

**U.S. ENVIRONMENTAL PROTECTION AGENCY  
OFFICE OF POLICY, PLANNING AND EVALUATION  
REGIONAL AND STATE PLANNING DIVISION**

***COMPARATIVE RISK FACT SHEETS***

This packet includes 20 Fact Sheets on a range of topics in Comparative Risk. The Fact Sheets were developed by the Regional and State Planning Division in EPA's Office of Policy, Planning and Evaluation to provide information to states, tribes, and localities, and to inform other interested parties and potential stakeholders about the Comparative Risk process. The Regional and State Planning Division in EPA currently provides partial funding for 31 state, local, and tribal Comparative Risk projects across the country.

The Fact Sheets describe the core aspects of Comparative Risk, other strategic environmental planning approaches that are linked to the Comparative Risk process, and various aspects of Comparative Risk project management.

**o      Group 1: The Basic Elements of Comparative Risk**

1.      What Is Comparative Risk?
2.      Regional and State Planning Division
3.      Risk Communication and Public Participation
4.      Public Involvement
5.      Comparative Risk on the Internet
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**o      Group 2: Related Environmental Approaches and Tools**

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**o      Group 3: Project Management Fact Sheets**

1.      Project Director Checklist
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6.      Phase I Principles
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Review of several completed Comparative Risk projects suggests that successful projects are characterized by a number of essential features, including the following:

- **Significant public involvement.** To ensure that the public's environmental values are considered by the project team and that there will be long-term buy-in to changes resulting from a comparative risk project, projects need to actively involve the public from project planning through the final stages of project activity.
- **Diverse stakeholder participation.** This is key to the success of a Comparative Risk project because it ensures that major stakeholders, (public sector decisionmakers, community organizations, industry, environmental groups, representatives of minority interests) working together over the life of a project will come to better understand a range of perspectives on setting environmental priorities, and that final project recommendations will reflect stakeholders' consensus about those priorities.
- **Strong support from upper-level decisionmakers.** In order for a Comparative Risk project to succeed, a senior-level decisionmaker must be willing to support project goals and allocate sufficient resources to the project throughout the project period. Once proposals for changes in environmental management are developed in the risk management phase, the decisionmaker must be willing to support and work for change, which could include: setting new environmental priorities and planning strategies, re-allocating budgets, re-directing workloads.
- **Use of technical information and doing a relative risk ranking.** The opportunity for stakeholders to: (1) compile and analyze existing technical and scientific data on a range of environmental problem areas, (2) collect and analyze information about the public's environmental values, (3) conduct a relative risk ranking of environmental problem areas based on their best professional judgment about the technical and public values data is key to the success and integrity of a Comparative Risk project.
- **Focus on risk management.** In the past, some projects expended considerable resources on Phase I activities (environmental problem area identification, gathering and analyzing public values and scientific data, ranking the environmental problem areas). We now actively encourage projects to plan for and implement a full-scale risk management effort; this means that the relative risk ranking carried out in Phase I is used to help guide Phase II (risk management) strategies.
- **Inclusion of environmental goals and indicators.** Developing environmental goals and environmental indicators during the risk management phase will enable you to track how successful you are in implementing the results of your comparative risk process.

# EPA's Comparative Risk Projects



## *Bridging Science and Public Values*

### Technical Assistance Available

The Agency has provided technical assistance to over 45 state, local, tribal and watershed projects. Training on Comparative Risk analysis and techniques is tailored to meet the client's needs. The Regional and State Planning Division provides financial and technical assistance for projects meeting certain criteria. Technical assistance is also provided through two centers (Green Mountain Institute for Environmental Democracy; Western Center for Environmental Decisionmaking). Together, EPA and the Centers keep the network of state project directors apprised of each other's experiences.

