most impact, you will first have to collect and organize the information on each concern. If you are not able to find or collect this information, you will need to identify any gaps and consider ways to fill them when you prioritize your community actions in Step 9.

Gather information

To estimate the magnitude of each of the identified environmental, health, and socioeconomic issues, collect all available information on observed environmental health impacts, stressors, and potential risks, considering the community's vulnerabilities. Some sources of information include:

- Partnership members, especially those directly affected by a stressor
- Databases with information on the amounts and sources of pollutant releases
- Information on levels of chemicals measured in your environment
- Formal studies of risk in your community, if they are available
- Studies that estimate the risk for similar communities
- Studies that estimate the health and potential vulnerability of your community
- National studies of risk

Engage residents of the community, students and teachers at local schools, local businesses and organizations, local doctors, and local and state public health and environment staff to help locate and collect this information. Government and university staff can identify any existing studies of the community and/or similar communities. Your partnership may also be able to organize teams to collect some of the key information needed to rank risks. For example, partnership members may be able to locate all the small businesses that may impact the community, or your partnership may organize high school or college students to survey traffic to better estimate the risks from mobile sources. Collect as much information as possible with the

resources available and within the time set for the initial ranking of concerns. The information gathered in this step is intended to support a risk-ranking process in Step 7. The goal should be to gather the information that is immediately available, with a priority on gathering health-based risk data. Then, discuss with the CARE partnership whether this information is sufficient to move forward in the ranking, or if more information is necessary. The process is likely to involve a series of discussions with the partnership members, at various points.

Identify where more information is needed

Communities beginning to collect information on stressors and risks are unlikely to find all the information they need. In some cases, the information needed to understand and rank a concern will require more resources or time than are immediately available to the partnership. For example, if blood-lead levels have not been tested in your community, this is probably not something that your partnership will be able to collect in time for the initial ranking exercise. Note all information gaps so that your partnership can decide how to address this lack of information.

Summarize findings

For each environmental concern or stressor, summarize the available information, and describe the impacted community members or impacted environment. Organizing this information in an easily viewed format, such as a table or flowchart, may help your partnership choose priorities in the next step. See an example format including priority rankings in Step 7 below.

7. Rank Risks and Impacts.

Rank risks and impacts to identify the community's concerns.

Using the organized information on concerns, identify the most important concerns to address to improve the environment and health of the community. At this point, whether or not something can be done about an issue should not be considered. This risk-ranking exercise should be based strictly on how important the issue is to the health and quality of life of the community and its environment. It is important for a community to know which concerns have the greatest impact, even if it is not possible to do something about them immediately.

This step in the process will require your partnership to rank impacts that may be very difficult to compare. For example, a community may have concerns about impacts on both human health and on the health of an ecosystem or habitat. Impacts on quality of life concerns, such as odors, will also be hard to compare to health risks. Ranking diverse impacts will involve value judgments, so this will present an opportunity for your partnership and community to discuss values and work towards a consensus on how to improve the community.

Select a method for ranking

To use the information organized in Step 6 to rank risks and impacts, adopt a method, such as a numerical (e.g., 1-10) scale or a "high" to "low" scale that will allow all the identified concerns to be compared. When selecting a ranking method, take into account the severity of the impact, including the level of vulnerability of the people affected, as well as the number of people exposed or the extent of the environment affected. Examples of priority setting methods, including quantitative methods, can be found in *PACE EH: Protocol for Assessing Community Excellence in Environmental Health* (National Association of County and City Health Officials, 2000) (http://www.naccho.org/pubs/product1.cfm?Product_ID=60) and in the *Air Toxics Risk Assessment Reference Library, Volume 3: Community Scale Assessment* (United States Environmental

Protection Agency, Office of Air Quality Planning and Standards, 2006) (http://www.epa.gov/ttn/fera/risk_atra_vol3.html). The number of highly ranked concerns should be reasonable, but not so many that addressing them all will be impossible. Highly ranked concerns could include risks, impacts, vulnerabilities, or information gaps. For example, you could give a high ranking to lead exposure as both a risk and an information gap.

Estimating levels of concern for stressors with missing information

In some, and probably most cases where there are gaps in the information on an environmental health issue or stressor, use the available information and your collective best judgment to estimate the potential harm that a stressor may have on the community or its environment. For example, if there is a significant amount of old housing in the community but insufficient information on blood-lead levels to determine how many children are affected, you may choose to identify the potential concern from lead paint, given the likelihood of exposures, as very high. It is important to note, however, that because the information is incomplete, this estimate may have some amount of uncertainty.

