

PART IV

OTHER ENVIRONMENTAL RISK FACTORS OF CONCERN TO COMMUNITIES

Chapter 10 Organizing and Involving the Community

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10.0 Introduction

As a complement to the multisource air toxics focus of the first part of this resource document, this chapter and the chapters that follow, are designed to help communities work together to develop a more complete picture of many environmental problems they may potentially face (i.e., issues beyond indoor and outdoor air toxics) and respond effectively to those issues. The chapters incorporate the perspectives of the National Environmental Justice Advisory Council (NEJAC) report on cumulative risk,⁽¹⁾ EPA's Framework for Cumulative Risk Assessment,⁽²⁾ the Community Environmental Health Assessment Workbook published by the Environmental Law Institute,⁽³⁾ EPA's *Community Air Screening How To Manual*,⁽⁴⁾ and other sources. The chapters also incorporate input from the participants in the training session on community risk held at EPA's National Community Involvement Conference, Denver, CO, June 19, 2004.⁽⁵⁾ Chapters 10-12 discuss how to:

- Improve the understanding of environmental risk factors that may impact community health;
- Build the consensus among all sectors of the community that will be needed to take effective action through use of *collaborative partnerships*;
- Mobilize all sectors of the community and its partners to take effective actions to reduce risks; and
- Build the long term capacity of all sectors of the community to understand and reduce environmental risks.

This type of information can act as a "roadmap" for communities working to create a healthier environment. For example, communities working on a toxics reduction project under EPA's *Community Actions for a Renewed Environment* or CARE program can use this Part to guide their efforts to organize, evaluate risks and risk reduction options, and implement risk mitigation projects (see Exhibit 10-1).

The Basic Elements of the Process Described in Part IV

Organize a broad partnership needed to reach community goals;

Collect the information needed to understand community risk factors, potential impacts and vulnerabilities;

Analyze the information to identify community priorities and to identify options for reducing risks;

Mobilize the community and its partners to take action; and

Evaluate the work of community, measure progress, and begin new effort to address remaining risks.

Exhibit 10-1. Community Action for a Renewed Environment (CARE)

What is CARE?

The Community Action for a Renewed Environment (CARE) program is designed by the EPA to help communities work at the local level to address the risks from multiple sources of toxics in their environment. Through CARE various local organizations, including non-profits, citizens, businesses, schools and federal, state, and tribal or local government agencies create collaborative partnerships to address toxics in their local environment. CARE helps communities to improve their environment through local action, providing technical support and federal funding directly to the collaborative partnerships working at the local level.

What Are the Goals of the CARE Program?

- Exposure to toxic pollutants will be reduced through collaborative action at the local level.
- A comprehensive understanding of all sources of risk from toxics will be developed and prioritized for action.
- Self-sustaining community-based partnerships will be created that will continue to improve the local environments.

Why Should a Community Consider CARE?

If a community wants to work together to reduce levels of toxic pollution - the CARE program can help.

- CARE promotes local consensus-based solutions that address risk comprehensively.
- CARE helps communities by providing information about the pollution risks they face, and the funding to address them.
- Through the CARE program, EPA also provides technical assistance and serves as a resource broker, helping the communities identify and access opportunities and resources to reduce toxic exposures, especially through a broad range of voluntary programs.
- As communities create local stakeholder groups that successfully reduce risks, CARE helps them build the capacity to understand and address toxics in their environment.

CARE Program Strategies

- Through CARE, communities are empowered to address toxic pollution issues at the local level.
- Effective stakeholder groups will be created that include the community, non-profit organizations, businesses, government agencies and other appropriate partners.
- Toxic risks from multiple sources in the community will be examined and understood. Subsequently, these risks will be prioritized so that effective action is taken.
- Focused on action, CARE will use information and analysis to build consensus and help target the greatest risks.
- The CARE program will make use of voluntary programs in order to find approaches to best solve and reduce risks.
- Local resources will be mobilized and long term community capacity to understand and address environmental risks will be built.

CARE formally began in 2005. During the first year, EPA will work with its partners to improve the program for the future. For more information on the CARE program, see <http://www.epa.gov/care/>.

Some Key Terms for Part IV

Risk is used to mean the likelihood that exposure to an environmental risk factor will result in harm to a specific population. For example, *carcinogenic risk* would be the probability of people in a community developing cancer from exposure to an airborne pollutant (the environmental risk factor).

Environmental risk factor (or risk factor, for short) is used generically to mean a thing in the community that can potentially harm human health, the environment, or both. Pollution from factories, cars, and trucks, pesticides used in the home, and discharge of chemicals from pipes to local water bodies are all examples of environmental risk factors. A risk factor that may negatively affect human health or ecosystems is said to have a potential *adverse impact*. In order for a risk factor to pose a risk, the risk factor has to be inherently dangerous (e.g., a highly toxic pesticide) and there must be an appropriate interaction (usually called an “exposure”) between the risk factor and a person or the environment. For example, for a chemical that causes a toxic effect when inhaled, the chemical has to be in the air a person is breathing for there to be a risk of an adverse impact.

Cumulative risk. When the community has more than one risk factor, it may be appropriate to consider the *cumulative risk* posed by all the factors simultaneously. EPA has developed a *Framework for Cumulative Risk Assessment* which defines cumulative risk assessment as an analysis, characterization, and possible quantification of the combined risks to human health or the environment from multiple agents or stressors (see: <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=54944>).

The term **Impact** is used in two different ways. First, it is used to mean the people and ecological receptors that are potentially affected by a risk factor. For example, if part of a community lives in housing of a certain age, they may be exposed to old lead based paint. The “potentially impacted community” are those people who live in older homes that contain the risk factor “lead paint.” Second, impact is used to mean the negative outcome of interaction with a risk factor. For example, the lead exposure people may experience in older homes can result in, among other things, neurological damage in children. Neurological damage from lead exposure is said to be an “adverse impact.”

Vulnerability is a concept that recognizes that disadvantaged, underserved, and overburdened communities have pre-existing deficits of both physical and social natures that make the effects of environmental pollution more, and in some cases unacceptably, burdensome. Another way of saying this is that a community or sub-population of a community may be vulnerable if it is more likely to be adversely affected by a stressor than the general population. The concept of vulnerability is discussed further in Section 10.4.

This Part also elaborates further on the usefulness of developing strong community partnerships that evaluate local risk factors from the community perspective in a *collaborative* way (see text box below). The discussion also focuses on developing as comprehensive an understanding as possible of local environmental risk factors and their potential to cause harm, including considerations of both potential harm posed by individual risk factors as well as the potential harm posed by a number of risk factors in combination (i.e., a cumulative risk). Included is a consideration of the influence of community vulnerabilities in the overall analysis (see Section 10.4). This more comprehensive view of community concerns gives the partnership team the information needed to better ensure that risk reduction efforts improve the health of the community and its environment.

What is “Collaboration?”

Collaboration can be defined “as a mutually beneficial and well-defined relationship entered into by two or more organizations or individuals to achieve common goals. The relationship includes a commitment to a definition of the mutual relationships and goals, a jointly developed structure and shared responsibility, mutual authority and accountability for success, and sharing of resources and rewards.”

Paul W. Mattessich. 1992. *Collaboration: What Makes it Work*. Amherst H. Wilder Foundation. St. Paul, MN.

This Part also incorporates the “bias for action” perspective of the NEJAC report on cumulative risk by encouraging partnerships to take actions to reduce risks as soon as possible. Note that the “bias for action” approach does not mean that collecting and analyzing information are not important. Instead, the community’s work to improve its understanding of risk is an essential part of a “bias for action” because without a shared understanding of potential risks, mobilizing all sectors of the community will not be possible. Likewise, an unclear understanding of community risks may lead to community actions that are not focused where they can do the most good.

The “Bias for Action” Approach

The bias for action approach encourages communities to take action on known risk factors at the outset of the process while also encouraging the use of practical approaches for collecting and analyzing the information needed to build consensus and target additional risk reduction efforts where they will do the most good.