In order to be eligible for funding, projects must meet certain criteria:

- participation of key governmental and non-governmental stakeholders
- extensive public involvement
- analysis of human health, ecosystem health and quality of life risks
- ranking of environmental risks
- development of risk management strategies

### Results

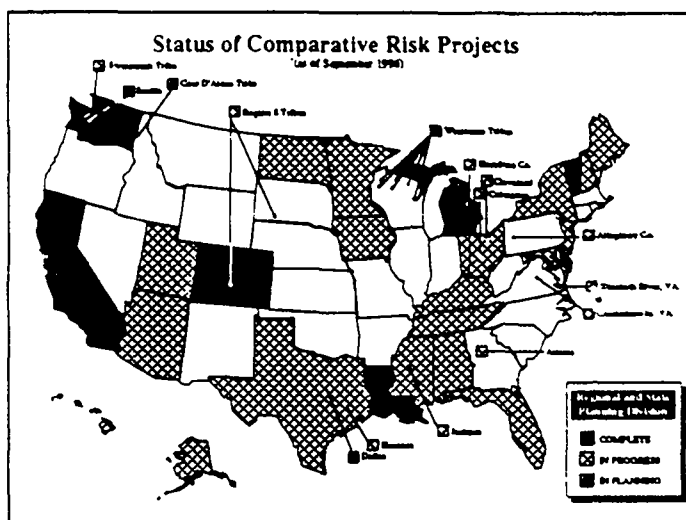
Comparative Risk is not a stand alone tool, but rather one of many tools available for environmental planning. Comparative Risk is more than assessing risks; it is part of an overall environmental priority-setting process, which includes setting measurable goals and measures of success (environmental indicators); improving geographic targeting; making and measuring progress in terms of risk reduction and environmental improvement; thinking about future risks; and feeding into strategic planning and budgeting decisions.

Project participants consistently claim that providing a formal mechanism for broad participation, encouraging consistency, and making choices more transparent are the overwhelming benefits resulting from Comparative Risk projects. Other specific outcomes of Comparative Risk projects to date include new legislation for Washington state, new plans and programs for Vermont, budget planning changes for Colorado, improved intergovernmental relations for Ohio, and changes in decision-making processes for Louisiana.

## What is Comparative Risk?

The Regional and State Planning Division's Comparative Risk process, a technical assistance program, is a cross-media problem assessment and planning effort that can be applied at the federal, state, local or watershed level. The Comparative Risk process brings together diverse stakeholders to reach consensus on which environmental problems pose the most risk to human health, ecosystem health and quality of life; and to develop consensus on an action plan to reduce those risks.

The US EPA performed a national Comparative Risk analysis in 1987 ("Unfinished Business") which was reviewed, supported and enhanced by the EPA Science Advisory Board in 1990 ("Reducing Risk"). The current Comparative Risk methodology has been developed in partnership with various states, tribes and localities to meet individual project needs.



Projects are designed to:

- promote consensus on an environmental agenda;
- promote coordination across agencies that impact environmental policy;
- promote public inclusion in environmental priority-setting;
- identify the full range of environmental problems;
- assemble what is known and not known about the risks to health, ecology and quality of life associated with each environmental problem;
- develop criteria for ranking risks through a public process;
- rank risks to human health, ecosystem health and quality of life;
- develop a set of environmental priorities through a public process;
- develop strategies for addressing environmental priorities.

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# COMPONENTS OF COMPARATIVE RISK PROJECTS

## CREATING A STRONG FOUNDATION

The comparative risk process should be viewed as a whole, from data collection, analysis, and risk ranking to developing an action plan and implementing new strategies for reducing risk. Each comparative risk project is challenged to own the process, determine in advance how the information and rankings will be used, and determine how change can be initiated. The process is very labor intensive and politically charged. Because the investment of time and money is substantial, careful planning for the whole process is essential.