In some cases, more information or further analysis will be needed before your partnership can agree on its level of concern. For example, if you only have amounts of pollution released for a facility, you may decide to do further work, such as collecting information on the toxicity of the chemicals released and using modeling to estimate community exposure. (Screening tools are available that would allow you to estimate levels of concern from releases relatively quickly.) Your partnership will need to decide when more information and further analysis are needed to estimate the community's level of concern. You could decide to wait to set priorities until this analysis is completed or you could set priorities for stressors with adequate information and then do the analysis on stressors that need more work. Once this work is completed, you can use this new information to revisit and adjust priorities as needed.

You may also need to track those concerns that your partnership was not able to reach agreement on. If some members of your partnership rank a concern high and some rank it low, your action plan should also include a process for coming to agreement on this issue.

The following table is an example of a format that could be used to summarize available information and community rankings. This example contains only a partial list of stressors and vulnerabilities.

Stressor or concern	Level and type of risk	Extent of impact (Who and what is affected? To what extent?)	Information used, certainty, and gaps in information
Diesel particulates	(1) cancer: diesel particulate concentrations above health-based benchmarks for entire area; (2) mortality, chronic bronchitis, asthma, heart attacks. Local area is above National Ambient Air Quality Standard for PM2.5; local studies suggest that diesel sources contribute 15-20% of total PM2.5.	Higher exposure along truck routes, although entire area is above acceptable levels; elderly, children, and asthmatics may be especially vulnerable	Based on census-tract level modeling data (1999 National Air toxics Assessment) and the nearest air toxics/particulate ambient air monitor (4.5 miles away); traffic data, used as supporting information, taken from state Department of Transportation Web site for highways and metropolitan planning organization for major roadways; portion of PM2.5 from diesel based on university-lead emissions and photochemical modeling study
Lack of access to health care	High level of vulnerability for human health	High impact on elderly and children; 80% of community has inadequate access to health care	Detailed information on access to health care used
Contaminated drinking water from community wells	Cancer: tests from five private wells indicate that arsenic may be present in drinking water above health-based benchmarks	The extent of the impact is unknown. A small number of households, about 50, are on private well water, but only 5 have been tested	Little information available on well water quality; samples were taken directly from well water and analyzed by private lab
Exposure to lead in water/paint/soil	Neurological/developmental effects in children; 5 of 30 children tested were found to have blood-lead levels in excess of 10 ug/dL	80% live in homes built before new lead paint regulations in 1972; approximately 20% of the housing stock is in disrepair	Based on incomplete childhood blood level screening—of approximately 1,000 children in the community, only 30 have been tested for lead exposures; percentage of housing stock in disrepair based on foot survey of sample streets; no household water/paint sampling
Odor from water treatment plant	High impact to quality of life	Impacts all members of community	Well-known impact

Consider combined or cumulative concerns

At this point, it will also be important for your partnership to include, if possible, considerations of the risks and impacts from all stressors and vulnerabilities combined (the cumulative risk). Given the limits of science in this area, developing estimates of cumulative risk will be difficult. But, once the information on known concerns has been collected, you will be able to develop a sense of the magnitude of the combined concern resulting from all stressors affecting the community. This information, in the form of a written summary or a matrix displaying all concerns due to stresses on the environment as well as a summary of the health and vulnerabilities of the community, can be used in the following steps to determine the level of effort and resources that will be used to address these risks.

If the information is available, consider the aggregate impact from individual chemicals when they are released from multiple sources. For example, the risk from particulate matter in the air from an electric generation facility may be compounded by releases from local traffic. Other things to consider include evaluating the impact from all the chemical releases from a single source. In addition, you should estimate the combined effect of different sources, possibly releasing different pollutants, when the pollutants may have the same effect. These kinds of assessments may provide information to help your partnership identify its priorities.

8. Identify potential solutions.

Identify and analyze options for reducing priority concerns and vulnerabilities and for filling information gaps.

Once your community partnership has identified and ranked its concerns and information needs, the next step is to find out what can be done to address these concerns using risk information. Your partnership should explore the available options for reducing risk. For example, if diesel particulates were ranked highly, do some research to identify established approaches to address this issue, such as retrofitting diesel engines on public and private truck and bus fleets, changing traffic routes, or restricting idling.

Information on risk-reduction benefits, the costs of risk-reduction efforts, the community resources that will be needed to implement the various approaches, and the assets and resources available in the community to address concerns will need to be determined. To do this, consider:

- **Resources.** The resources needed to reduce risks will vary depending on the source. For example, some risks, such as indoor exposure to tobacco smoke, might be effectively addressed through education while other risks, such as diesel retrofits, will also require significant investments in new technology.
- **Working with other communities.** Some risks may not be able to be addressed by a single community and will require a longer-term effort to work with other communities. For example, the siting of major highways or the cleanup of a river, stream, or lake shared by other communities may require cooperative efforts.
- **Missing information.** A similar effort will be required to develop options for collecting missing information. Gather and summarize different approaches to collecting the information and the resources it will require.