EPA's Guidebook to Comparing Risks and Setting Environmental Priorities

All environmental problems pose various types and degrees of risks to human health, to ecological systems, and to society's quality of life. Federal, state, and local government officials have found *comparative risk assessment* (see Chapter 11) to be a powerful management tool that helps them determine how to best allocate limited resources for reducing or preventing these risks. Comparative risk assessment is both an analytical process and a set of methods used to systematically measure, compare, and rank environmental problems, and provide important input to the priority-setting and budget process. With the assistance of staff from EPA, comparative risk projects have been conducted by over 20 states, several Native American Tribes, and nearly a dozen localities. The comparative risk approach has also been applied in Bangkok, Thailand, Quito, Ecuador, and Tetouen, Morocco, and in other cities around the world, with assistance from the Agency for International Development.

To assist stakeholders understand the details of performing a comparative risk assessment, EPA developed a workbook called the "***Guidebook to Comparing Risks and Setting Environmental Priorities***." It discusses the major technical and managerial issues inherent in comparative risk projects and explains the mechanics of conducting the risk analysis and risk management phases of a project. While Chapters 10-12 of this ATRA Volume 3 resource document provide an introduction to environmental priority setting and risk reduction using the comparative risk process, the *Guidebook* provides additional important details that partnership teams will find helpful when performing an actual assessment. Team members are encouraged to obtain and review the *Guidebook* for helpful information as they work through the process of identifying and mitigating local priority risks. The *Guidebook* can be obtained from EPA's National Environmental Publications Information System at <http://nepis.epa.gov/>.

10.1 How Is Part IV Organized and How Can It Be Used Effectively?

This Part is organized around ten specific steps communities can take to build a healthier environment (the ten step process is outlined in Exhibit 10-2). Keep in mind that not all communities are the same and each will need to make choices about how to apply these steps in a way that will best meet local circumstances. For example, some communities will choose to work on only one or a few known community risk factors while others will work on known risk factors while collecting and evaluating information on additional issues. Still others may choose to put off action until all analyses are complete.

Exhibit 10-2. Ten Steps to a Healthier Environment

1. Build a collaborative partnership that is able to identify environmental risk factors and potential impacts, build consensus, and mobilize all the resources necessary to achieve community goals;
2. Identify the environmental, health, and related social and economic concerns of the community;
3. Identify community vulnerabilities that may increase risks from environmental stressors;
4. Identify community assets;
5. Identify the concerns and vulnerabilities that everyone agrees need immediate action and begin work to address these concerns and vulnerabilities;
6. Collect and summarize available information on risk factors, potential impacts, and vulnerabilities to estimate levels of concern. Identify information gaps where the information on stressors, concerns and vulnerabilities is missing or inadequate;
7. Identify priorities for possible community action;
8. Identify and analyze options for reducing the priority concerns and for filling information gaps;
9. Decide on an action plan to address concerns and to fill gaps in information and mobilize all sectors of community and community partners to carry out the action plan; and
10. Evaluate the results of community action, analyze any new information that has been collected, and reevaluate the process to reset priorities as needed.

There are several important issues that communities should keep in mind from the outset and throughout implementation of the ten step process, including:

- **Work in a way that helps to build an effective partnership.**

Broad and effective partnerships are the key to getting things done. Partnerships are the source of resources and information and they are the key to mobilizing the whole community to take action to improve environmental health. Because strong partnerships are a key ingredient in the process, all the activities described in this Part should be done in a way that continuously strives to build and maintain the partnership and the trust among the partners. This can be accomplished if everyone in the partnership has the opportunity to be heard and to participate fully as equals in the work and decisions of the partnership. Since members of the partnership will come to the partnership with different backgrounds and resources, the partnership may have to find ways to compensate for these differences. That having been said, all the upfront time and effort needed to build trust and a strong partnership will pay off in the long run because a strong partnership whose members trust each other is much more likely to succeed at mobilizing the community to take actions that make a difference.

“Environmental Health” What Does That Mean?

In this document, *environmental health* is used generically to mean the health of the people and ecosystem in a particular place. Depending on the community needs and concerns, the partnership team may choose to work on issues related to human health, ecosystem health, or both.

- **Decide whether an assessment is needed.** Taking a comprehensive approach to environmental assessment is especially valuable as a tool to get everyone in a community on the same page in their understanding of community 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 need to address a particular priority risk. Or some communities may need a fairly long trust building process before they can agree to work with all stakeholders to get the more complete view of risk. Thus, making the

judgment about when (or if) to do an assessment and how comprehensive it will be will depend on the situation in each community.

- **Use the ten step process in a way that meets community needs.** The order in which a community takes the steps listed in Exhibit 10-2 will vary depending on the situation in the community. For example, in some communities, residents will want to begin with step two and develop a first draft summary of environmental and health concerns and community assets (possibly in the form of a community risk/impacts/assets matrix; see for example Exhibit 10-6) before starting the work to form a partnership. In other communities, the work to form a partnership will come first and all sectors of the community will work together to complete Step 2. Communities will have to use their judgment to decide on how to sequence the steps, choosing the approach that best helps to compile the necessary information and build the consensus and broad partnership that will be needed to reach community goals.
- **Establish a “scope” that meets community needs.** The definition of “environment” will vary from community to community as will the scope of the partnership activities (i.e., the limits of what the partnership will work on). For example, in communities that have ongoing development, crime prevention, or education projects, the scope of the partnership activities may be limited to traditional environmental pollution concerns. However, some communities may want to use a broader definition of “environment” to include things such as jobs, lack of adequate health care, and crime. In such cases, the process will need to be flexible in order to meet community needs, accept the community definition of environment, and (usually) bring in additional partners that can help on these other issues. (Note that even in communities with a focus on traditional environmental pollution concerns, the need to address community vulnerabilities may require assistance from partners outside the traditional environmental arena - see Section 10.4).
- **Incorporate a bias for action.** As noted previously, the approach presented in this Part generally recommends that the ten steps be completed from existing data and the knowledge of the participants in a short time frame. This will allow a relatively quick identification of priorities that everyone can agree on as well as actions that can be taken to reduce risks and impacts. The initial review of existing information will also identify data gaps and areas where there will not be consensus. Once the preliminary priorities and risk reduction actions are identified and underway, the partnership can organize its efforts to fill significant gaps. Once the community has new information, the assessment steps will need to be repeated using the more complete information so that the priorities and actions can be refined or redirected as needed.

The remainder of this chapter provides information to help communities organize into effective partnerships to carry out the work (Step 1),^(a) identify the community’s concerns (Step 2), and identify the community’s vulnerabilities (Step 3) and assets (Step 4). It also provides information on identifying issues that should get immediate action (Step 5) and tips on engaging and communicating effectively with the larger community.

^a Although a discussion of how to involve the community and organize a stakeholder group was presented in Part I (Sections 2.4 and 2.5) and Part II (Chapter 4), that discussion is repeated and expanded in this chapter. The discussion is repeated for readers who may not have an air toxics focus, and consequently may not have read Parts I and II of this document. The discussion in this chapter also provides details that are likely to be particularly important for the type of risk reduction efforts discussed in this Part.

Chapter 11 provides information on collecting and summarizing information about important environmental risk factors, community concerns, and vulnerabilities in a local area, along with how to identify and respond to data gaps (Step 6). The chapter also discusses techniques to prioritize the identified issues from those of most concern to those of lesser concern, and selecting a short list of specific issues to work on to bring about positive change in the local environment (Step 7).

Once the partnership group has chosen specific issues to work on, they will need to identify a set of specific risk reduction projects to perform. Chapter 12 provides information on how to identify and analyze options for addressing the priority concerns and for filling information gaps (Step 8). It goes on to discuss the development of an action plan and mobilizing the community (Step 9) as well as how to evaluate the results of the actions taken (Step 10). Also provided is information on some common risk reduction projects and strategies that the partnership team is likely to draw from as they work to improve their environment.