### POTENTIAL STAKEHOLDERS OF A COMPARATIVE RISK PROJECT TEAM

- |                            |  |
|----------------------------|--|
| •Governor's office         | •State Agencies                            |
| •Legislators               | •Dept. of Environmental Protection/Quality |
| •Academics                 | •Health Department                         |
| •Major business interests  | •Natural Resources Dept.                   |
| •Environmental advocates   | •Fish and Wildlife                         |
| •Reporters/media           | •Energy Department                         |
| •Chamber of Commerce       | •Education Department                      |
| •Minorities                | •Agriculture                               |
| •Farmers/dairymen/ranchers | •Land Use Commission                       |
| •Tribes                    |  |

## GENERAL ANALYTICAL ISSUES

There is no single "correct" way to conduct a comparative risk project. Many approaches are workable, and each project should choose an approach that is uniquely adapted to its own political, institutional, and natural environments. However, regardless of which approach is taken, there are a number of important analytical issues and ground rules that should be resolved before beginning a comparative risk project. These include defining the organizational scope and analytical goals of the project, identifying the problem areas to be analyzed, determining the temporal and geographic scales for the analysis, and establishing methods and procedures for ranking problem areas according to the risks they pose. Projects should strive to address environmental equity issues throughout the project.

## RISK ANALYSIS

In comparative risk projects, risk assessments are performed on the risks that exist, given the efforts of public and private organizations to eliminate or prevent them. This "residual" risk approach provides environmental program managers with a view of their unfinished business and can help them set priorities for further risk reduction or prevention efforts. Environmental problems can pose risk to humans and ecosystems; they can also degrade the quality of life. Each type of risk is distinct and important. For example, non-point source pollution not only causes damage to ecosystems, it also causes large losses in recreational opportunities. Likewise, human or ecological risks from the accidental release of an oil tanker or a nuclear power plant can be calculated, but only a quality of life assessment

### PHASE I COMPARATIVE RISK ASSESSMENT

- DEVELOP comprehensive problem list
- COLLECT scientific and public values data
- FORM project teams with diverse membership
- ANALYZE data; document assumptions and uncertainties
- DO relative risk rankings across problem areas

can detect the impact on a community's peace of mind. Thus, it is important to look at environmental problems from each of these perspectives: human health risk, ecological risks, and risks to quality of life.

The aim of the risk assessment process is to evaluate and rank the relative magnitude of risks associated with problem areas on the basis of the best available scientific information and judgment. The risk-based rankings then serve as a key input to the risk management process in which a number of relevant non-risk factors (e.g., controllability of risks, legal mandates, public opinion, costs, etc.) are integrated with the risk rankings to set environmental priorities and select appropriate risk management strategies.

## RISK MANAGEMENT

Risk management is a decision-making process in which the rankings from the risk assessment process are integrated with economic, technical, social and political considerations to generate a prioritized set of risk-reduction or prevention strategies that will achieve environmental goals. Whereas risk assessment asks how bad is the problem, risk management asks what can and should be done about it.

One of the most important aspects of risk management is the integration of the concerns and values of the public, other agencies, public interest groups, and the regulated community to set clear goals for the environment, specific criteria for evaluating strategies, and an open process for selecting risk management priorities to implement.

## IMPLEMENTATION AND EVALUATION

Once risk management strategies are selected, they must be implemented and monitored over time to ensure that environmental conditions are

changing in the direction of the environmental goals that have been established. The effectiveness of risk management strategies can be monitored and evaluated in terms of progress made toward goals using environmental indicators, such as a reduction in the ambient concentration of a certain pollutant or an increase in the biological diversity of a given ecosystem. Implementation is more likely to succeed if the strategies are part of an overall strategic plan that firmly ties environmental policies to budgets and meaningful, measurable results. Monitoring the actual results of the strategies will help environmental managers and the public know if their efforts are working or if they need to be adjusted and revised.

### PHASE II COMPARATIVE RISK MANAGEMENT, IMPLEMENTATION AND EVALUATION

- REVIEW relative risk rankings from Phase I
- PRIORITIZE problem areas to address
- CONSIDER "non-risk" factors e.g., available technological and political feasibility
- DEVELOP concrete strategies for addressing priorities
- IMPLEMENT risk management strategies
- MONITOR implementation to determine environmental progress
- RE-EVALUATE and revise strategies and implementation efforts

# Regional and State Planning Division

*... promoting environmental planning*



The Office of Strategic Planning and Environmental Data (OSPED) is structured to assist EPA and its partners to develop and adopt strategies to protect the environment which are based on sound information and which are effective and efficient. The mission of each division is described below, with the Regional and State Planning Division highlighted in this fact sheet.