Once all the necessary information has been collected, compile it into a format that will help the community partnership choose the actions it will take. Each community will have to use its best judgment to balance information collection and risk-reduction work. On the one hand, requiring too much information on available options may delay action unnecessarily. On the other hand, too little time spent gathering available data to better inform your action plan may result in actions that are not as effective as they could be in reducing risk.

Consider looking outside of the CARE partnership for entities that could provide potential solutions. Invite those who can contribute solutions to be part of the CARE partnership.

9. Set priorities for action and begin work.

Decide on an action plan to address concerns, fill information gaps, and mobilize the community and its partners to carry out the plan.

Now that your community partnership has ranked its concerns and information needs and compiled information on possible solutions, the next step is to set priorities for action and mobilize the community to begin work. Depending on the resources that can be mobilized in the community and partnership, a number of teams may be required to address multiple priorities. You may also need to develop a short-term plan for immediate actions and a long-term plan to

address priorities that will require more time to collect needed resources. Some communities may decide to prioritize information collection in order to help build consensus or to make sure that significant risks have not been overlooked. Factors for setting priorities may include the risk ranking from Step 7, the ability to affect outcomes, available resources, community values, and community capacity to tackle an issue. Priorities may focus primarily on risk reductions, but could also emphasize filling gaps in information.

Developing a plan that allows the community to achieve some early successes while pursuing longer-term goals may help your partnership build community support for its work. Most importantly, make sure that your plan takes advantage of all your local assets and mobilizes as many members of your community and partnership as possible. Getting everyone involved in building a healthy community will not only get results, it will also give everyone a chance to learn about the local environment and acquire the skills and knowledge needed to sustain a long-term effort to maintain a healthy community.

10. Evaluate results and become self-sustaining.

Evaluate the results of community action, analyze new information, and restart the process as needed to reestablish priorities, develop new plans for action, and collect information. Consider sources for financial and human capital to restart the Roadmap process and make your partnership self-sustaining.

Restarting the Roadmap steps will require some thought regarding the human and financial resources needed to carry out another round of assessment and action work. Aspects of this Roadmap process can be integrated into ongoing risk-reduction projects, but implementing the entire process can often require additional planning and resources. Several agencies and foundations provide funding for partnership- and capacity-building work, including EPA's CARE program described above. As your community partnership grows in size and strength through implementation of the Roadmap process, you will likely be able to sustain your partnership with greater investments from partners. Well-organized community partnerships with knowledge of risks and priorities are better equipped to apply for grants through foundations and government, as well. Further, pay careful attention to retaining skills and knowledge acquired through the Roadmap's implementation so this enhanced capacity remains in the community.

Resources

General Resources

- *Community Action for a Renewed Environment (CARE) Resource Guide.* U.S. Environmental Protection Agency. Last updated September 2007.
  Available at: http://cfpub.epa.gov/oarweb/care/index.cfm?fuseaction=Guide.showIntro#
- *Community Air Screening How-To Manual: A Step-by-Step Guide to Using a Risk-Based Approach to Identify Priorities for Improving Outdoor Air Quality.* U.S. Environmental Protection Agency. October 2004.
  Available at: http://www.epa.gov/oppt/cahp/pubs/howto.htm
- *Community Environmental Health Assessment Workbook: A Guide to Evaluating Your Community's Health and Finding Ways to Improve It.* Environmental Law Institute. 2000.
  Available at: http://www.elistore.org/Data/products/d10.09.pdf
- *Ensuring Risk Reduction in Communities with Multiple Stressors: Environmental Justice and Cumulative Risks/Impacts.* National Environmental Justice Advisory Council, Cumulative Risks/Impacts Work Group Report, December, 2004.
  Available at: http://www.epa.gov/compliance/resources/publications/ej/nejac/nejac-cum-risk-rpt-122104.pdf
- *Framework for Cumulative Risk Assessment.* U.S. Environmental Protection Agency, Office of Research and Development, National Center for Environmental Assessment, Washington Office, Washington, DC, EPA/600/P-02/001F. 2003.
  Available at: http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=54944
- *PACE EH: Protocol for Assessing Community Excellence in Environmental Health.* National Association of County & City Health Officials. 2000.
  Available at: http://www.naccho.org/pubs/product1.cfm?Product_ID=60
- *Advancing Environmental Justice Through Pollution Prevention.* A report developed from the National Environmental Justice Advisory Council Meeting of December 9-13, 2002.
  Available at: http://www.epa.gov/compliance/resources/publications/ej/nejac/p2-recommend-report-0703.pdf
- *Risk Assessment and Modeling — Air Toxics Risk Assessment Reference Library: Volume 3 — Community Scale Assessment.* U.S. Environmental Protection Agency. April 2006.
  Available at: http://www.epa.gov/ttn/fera/risk_atra_vol3.html

Additional resources for Steps 1–10

References and links to resources to help communities implement this Roadmap can be found on the CARE website at www.epa.gov/CARE.

United States
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