The CARE Resource Guide

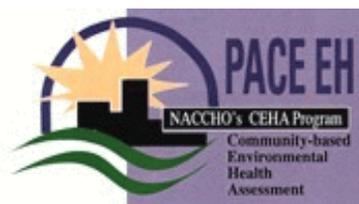
The Community Action for a Renewed Environment (CARE) program (see Exhibit 10-1) has developed a Resource Guide (<http://cfpub.epa.gov/care/index.cfm?fuseaction=Guide.showIntro>) to help communities in the CARE program, but it can be used by anyone interested in any aspect of working with communities to reduce risks. In the CARE program, communities go through a multi-step process: getting organized, analyzing risks, reducing risks, and tracking progress. The Resource Guide enables stakeholder groups to find the EPA on-line resources that can help their community through every step of the process as they move from getting organized to becoming stewards of their own environment. The first four parts of the Resource Guide track the CARE process and are roughly organized in order of the steps a community would go through as it moves through that process:

- Part I** Getting Started and Building Partnerships
- Part II** Understanding the Risks in Your Community
- Part III** Methods to Reduce Your Exposure
- Part IV** Tracking Progress and Moving Forward

Partnership teams are encouraged to use the Resource Guide to help them locate important guidance documents and other information they will need to draw on as they work to perform an analysis of risk factors in their community, select risk reduction projects, and evaluate their efforts over time.

PACE EH: A Tool for Community Environmental Health Assessment

An excellent resource for communities looking to evaluate and respond to environmental health concerns is the Protocol for Assessing Community Excellence in Environmental Health (PACE EH). PACE EH is an innovative tool created in collaboration with the National Association of County and City Health Officials and the CDC's National Center for Environmental Health at the Centers for Disease Control and Prevention that allows communities and local governments to identify environmental health issues, rank local environmental health concerns, and prioritize environmental health program activities. The PACE EH process mobilizes the community to take an active role throughout the entire environmental health assessment process.



PACE EH helps local health agencies integrate community concerns into their programs. PACE EH redefines the way agencies practice environmental health by enabling them to be advocates for the communities that they serve. PACE EH offers a way to integrate data-driven assessments of environmental health concerns with the values and perceptions of communities. Initial users of PACE EH report that the process enables them to:

- Be more responsive to community environmental health concerns;
- Gain visibility in the community as leaders in environmental health;
- Work for environmental justice with disenfranchised communities;
- Have community-based coalitions that lobby for local environmental health ordinances;
- Have a health department staff that is comfortable being engaged with communities;
- Become more effective in engaging community members in environmental health issue identification and problem solving;
- Educate communities on the importance of science-based decision making; and
- Provide state and national policy-makers with community-driven findings that could be used to shape environmental health policies and resource allocation.

More information on the PACE-EH program can be found at:
<http://www.cdc.gov/nceh/ehs/PIB/PACE.htm>

10.2 STEP 1 - Building a Collaborative Partnership

Building a strong collaborative partnership of interested stakeholders is an important aspect of a risk identification and risk reduction program at the local level. Participation of local stakeholders in a partnership can help ensure a better understanding of the process and will help to promote buy-in to the selected risk reduction strategies. It follows that partnership members should consist of a broad cross-section of the community who are concerned as well as involved with the environment, human health and socioeconomic health and well being of the community.^(b) Exhibit 10-3 provides a list of organizations that are common candidates for participation in a community-based collaborative partnership.

STEP 1 Building a Collaborative Partnership

^b ATRA Volume 1, Chapter 28, also provides an introduction to community involvement.

Exhibit 10-3. Potential Recruitment Pools for Membership in a Local Partnership

- Community members from the focus community, including minority members
- Local environmental justice organizations
- Local, regional and national environmental NGO organizations
- Faith based organizations
- Local economic organizations
- Educational Institutions (Schools, Universities and Colleges)
- Community civic, environmental, and economic development organizations and associations
- Local business representatives, including those representing potential toxics sources
- Housing associations
- School teachers and staff
- Community students and student organizations or environmental clubs
- Youth organizations
- Local library staff
- Local and national business associations
- Unions representing local employees
- Local government, including elected officials and agency representatives from planning, permitting, development, public works, parks, police and fire departments
- Local, state, tribal, and federal government agency representatives from transportation, environment, housing, energy, and other relevant agencies, such as forestry agencies and natural resources departments
- National, state, and tribal environmental organizations
- Public health organizations (local, state, tribal, and federal) and health care providers
- Local foundations concerned with the environment or public health

So, how does a collaborative partnership form? From a practical standpoint, a partnership will commonly evolve from one of several types of existing organized efforts already associated with the community. In some communities, an existing citizen grassroots organizing effort will provide the basis for a collaborative partnership. In other communities, it may be chartered by a local governmental entity. In still others, a non-profit environmental organization may be the catalyst of the effort, just to name a few.

The effort needed to understand and improve the quality of the local environment may be complex and may require a wide range of skills and resources. No single sector of the community or government will commonly have the ability or resources to do all this work alone. An effective partnership, on the other hand, will have the ability to bring together the required resources,

Business and Industry as Part of the Partnership

Industrial facilities and other smaller business located in or around a community study area may be possible sources of emissions in a multisource community-based assessment, and these stakeholders should not be overlooked when forming a collaborative partnership. In some places, a framework may already exist to help foster relationships between local business and the community. For example, Clean Air Minnesota is a voluntary partnership of businesses, environmental groups, government agencies, and citizens working together toward a common goal of cleaner air in the Twin Cities and elsewhere in Minnesota (see <http://www.mn-ei.org/air/index.html>). If such a framework does not exist, communities may want to contact local industries or trade groups directly to inquire about their willingness and ability to contribute to a partnership. In many cases, businesses can be an excellent resource for a community.

information, and skills that will be needed to reach an agreement on the questions to be evaluated, the approach to be taken, and an effective plan for action once the assessment is complete. Some of the skills that are commonly needed to perform a community risk reduction project include:

- **Leadership.** Successful completion of the assessment will depend on leaders with a clear understanding of the partnership's goals and the skills to lead the community toward those goals.
- **Dialogue.** The willingness and ability to exchange information and to learn from others is essential to maintaining a functioning partnership.
- **Data collection.** Members who are familiar with or have access to available information.
- **Technical knowledge.** Depending on the type and level of analysis that will be performed, certain technical skills will be helpful. Some of the skills and knowledge that may be needed include environmental regulation and environmental data sources, risk analysis, certain engineering skills, data base management, and toxicology. The partnership may have access to this expertise directly (e.g., from local government or university staff) or may need the aid of consultants to perform the technical analysis. Once the risks have been evaluated, identifying and implementing meaningful risk reduction measures may require specialized expertise such as environmental engineering and pollution prevention.
- **Communication.** Because the work of the partnership depends on community support and participation, the ability to explain the work of the partnership to the community is essential. This will require both communication skills and knowledge of the community. The ability to communicate the science used in the assessment to non-scientists is especially important. ATRA Volume 1, Chapter 29, discusses the fundamentals of risk communication.
- **Fundraising skills.** Depending on the scope of the effort, more or less resources may be needed to fund partnership activities. Section 10.2.2 provides information on common sources of resources for the effort.

Keeping Everyone Informed and Involved

The partnership team should make special efforts to ensure that all sectors of the community are given the opportunity to participate fully in the effort, especially when there are sectors of the community that are not used to being involved in partnership efforts (e.g., affected residents or small businesses in the community). Partnership teams should 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 and in the leadership of the partnership. The success of the partnership will depend on its ability to fully engage all sectors of the community.