The REGIONAL AND STATE PLANNING DIVISION's (RSPD) goals are to:

- support and promote integrated environmental planning at the regional, state, local and tribal levels, including environmental futures, environmental goal setting, comparative risk analysis, environmental strategy development, public involvement and environmental indicator development;
- provide direct technical assistance and financial support to state, local and tribal governments to help them perform integrated environmental planning; and
- link findings from this work to national environmental policymaking.

RSPD accomplishes these goals by sponsoring Comparative Risk projects.

## ENVIRONMENTAL INFORMATION DIVISION

- develop and guide agency-wide efforts to identify important environmental information needs; develop and implement plans for acquiring data to meet those needs.
- develop and demonstrate innovative tools for acquiring and using environmental information and indicators.
- provide improved public access for environmental data.

## CENTER FOR ENVIRONMENTAL STATISTICS

- provide expert statistical and data management support for OSPED, OPPE, EPA and other environmental stakeholders.
- provide a focal point for Agency statistical policy, methods research, specialized analytical procedures and training.

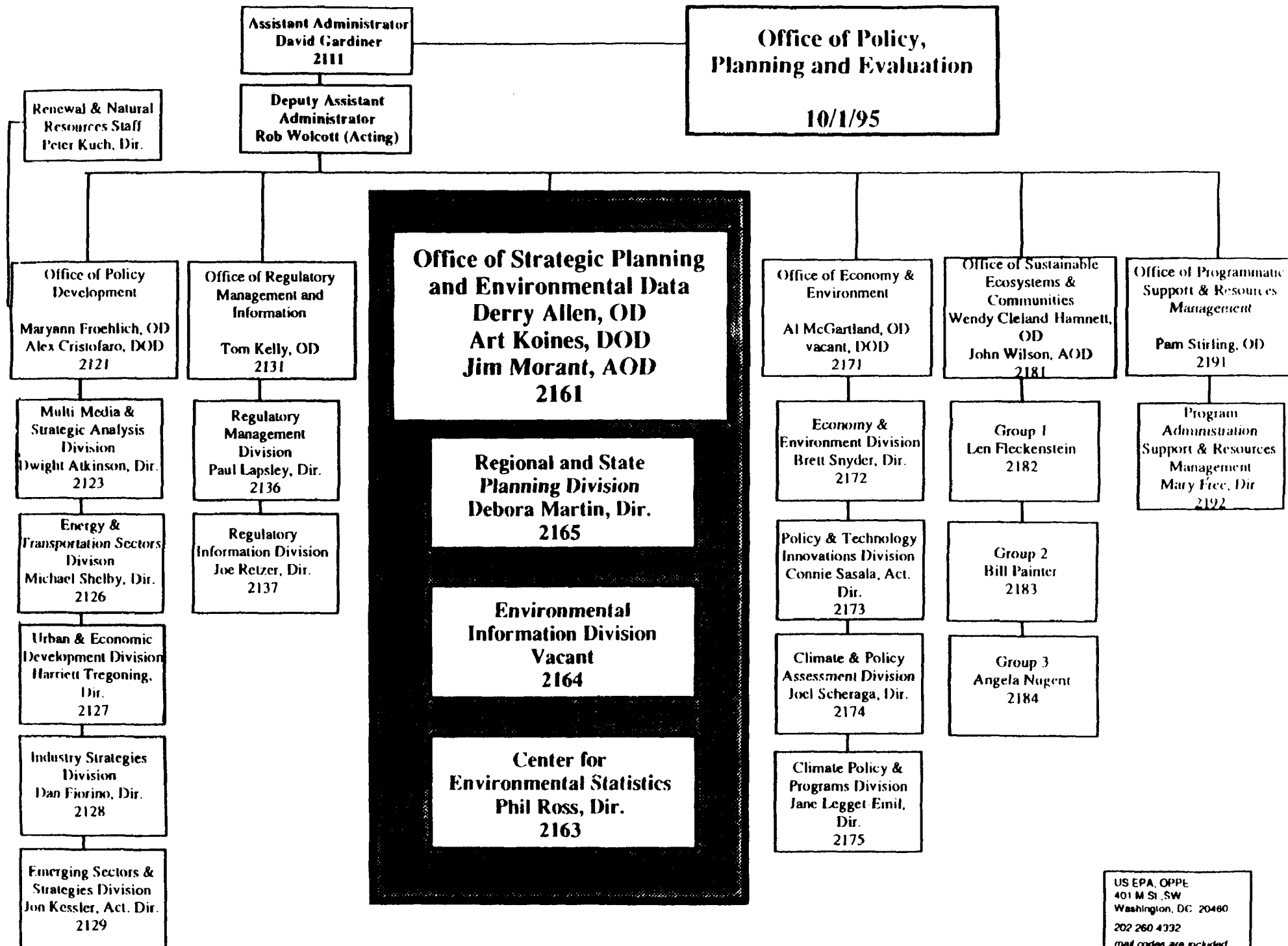
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## COMPARATIVE RISK

The Comparative Risk process is a cross-media problem assessment and planning effort that brings together diverse stakeholders to reach consensus on which environmental problems pose the most risk to human health, ecosystem health and quality of life; and to develop consensus on an action plan to reduce those risks. The methodology, developed in partnership with various states, locals and tribes, is a way of bridging science and public values for improved environmental priority-setting.

RSPD has provided technical assistance to over 45 state, local, tribal and watershed projects. Technical assistance is also provided through the Green Mountain Institute for Environmental Democracy (formerly the Northeast Center for Comparative Risk) and the Western Center for Environmental Decision-Making (formerly the Western Center for Comparative Risk).

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in the organizational chart

# EPA's Comparative Risk Projects

## *Risk Communication and Public Participation*



### WHAT IS RISK COMMUNICATION?

The traditional definition of risk communication is: the transmission of information about health and environmental risks, their significance, and the policies aimed at managing them. Risk communication can be in the form of warning labels on consumer products or it can be in the form of dialogues among government officials, industry representatives, and the public on topics such as toxic waste, hazards in public buildings, and accidents involving release of hazardous substances into the environment.

Major risk communication goals for governmental and private sector entities include:

- taking responsibility for understanding risks and holding a dialogue about those risks with an audience so that the audience can make an informed decision about how to deal with the risk(s);
- promoting credibility and trust between the public, government, and industry officials about the nature and management of risks;
- making complex technical data and policy information more accessible and easily understood to a wide range of audiences; and
- providing information on risk to the media to reinforce accurate and unbiased reporting.

### WHY INVOLVE THE PUBLIC

One of the measures of an effective comparative risk project is the extent to which the public is effectively engaged. There are a number of reasons for involving the public. First of all, project participants need to understand public values in order to rank environmental problems wisely. Second, projects need the commitment of established constituencies in order to bring about change. Third, projects need public involvement in order to build the capacity to make improved environmental decisions. And last, as Paul Templet, then of the Louisiana DEQ said, "it's their environment and their money."

### THE ROLE OF RISK COMMUNICATION IN COMPARATIVE RISK PROJECTS

The ultimate reason for doing a comparative risk project is to bring about change: to change the way we do business; to make better environmental decisions; to achieve risk reduction/prevention. In order to accomplish this, it will require communication with and involvement of the public. Public participation is important because implementing project results may require individual behavior changes (testing for radon, driving cars less), different laws (such as the new air regulations in Washington state), in order to achieve the desired vision for the state/locality/tribe. This kind of change doesn't take place if the comparative risk study is an internal, bureaucratic intellectual exercise. Rather, it results from appropriate involvement of the public throughout the process:

- identifying where we are now (through a risk analysis of environmental problem areas and a ranking of relative risks);
- determining where we want to be and how we will get there (defining goals and strategies for risk management); and
- knowing when we've achieved success (environmental indicators and other measures of success).

Risk communication is a tool for ensuring inclusiveness in the process -- it gives many different (including nontraditional) stakeholders a voice.