- **Organizational skills.** Logistics such as chairing meetings, keeping records, organizing community events and actions, developing budgets, handling and raising funds, and other related administrative skills will be needed over the course of the process.
- **Facilitation skills.** The ability to foster a process that will build trust, improve communication, clarify goals, and develop participation in the partnership is essential.
- **Ability and willingness to implement risk reduction strategies.** Members of the partnership and others (e.g., business, citizens) may need to implement the risk reduction strategies.

The strategy for getting a partnership started will be different for each community and will depend on factors such as the kinds of established organizations, the ability to access technical resources, and local interest in environmental issues.

The Benefits of Facilitation

Facilitation is a process used to help a group of people or parties have constructive discussions about complex, or potentially controversial issues. The facilitator provides assistance by helping the parties set ground rules for these discussions, promoting effective communication, eliciting creative options, and keeping the group focused and on track. Facilitation can be used even where parties have not yet agreed to attempt to resolve a conflict.

As the partnership team for a community-based project forms and begins to have meetings, they may find that bringing in a facilitator will be beneficial, particularly when the partnership team consists of a diverse set of individuals with strong opinions and different ideas about “what should be done.” If meeting facilitation is needed, the partnership may decide to use someone from the community with facilitation experience or a professional meeting facilitator. A neutral facilitator is particularly effective in communities where some controversy is anticipated.

Building Collaboration through Community-Based Participatory Research (CBPR)

Community-based participatory research (CBPR) is one approach to engaging the broader community by including community members along with researchers and organizational representatives as active participants in the research process targeted at a public health issue (such as air toxics in a community). In CBPR, all of the partners involved contribute expertise and share decision-making and responsibilities. In doing so, the partnership’s collective understanding of the issue at hand can be enhanced and leveraged to broaden the pooled knowledge of the investigative team, ensure that the research is relevant, increase the quality and validity of the research results, break down the barriers that have sometimes existed in more traditional studies (where a community was the “subject” of the research), and ultimately improve the health and quality of life of the involved community.

A number of books and articles regarding the principles, benefits, components, and challenges of CBPR projects have been published. See, for example, the mini-monograph entitled “Community-Based Participatory Research: Lessons Learned from the Centers for Children’s Environmental Health and Disease Prevention Research.” *Environmental Health Perspectives* (volume 113, pages 1463-1471) October 2005; available at <http://ehp.niehs.nih.gov/members/2005/7675/7675.html>.

10.2.1 Who Will Do the Day-to-day Work of the Partnership?

A successful partnership for a community risk reduction effort will usually require an organization to take the lead and act as a consistent champion of working together to improve local environmental quality. Commonly, the community will decide to establish some form of a partnership team steering committee to lead, organize, and oversee the day-to-day work of the overall effort. If this approach is chosen, the steering committee should include a balanced representation from as many different sectors of stakeholders in the community as possible. A broad representation will help ensure that all views are considered and that the partnership has access to the information and support needed for a successful outcome. The steering committee should also include individuals who have specialized skills and resources needed to help complete the project. A larger group of community members, or the entire community, would then be encouraged to participate on occasion in activities organized by the steering committee (e.g., public meetings to allow the larger community to provide input). Because the scope of partnership activities will depend on the specific goals that are chosen, the tasks and membership in the steering committee may evolve as goals are clarified.

If the community puts the day-to-day work into the hands of some form of a steering committee, that committee should, at a minimum:

- Represent the views of the community residents, businesses, and organizations in partnership decisions;
- Exchange information so that all partnership members have the understanding necessary to participate fully in the work;
- Consider the views of all members of the partnership and work to develop a collaborative decision-making process;
- Participate in the technical analysis of risk factors, potential impacts, and community vulnerabilities;
- Help to communicate the work and results to the larger community;
- Help to develop and lead the implementation of an action plan to make improvements in environmental quality;
- Help with group logistics such as organizing, chairing, and keeping meeting records; and
- Act as the fundraising arm for the effort (see Section 10.2.2 for information on funding a community risk reduction project).

Depending on the needs of a given community effort, the partnership team steering committee might decide to establish a number of topic-specific workgroups to help perform specific tasks

The Important and Synergistic Roles of Regulatory and Public Health Agencies in Identifying and Reducing Environmental Health Risks

The effort to sustain our gains in public health and environmental health protection will be most effective if regulatory and public health agencies work together. Both regulatory and public health agencies have important and complementary roles to play in setting policies for environmental health protection and risk management.

The likely synergy between environmental and public health agencies is a reservoir of untapped potential for environmental risk management. Many environmental pollution problems can be identified by their public health contexts. For example, construction of an asphalt batch plant was proposed in Boston. The residents of the urban community in which it was to be constructed were found by public health officials to have a relatively high incidence of asthma and cardiovascular disease. The public health findings signaled a potential environmental health problem that could have been exacerbated by emissions from the asphalt plant. On that basis, construction of the plant was opposed by citizens and by the public health agency, and a decision was made to try to locate the plant elsewhere.

Environmental, public health, and social agencies can work together with community activists to define problems and to develop and implement strategies to manage environmental risks in the full context of poverty, poor schools, and inadequate housing. As our society works to reduce risks in an era of diminishing resources, it is vital that environmental and public health agencies collaborate in deploying the tools of public health-epidemiology, exposure assessment, surveillance, nutrition, genetics, and behavior change-to identify and evaluate the most cost-effective ways to reduce risks and improve public health in all segments of the population. The public health community should accept the challenge to play an influential role in setting national, state, and local priorities and in developing strategies to understand, manage, and prevent environmental risk.

Source: CRARM Report, Volume 1; available at www.riskworld.com/Nreports/1996/risk_rpt.

and to report back to the steering committee on an established schedule. Example teams could include:^(c)

- **Risk Analysis Team** to gather environmental and community data and rank risk factors, potential impacts, and community vulnerabilities;
- **Communications Team** to be the primary interface with the larger community;
- **Quality Assurance/Quality Control Team** to help establish data quality requirements, and audit technical analyses;
- **Recommendations Team** to make recommendations on whether risks are unacceptable for specific risk factors, recommend specific risk factors for the partnership to work on, and to develop and present recommended risk reduction options; and

^c The members of the partnership should be careful not to influence the scientific process in such a way as to achieve a predetermined outcome. The reason for this is simple. The analysis of community risks results must be viewed by the larger community as having been based on good science and science judgment. Stakeholders with an interest in the outcome of the analysis must not be seen as having unduly influenced it.

- **Implementation Team** to implement selected risk reduction strategies and measure results.

Depending on the circumstances, some of the functions of these workgroups could be combined, with the exact set of workgroups formed varying from one community to another.

10.2.2 Funding Sources for Community Assessments

Effectively conducting some aspects of a community-level air toxics assessment may require financial support beyond what is readily available within the community. As a result, an effort toward acquiring funding may need to be included in the planning phases of a risk assessment. Fundraising, or lack thereof, can greatly enhance or limit the viability of an assessment. It is important to have an idea of the available sources of funding as well as an estimate of the funds needed to effectively achieve the goals and scope set for the assessment and, if desired, to sustain the project over the long-term.

Funding for projects and research proposals related to community-level air toxics risk assessments is available in a variety of forms and from numerous sources. Financial support for such projects may come in the form of grants, which award money for a specific purpose, finance much of today’s research and are available through a number of organizations, including federal, state, and local government institutions, nonprofit foundations, and industries and corporations. Grant recipients may be required to share or publish results, attend conferences, or write summary reports as part of the agreement with the funding source. The federal government is the primary resource for project-related grant money. Loans, which provide money temporarily, are also available but not as popular a choice for funding, since the provider must generally be compensated within some time frame. Additionally, volunteers and in-kind services can be organized for particular types of projects located in certain areas or serving the mutual interest of several communities or organizations.

Some Terms of the Grants Business

Application Package	A group of specific forms and documents for a specific funding opportunity which are used to apply for a grant.
Cooperative Agreement	An award of financial assistance that is used to enter into the same kind of relationship as a grant; and is distinguished from a grant in that it provides for substantial involvement between the federal agency and the recipient in carrying out the activity contemplated by the award.
Grant	An award of financial assistance, the principal purpose of which is to transfer a thing of value from a federal agency to a recipient to carry out a public purpose of support or stimulation authorized by a law of the United States (see 31 U.S.C. 6101(3)). A grant is distinguished from a contract, which is used to acquire property or services for the federal government’s direct benefit or use.
Project Period	The period established in the award document during which awarding agency sponsorship begins and ends.

For a list of grants terminology, see the Grants.gov website at:
http://www.grants.gov/GrantsGov_UST_Grantee/!SSL!/WebHelp/glossary.html.

The U.S. government is perhaps the most extensive and comprehensive domestic provider of grant and program money for research and study. An online listing of all federal government grant programs is available at <http://www.cfda.gov>. A search-and-apply grant database is also available at <http://grants.gov>. Some potential sources of funding are listed here (see Exhibit 10-4); many studies related to environmental and public health receive funding from one or more of the organizations listed here.

EPA offers a significant portion of grant money for environmental health concerns, but the National Institute of Environmental Health Sciences, the National Institute of Health, and the Department of Health and Human Services, among others, also offer funding opportunities for projects and research related to environmental and public health assessment. A description of the EPA grant funding program, including its advantages and limitations, as well as a list of grants to choose from, can be found at http://www.epa.gov/seahome/grants_disclaim.html.

Each study must secure its own financial support from federal, state, or local government, industry, foundations, non-profits, or other organizations. Determining the purpose, scope, and focus will help narrow the search for potential sources of funding to organizations with sufficient financial resources to satisfy the scope and whose interests are similar to the purpose and focus specific of the study.

Additional References

EPA Office of Environmental Justice: Compliance and Enforcement at <http://www.epa.gov/compliance/about/offices/oej.html>.

Environmental justice-related request for applications, programs, and grant opportunities can be found at <http://grants.nih.gov/grants/guide/index.html> and <http://www.epa.gov/compliance/environmentaljustice/grants/index.html>

Catalog of Federal Funding Sources for Watershed Protection www.epa.gov/watershedfunding

EPA Clean School Bus USA Program at <http://www.epa.gov/otaq/schoolbus/funding.htm>

EPA Voluntary Diesel Retrofit Program at www.epa.gov/otaq/retrofit/

The Environmental Finance Program operates as a referral service for those soliciting funding for environmental projects, but does not supply grants or loans. This program provides *A Guidebook of Financial Tools* as well as a Catalog of Federal Domestic Assistance, EPA Regional Sources of Funding, and State Sources (via each state's environmental department). See <http://www.epa.gov/efinpage/> for details.

Exhibit 10-4. Potential Funding Sources for Community Assessments

U.S. EPA	
Environmental Justice Cooperative Agreements Program	This program was established in 2003 to help community-based organizations finance the planning and implementation of projects addressing local environmental and public health concerns. In 2004, 30 cooperative agreements were awarded to organizations that will use EPA's "environmental justice collaborative problem-solving model" to address their issue(s). See http://www.epa.gov/compliance/environmentaljustice/grants/ej-cps-grants.html .
Office of Environmental Justice Small Grant Program	This program was established in 1994 and also provides assistance to community groups addressing environmental justice issues in the form of local environmental or public health concerns. Interested community groups must meet all requirements of an affected local community-based organization (LCBO) to be eligible. See http://www.epa.gov/compliance/environmentaljustice/grants/ej_smgrants.html .
Brownfields Program	This program was established in 1995 for the rehabilitation of property which contains a hazardous substance or pollutant. Communities with brownfields sites often have difficulty revitalizing such properties due to the potential presence of harmful substances and the costs associated with their removal. Brownfields properties waiting for redevelopment, in addition to those sites which have already undergone rehabilitation, are located throughout the United States. See http://www.epa.gov/swerosps/bf/index.html .
Supplemental Environmental Projects (SEPs)	This program provides grant money generated by the civil penalties defendants often pay in the settlement of environmental enforcement cases. Generally, recommended SEPs are proposals with potential for detectable environmental or health benefits, including but not limited to: operation and maintenance of health clinics in minority and/or low-income populations, control of lead-based paint in child-occupied housing, replacement or retrofit engines for diesel buses, and aquatic resource preservation. See http://www.epa.gov/compliance/resources/publications/civil/programs/sepbrochure.pdf
Community-Based Environmental Protection (CBEP)	This programs integrates human needs and environmental management, taking into consideration ecosystem health and emphasizing the positive correlation between a healthy environment and economic prosperity. See http://www.epa.gov/ecocommunity/ .
Smart Growth Program	This program offers a variety of grants focused on working with tribal, state and local governments, businesses, and industry to influence land use and growth plans to minimize the potential impact on environmental, economic, and community health. See http://www.epa.gov/piedpage/index.htm .
Community Action for a Renewed Environment (CARE)	This program provides two different levels of grant funding to help communities determine local pollution risks and, if necessary, take steps to reduce toxic pollutants. See http://www.epa.gov/care .

Exhibit 10-4. Potential Funding Sources for Community Assessments (continued)	
Office of Air and Radiation	Multiple grants are offered by this department, including several specifically for tribal communities, related to air quality monitoring, environmental education and outreach programs, and training in methods for reducing exposure risk to toxic pollutants. See http://www.epa.gov/air/grants_funding.html#oad .
Department of Health and Human Services	
Office of Minority Health	This office was established in 1985 with the task of eliminating health disparities by improving and protecting the health of racial and ethnic minorities. Funds to achieve this goal are provided in the form of Cooperative Agreements, Research Funding, Educational Funding, and Community Grants. See http://www.omhrc.gov/omh/whatsnew/2pgwhatsnew/funding.htm .
National Institutes of Health	NIH funds various projects focused on reducing the health disparities in minority and low-income communities. See http://grants.nih.gov/grants/guide/pa-files/index.html?sort=ac&year=active .
National Institute of Environmental Health Sciences (NIEHS)	
Environmental Justice: Partnerships for Communication	This program works to establish communication within communities between scientists assessing exposure to pollution, regulators, and affected residents. The projects also emphasize minority participation in the research studies. See http://www.niehs.nih.gov/translat/envjust/envjust.htm .
Department of Housing and Urban Development	
Lead-Based Paint Hazard Control Grant Program	This program provides funding to state and local governments for the control of lead-based paint hazards in low-income housing, particularly those with young children. See http://www.hud.gov/offices/adm/grants/nofa05/grplead.cfm .
Community Development Block Grant Program for Indian Tribes and Alaska Native Villages	This program provides grants promoting the development of Indian and Alaska Native communities, which includes construction of housing, suitable living environments, and creation of economic opportunities. This program is aimed at persons with low and moderate incomes. See http://www.hud.gov/offices/adm/grants/nofa05/grpicdbg.cfm .
U.S. Congress	
Morris K. Udall Foundation	The Udall Foundation was established in 1992 by the U.S. Congress to honor Morris Udall's achievements and service in the House of Representatives. The Foundation awards undergraduate merit-based scholarships to college students who have shown potential and commitment to pursuing careers related to the environment. Additionally, the Foundation includes a Native Nations Institute, which helps develop curriculum materials for tribal educational institutions, supports business skills camps for Native American high school students, and provides Native American congressional internships. More information is available at http://www.udall.gov/prog.htm .

10.2.3 How Can the Partnership Effectively Involve the Larger Community?

Whatever structure the local partnership team initially takes, it should consider communicating with and including the general public as soon as possible in the process. If the community members participate early on and throughout the process, they will be in a better position to understand what the partnership group is doing, they will have had more opportunity to provide input and, ultimately, will feel the work being done is in their best interest and be willing to support the selected risk reduction projects. The process works best when the community members appreciate that the partnership group is working with them and respecting their input (keeping them informed and involved). In contrast, excluding the public from the process may result in community resentment and rejection of even a sound risk reduction approach. A “guardian-like” attitude toward the community that treats people as unknowledgeable and incapable of meaningful participation does not foster trust and can eventually undermine the process.

Another important reason to involve the community early in the process is that the people who live in the community are the people who can provide some of the best advice about the important risk factors actually present. They are also the people who best understand the types of solutions that will be most accepted.

The level of participation that community members have in some of the more technical phases (e.g., assessing the relative importance of various risk factors) of the process may be tailored to their background, expertise, and interest; however, this does not mean the community cannot serve an important role in the technical phase, as well. The technical approach taken, as well as the assumptions and limitations of the analysis, should be clearly explained to the community members and their input should be valued in return.

What Is “the Community?”

Many people commonly think of the community as only the people who live within the area. For a community risk-reduction effort, however, it is helpful to think of the community as comprised of more than just the people who live there. The “community” (in this more inclusive sense) can include people who work in the area but live elsewhere, local businesses that operate in the area, neighborhood schools, etc.

In addition to the people and groups who actually live and work in an area, a number of other stakeholders also may have an interest in the community’s concerns (e.g., local officials, health professionals, local media). It is helpful, therefore, when organizing a risk reduction effort within a community, to keep in mind that many different people (not just the people who live there) may have an interest in the work being undertaken (even though they may choose not to participate in the day-to-day work of the partnership).

10.2.3.1 Understanding the Goals, Objectives, and Responsibilities for Effective Community Involvement

At a minimum, goals and objectives for effective community involvement should include the following items (note that all study areas are different and this list is just a suggested starting point that may need to be expanded):

- Earning trust and credibility through open and respectful communications;

- Including the community in the design and implementation of risk evaluation and risk reduction efforts;
- Ensuring that community members understand the entire risk reduction process including any possible health impacts of the risk factors;
- Updating communities about all current risk reduction activities; and
- Promoting collaboration between decision-makers, communities, and other agencies and stakeholders when carrying out risk reduction activities.

To reach these goals and objectives, the following key principles are important:

- Be aware of confidentiality and privacy issues. Any personal information that the partnership receives from community members should be respected, as appropriate.
- Be aware of special needs and cultural differences. When conveying information about risk factors and risk reduction activities, partnership groups should be aware of non-English speaking community members and other citizens who may need help in understanding complicated messages. Also, be sure to consider cultural symbolism. There are notable examples of the use of a symbol that is acceptable in one culture but that has an unacceptable meaning in another.
- Maintain effective communication. As part of the trust-building process, the stakeholder group should keep community members informed of progress, opportunities for community involvement, how community input will be used, how community members can participate in the selected risk reduction efforts, and upcoming issues and events.
- Respect community knowledge and values. It is important to recognize that community knowledge can provide valuable information for the deliberative processes and to help address data gaps. It is particularly important to try to understand people's interests (what they care about) during the process (more discussion of this subject is provided in the next section).

10.2.3.2 Plan Community Involvement Strategy and Activities

Planning a community involvement strategy and activities is one of the most critical components for effective community involvement. The type and nature of communication and involvement activities will depend on:

- The needs and interests expressed by the community during the previous stages;
- The potential risk factors the community faces; and
- The resources available for communication and involvement activities.

Exhibit 10-5 provides a broad list of issues to be considered when developing a community involvement strategy. Not all of these issues must have solutions initially; however, they may need to be addressed eventually. Exhibit 10-6 illustrates some tips developed by the Agency for Toxic Substances and Disease Registry (ATSDR) for effective community involvement.

10.2.3.3 Provide Opportunity for Continued Public Interaction

While an evaluation of risk factors is underway, continuing communication and involvement goals will include updating the community on the status of the assessment, obtaining ongoing feedback on the process, obtaining additional information as needed or available from the

community for the assessment, and recommending public health actions, if needed, about how community members can reduce risks now while the assessment goes forward. Throughout this process, the partnership team should continue to listen to community concerns and clearly explain how they will respond to these concerns. The team also should leverage community outreach resources whenever possible. For instance, federal agencies, state health and environmental agencies, local health departments, citizens' advisory groups, and medical advisory groups may have funds for involving community members in the process. Collaborating with partner organizations can strengthen community outreach depth and coverage.

Exhibit 10-5. Issues to Consider When Developing Community Involvement Strategies

Community health concerns

- How many community members are concerned about the study area?
- What is the level of the community's concern?
- Is the level of community concern higher (or lower) than the actual risk would suggest?
- Are community concerns unknown?
- Would a physician enhance outreach at community meetings?
- Is information/outreach/health education available now or can this wait until reports are generated?

Demographics

- How many community members are potentially affected?
- Are there any potentially sensitive populations that may be exposed?
- Do socio-demographic data suggest need for additional resources, such as translation?
- How do the community members receive information (e.g., newspaper, radio, word-of-mouth)?

Community interest in the risk analysis and management process

- How involved in the process would the community like to be?
- How would the community like to be kept updated and informed (e.g., newsletters, e-mails)?
- How many community groups or activist groups are involved? How active are they?
- Should the risk stakeholder group facilitate the creation of a community group if one has not been formed?
- Can information be disseminated at cultural centers? Informal gatherings?

Media support

- What has the community already heard from the media? Are there misconceptions that need to be dispelled?
- Will media support require more community involvement resources than usual?

Support of the community

- Are there Native American communities affected by the risk factors? Should a relevant tribal agency be involved?
- Does a risk factor involve an environmental justice issue or other type of special sites?
- What experiences has the community had with "the government"? Other agencies?

**Exhibit 10-5. Issues to Consider When Developing Community Involvement Strategies
(Continued)**

- Is there a higher than average need for resources, such as for more frequent community updates?
- How active will any regional agency representatives or other agencies be in community involvement efforts?

Non-English speakers and other special needs

To ensure the participation of everyone in the community, agencies often use one or more of the following strategies:

- Offer translators and signers at community meetings, and check for wheelchair accessibility.
- Provide additional sessions of meetings that are offered exclusively in the community's secondary language(s).
- Seek out advocates for the severely disabled or others with special needs.
- Provide education and outreach materials in both English and secondary languages.
- Develop understandable and culturally appropriate messages and materials.

Public health

- Is the study area designated as being of public health concern? Is hazard acute or chronic?
- Are environmental health risks largely unknown?
- Is the study area considered a high priority? By whom?
- Are there already some risk or health outcome results? Are biological data available?
- Is a health connection plausible between contaminant exposures and community health concerns?
- Are data available for review now? When will they be available?
- Are there toxics reduction steps already in process?

Community culture and setting

- What are the current community priorities and projects?
- What are the community organizations?
- Who are the community leaders (unelected)?
- What activities constitute community life?

Other

- How many people are in the stakeholder group? Does everyone know their role?
- What is the timeframe for report development and communication?
- Will any special clearances be required? At what levels?
- Will document or graphics development resources be needed?
- Are there schools or locations where community meetings can be held?

Exhibit 10-6. ATSDR's Components of Effective Community Involvement

In identifying community concerns and interests, it often is useful to develop a “conceptual map” of the key organizations and decision-making processes in a community. The map should include information such as who speaks for various parts of the community, who serves in formulating perspectives, and what the process is for obtaining consensus within the community.

TIP: Identify local associations or groups by asking community members, respected “elders,” or other associations. This also can go a long way in demonstrating a commitment to involving and mobilizing all stakeholder groups, which helps to build trust and creates a more successful community-involvement process.

But In seeking out community members, do not rely solely on existing community organizations. Very often community members are not well organized or represented by existing groups. Just because there is not an organization or group in the study area does not mean that you can bypass that part of the community.

TIP: Local public health providers, such as county health departments and hospitals can be a key partner in understanding and evaluating the risk factors a community faces and risk reduction solutions that will work well in a particular place. These organizations often have resources (staff and funding) that can be used in community health activities. Because they are locally based, involving them as key partners in the process can create strong local leaders to promote sustainable activities once risk reduction projects are in place.

Source: U.S. Agency for Toxic Substances and Diseases Registry (ATSDR) *Public Health Assessment Guidance Manual* (<http://www.atsdr.cdc.gov/HAC/PHAManual/cover.html>).

Generally, community involvement strategies are situation-specific and partnership teams should determine which community involvement strategies are appropriate given the potential seriousness of the risk factors, the abilities and involvement of the community, and the resources available for communication, training, and outreach. If resources for community outreach are limited, the team may wish to consider how they can best prioritize resources for community involvement. In such instances, the team should look for community outreach opportunities during other community activities, if it would be culturally acceptable. For a determination of cultural acceptability, ask community leaders or “trusted elders.”

Finally, some community analyses foster highly interactive relationships with community members. For example, the partnership team may establish ad hoc working groups to evaluate specific issues. These groups may include advisory members from the community or their representatives (e.g., community consultants) and may be more or less formal, as the circumstances require.

10.2.3.4 Providing Risk Evaluation Documents and Risk Reduction Project Selection Documents to the Larger Community

At the end of any analysis phase, the next stage of community involvement generally begins. Since the process of data gathering, analysis, and risk factor, potential impact, and vulnerabilities evaluation can take some time, community interest may have decreased. However, once the risk reduction options are ready for release and implementation, public interest often peaks again.^(d) The partnership team may consider using a more formal process to communicate this information to the public. For example, the team may release the draft for a period of time for people to read and comment. During the review period, meetings may be held to help describe how the analysis was done and how the risk reduction options were selected. The partnership team may also need to communicate the key results, limitations, and recommendations through a variety of communication materials including fact sheets, press releases, and websites. If an agency or other parties will be conducting any follow-up activities in the area, then additional appropriate community involvement may be planned.

Tips for Involving the Community

An enormous number of tools and activities exist that stakeholder groups can use to plan for and encourage meaningful community involvement. They range from the simple phone call, to block parties (at which food may be provided), to the mapping of risk factors, demographics, and other geographic data. How many and which tools and activities should be used or initiated for a given situation depends on the phase of the process, the level of community interest, and the number and degree of important risk and vulnerability factors a community has. The formation of strong relationship between the partnership and the larger community can be an effective way to access local knowledge and other assets, achieve consensus, leverage resources, and obtain results.

The CARE Resource Guide provides a number of examples for effective community involvement (<http://cfpub.epa.gov/care/index.cfm?fuseaction=Guide.showIntro>).

10.2.3.5 Talking to the Public about Risk

Throughout the entire process, the partnership team will need to both become familiar with concepts that are unfamiliar to them, such as risk analysis and risk management. Throughout the process, the group will also need to be able to effectively communicate this type of information to the general public.

The purpose of risk communication is to help describe the results of the risk and vulnerability analyses and to convey the results in a way that both effectively supports the goals of the project and provides an ample level of understanding for community members. Having a good risk communication strategy is a fundamental aspect of developing trust among all the various stakeholders. Planning for risk communication should begin before conducting the analysis of community risk factors.

What is Risk Communication?

Risk communication is the way in which decision-makers and others communicate with various interested parties about the nature and level of risk, and about the risk reduction strategies to reduce the risk.

^d The partnership group may wish to release the results of the risk analysis phase with the risk reduction projects or prior to selecting the risk reduction projects.

Involving the community, establishing and maintaining relationships, and networking with other partners (e.g., agencies, organizations, officials, the news media) are key elements in a risk communication strategy. Tailoring communications to the cultural diversity of the community is also important because it may help establish the trust necessary to complete a risk analysis that meets the needs of all stakeholders. Risk management rooted in voluntary measures will particularly require effective risk communication in order to get buy-in.

ATRA Volume 1, Chapter 29, and Chapter 7 of this document provide an overview of the basics of risk communication. The stakeholder group is encouraged to review and use that information at the very outset of any community risk reduction effort.

10.3 STEP 2 - Identify Community Concerns and Interests

There is a wide array of environmental risk factors that may exist in any community. Some risk factors are relatively common (e.g., smoking, chemicals in consumer products, pesticides for yard use), while others are found less frequently (e.g., an abandoned hazardous waste site in the community).

STEP 2
Identify Community
Concerns & Interests

One important activity that the partnership team will need to do at the outset of any risk reduction effort is to identify the environmental risk factors present in the community, the potential impacts the factors may pose, and community vulnerabilities (discussed in Section 10.4 below). A good way for the partnership to begin this process is to provide ample opportunity for both the members of the partnership and the larger community to voice their specific individual concerns. (Note that it is likely that the concerns expressed during this initial conversation may not all be the same and a fair amount of listening and discussion will be needed to help develop a common understanding of the members' concerns. It will also set the stage for deciding what issues will ultimately be the overall focus of the project.)

As noted previously, some community stakeholders may consider certain issues to be outside the bounds of improving "environmental health" (e.g., they may have a focused view of environmental health that centers on exposures of people or ecosystems to chemical or radiological pollutants). Other people may have a different perspective on the definition of "environment" and the partnership will need to discuss and resolve how to work through such contrasting views. In those instances where certain concerns raised by partnership members are ultimately found to be outside the scope of what can be addressed (e.g., due to limited resources), a willingness on the part of all partnership members to at least help identify resources or make connections to agencies that can help address these concerns will go a long way to building trust and credibility among all the partnership members. By not listening or responding to the concerns of partnership members, the overall process will run the risk of failing to implement meaningful reduction efforts.^(e)

^e Note that some community efforts may decide at the outset that they want to work on one or a few specific areas. They may decide upfront that they want to work on "just indoor environments" or "just solid waste issues" or they may limit themselves to risk factors that are already well characterized both in terms of the risk they pose and the methods to reduce the risks (e.g., retrofitting diesel engines, replacing leaded pipes in home drinking water systems). Regardless of the approach taken to arrive at a course of action, the partnership is encouraged to be transparent about why and how both their initial and ongoing choices were made.

10.3.1 What Are the Issues that Commonly Concern Stakeholders?

Parts II and III of this document discuss the risks posed to communities from toxic air pollution both outside and inside, and things that can be done to help reduce those risks. In addition to air toxics, a number of other environmental risk factors may impact community health. The stakeholder group will usually begin by making a laundry list of these risk factors in their community. In order to do this efficiently and effectively, they will need to have an understanding of the common types of risk factors and where information about those risk factors is kept. (An example table of a laundry list of potential risk factors is provided in Exhibit 10-6.)

Broadly speaking, the most common environmental pollution risk factors (other than toxic air contaminants) that may adversely impact the health of people in the community fall into the following general categories:

Chemical Risk Factors

- Chemicals in indoor environments (e.g., lead paint in older homes, pesticide use);
- Chemicals in water used for drinking, bathing, cooking, recreation, etc.;
- Chemicals in soils and sediments (e.g., spills of toxic chemicals, crumbling lead paint from building exteriors);
- Chemicals in foods (e.g., mercury in fish, pesticides); and
- Chemicals in wastes (e.g., spent batteries in trash).

Biohazards

- Microbes in drinking water and recreational waters (e.g., beaches); and
- Infectious wastes (e.g., from health care facilities).

Radiation Hazards

- Radon and other naturally occurring ground-based radiation sources;
- Ultraviolet radiation; and
- Other electromagnetic sources (e.g., power lines).

Miscellaneous Risk Factors

- Vermin (e.g., rats);
- Mold in indoor environments;
- Noise; and
- Odors.

Each of these categories can be further subcategorized into a number of specific risk factors which may or may not be present in a specific geographic area. For example, consider the generic risk factors “Chemicals in Foods” and “Chemicals in Indoor Environments.” Virtually every community can place these broad categories on their initial list of risk factors and can start making lists of specific risk factors they think might be a problem for each of these broad categories. For example, the partnership team might decide to begin by creating an initial list of

potential risk factors along with the potentially impacted parts of the community and the adverse outcome that the risk factor may be causing. An example of such a table is provided in Exhibit 10-7. Information on how to refine this initial list by gathering existing information about community risk factors and potential impacts is provided in Chapter 11. Information on developing new information is provided in Chapter 12.

Additional risk factors may be present in a given community to a greater or lesser degree. For example, communities that have aggressive recycling ordinances may have already solved the problem of hazardous materials in municipal trash. As another example, some older urban areas may have numerous abandoned light-industrial areas that are contaminated from past use, while newer communities may have no such areas. Some stakeholders are also likely to raise other concerns including disease incidence in the community (e.g., existing cancer rates).

Exhibit 10-7. Example Table for Developing an Initial List of Potential Risk Factors		
Risk Factor	Location/Prevalence (i.e., Potentially Impacted People)	Potential Adverse Outcomes (e.g., Negative Health Impacts)
<i>Indoor Environments</i>		
Mold in schools	All Pleasantville schools	Respiratory problems (allergic responses, sinus infections)
Pesticides	All Pleasantville homes and schools	Various health effects, depending on the pesticide
<i>Water Pollution</i>		
Pathogen contamination of recreational water body	Lake Pleasantville following major storm events (due to overflow of combined sewer lines)	Infectious disease (e.g., gastrointestinal illness)
Lead in drinking water	All Pleasantville households	Neurological impacts (children are particularly susceptible)
<i>Land Pollution</i>		
Contaminated soils and groundwater	Pleasantville industrial park (abandoned)	Health effects to children playing on contaminated land, and adjacent residents consuming contaminated groundwater (cancer and other effects)

What About Risks to the Local Ecosystem?

An *ecosystem* is defined as place having unique physical features, encompassing air, water, and land, and habitats supporting plant and animal life (see <http://www.epa.gov/eftpages/ecosystems.html>). Ecosystems can vary dramatically from place to place and each community will have its own unique ecosystem setting.

In addition to environmental pollutants that may affect human health in the community, stakeholders will often be concerned about their local ecosystem and want to take action to protect it. An example of protecting an ecosystem is the watershed approach in which all pollution sources and habitat conditions in a watershed are considered in developing strategies for restoring and maintaining a healthy ecosystem.

There are a variety of actions communities can take to protect ecosystems in order to support plant, animal, and aquatic life, including voluntary efforts designed to reduce the amount of pollutants entering their environment. Information on how to gather existing information (and potentially develop new information) on environmental concerns is provided in Chapter 11. Chapter 12 discusses some of the activities partnerships can do to help maintain a healthy local ecosystem. EPA's *Community-Based Environmental Protection (CBEP)* program provides information on integrating environmental management with human needs, considers long-term ecosystem health, and highlights the positive correlations between economic prosperity and environmental well-being (for more information on CBEP, see <http://www.epa.gov/ecocommunity/about.htm>).

10.4 STEP 3 - Identify Community Vulnerabilities that May Increase Risks from Environmental Stressors

The concept of vulnerability recognizes that disadvantaged, under served, and overburdened communities have pre-existing deficits of both physical and social natures that make the effects of environmental pollution more, and in some cases unacceptably, burdensome. Another way of saying this is that a community or sub-population of a community may be vulnerable if it is more likely to be

adversely affected by a stressor than the general population. While vulnerability assessment is an added dimension in the understanding of risks or impacts to a population and may be unfamiliar to some, an attempt to investigate and address community vulnerabilities can allow for the identification of better, more effective options for risk reduction. Community vulnerability factors are divided into four categories:

STEP 3 Identify Community Vulnerabilities

- **Susceptibility/sensitivity.** Sub-populations may be susceptible or sensitive to a stressor if it faces an increased likelihood of sustaining an adverse effect due to a life stage, an impaired immune system, or a pre-existing condition.
- **Differential exposure.** Sub-populations may experience differential exposure due to living or working near a source of pollution that causes exposure to a higher level of pollution than the general population.
- **Differential preparedness.** Sub-populations that are less able to withstand environmental insults experience differential preparedness.

- **Differential ability to recover.** Sub-populations that experience differential preparedness have differential abilities to recover.

Information on how to gather information about existing community vulnerabilities if provided in Chapter 11. Information on how to develop new information on community vulnerabilities is provided in Chapter 12.

Some Example Vulnerability Factors

- | | |
|--|--|
| • Genetic predisposition to disease | • Lack of recreational facilities |
| • Effects on fetus, infants and children | • Differential access to community services |
| • Effects of aging | • Low income |
| • Compromised immune system | • Low education |
| • Preexisting health conditions | • Dilapidated housing |
| • Proximity to pollution sources (differential exposure) | • Emotional stress |
| • Employment in high exposure/dangerous jobs | • Crime |
| • Past exposures | • Vermin (insects and rodents) |
| • Multiple routes of exposure to one chemical | • Unemployment or underemployment |
| • Exposures to multiple pollutants | • Discrimination |
| • Subsistence consumption | • Lack of information |
| • Poor nutrition | • Lack of social capital |
| • Cultural practices | • Differential preparedness/ability to recover |
| | • Differential access to health care |

Information on how to develop data on community vulnerabilities is provided in Chapter 11.

10.5 STEP 4 - Identify Community Assets

Communities with large numbers of environmental (including environmental justice), social, and economic problems and stressors are still communities with a large number and variety of assets. In order to build on the existing foundation of the communities, a list of community assets should be developed. Knowing and understanding these assets will be a key element in developing the community's plan for reducing risks. Some examples of community assets include:

STEP 4
Identify Community Assets

- | | |
|---------------------------------------|---|
| • Technical and Organizational Skills | • Civic and Community Leaders |
| • Communication Channels | • Political Abilities |
| • Leadership | • Outreach, Including the Ability to Mobilize Actions |
| • Coalition Building | • Historical Information |
| • Neighborhood Associations | • Religious Institutions |
| • Financial Resources | |
| • Businesses | |

10.6 STEP 5 - Identify the Concerns and Vulnerabilities that Everyone Agrees Need Immediate Action

Step 2 identified an initial list of risk factors present in the community along with information about the impacts they may have on the community. Step 3 developed an understanding of community vulnerabilities that may increase risks from the identified factors from Step 2.

Working as a group, the risk factors, potential impacts, and vulnerabilities should be evaluated and those that everyone (or the majority) agrees need immediate action should move forward as quickly as possible to identify, evaluate, and implement options for action. Concurrently, the remaining risk factors, potential impacts, and vulnerabilities (and data gaps) will be analyzed further to identify additional priorities for action (discussed in the next chapter). Once additional priorities are identified, the risk reduction work that has already begun on the initial key issues of concern can be adjusted, as necessary, to add new issues.

STEP 5 Identify Concerns

Will Community Risk Reduction Efforts Have to “Start from Scratch?”

No. A number of federal, state, tribal, and local programs are already in place to help identify and reduce many of the environmental risks in communities. Some of these programs are required by law while some are more voluntary in nature. Voluntary efforts often take the form of outreach and education activities to help business and citizens understand what they can do to help enhance their community’s environmental health.

For example, EPA’s *Community Action for a Renewed Environment* or CARE program supports a series of multi-media, community-based and community-driven projects to reduce local exposures to toxic pollution (see Exhibit 10-1). Another example is EPA’s *Tools for Schools* program which helps to create healthy indoor environments in the classroom (<http://www.epa.gov/iaq/schools/>).

References

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3. Environmental Law Institute. 2000. *Community Environmental Health Assessment Workbook, A Guide to Evaluating Your Community's Health and Finding Ways to Improve It*. With the permission of the author.
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5. How to Participate and Lead New Community Based Efforts to Address Environmental Health Concerns, Part 2: Identifying, Understanding, and Addressing Risks. Sessions presentations included in conference proceedings at: <http://www.epancic.org/2004/proceedings.cfm>.