### THE RISK COMMUNICATION PLAN

Taking the time to prepare a risk communication plan will, in the long run, save time, money, and help achieve the project goals. There are several specific resources available to help prepare a plan in detail from RSPD, GMI and WCED, but in general a good plan should address who, why, how and what. The "how and what" (i.e., the specific techniques such as newsletters, county fairs, roundtables, etc.) are dependent on carefully articulating the who and why.

**WHO:** There is no one "public," but rather multitudes of interest groups. Think about how you want to define "public" for the purposes of your project. Will you need broad public support, or are there specific groups for which you will need their support, buy-in, or participation?

**WHY:** Most projects start off by saying "we want to have public meetings." You first need to answer why. It is frequently a hard question to answer, but crucial. Carefully defining the goals of the public outreach effort will help ensure that you accomplish those goals.

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## SEVEN CARDINAL RULES

The following is reprinted from EPA's pamphlet on the "Seven Cardinal Rules of Risk Communication." While not developed specifically with comparative risk projects in mind, the advice is particularly valuable given the emphasis on public participation within the comparative risk process.

### 1 ACCEPT AND INVOLVE THE PUBLIC AS A LEGITIMATE PARTNER

A basic tenet of risk communication in a democracy is that people and communities have a right to participate in decisions that affect their lives, their property, and the things they value. *Guidelines:* Demonstrate your respect for the public and underscore the sincerity of your effort by involving the community early, before important decisions are made. Involve all parties that have an interest or a stake in the issue under consideration. If you are a government employee, remember that you work for the public. If you do not work for the government, the public still holds you accountable.

*Points to Consider:* • The goal of risk communication in a democracy should be to produce an informed public that is involved, interested, reasonable, thoughtful, solution-oriented, and collaborative; it should not be to diffuse public concerns or replace action.

### 2 PLAN CAREFULLY AND EVALUATE YOUR EFFORTS

Risk communication will be successful only if carefully planned. *Guidelines:* Begin with clear, explicit risk communication objectives -- such as providing information to the public, motivating individuals to act, stimulating response to emergencies, or contributing to the resolution of conflict. Evaluate the information you have about the risk and know its strengths and weaknesses. Classify and segment the various groups in your audience. Aim your communications at specific subgroups in your audience. Recruit spokespeople who are good at presentation and interaction. Train your staff -- including technical staff -- in communication skills: reward outstanding performance. Whenever possible, pretest your messages. Carefully evaluate your efforts and learn from your mistakes.

*Points to Consider:* • There is no such entity as "the public"; instead, there are many publics, each with its own interests, needs, concerns, priorities, preferences, and organizations.

• Different risk communication goals, audiences, and media require different risk communication strategies.

### 3 LISTEN TO THE PUBLIC'S SPECIFIC CONCERNS

If you do not listen to people, you cannot expect them to listen to you. Communication is a two-way activity.

*Guidelines:* Do not make assumptions about what people know, think, or want done about risks. Take the time to find out what people are thinking: use techniques such as interviews, focus groups, and surveys. Let all parties that have an interest or a stake in the issue be heard. Identify with your audience and try to put yourself in their place. Recognize people's emotions. Let people know that you understand what they said, addressing their concerns as well as yours. Recognize the "hidden agenda," symbolic meanings, and broader economic or political considerations that often underlie and complicate the task of risk communication.

*Points to Consider:* • People in the community are often more concerned about such issues as trust, credibility, competence, control, voluntariness, fairness, caring, and compassion than about mortality statistics and the details of quantitative risk assessment.

### 4 BE HONEST, FRANK AND OPEN

In communicating risk information, trust and credibility are your most precious assets.

*Guidelines:* State your credentials; but do not ask or expect to be trusted by the public. If you do not know an answer or are uncertain, say so. Get back to people with answers. Admit mistakes. Disclose risk information as soon as possible (emphasizing any reservations about reliability). Do not minimize or exaggerate the level of risk. Speculate only with great caution. If in doubt, lean toward sharing more information, not less -- or people may think you are hiding something. Discuss data uncertainties, strengths and weaknesses -- including the ones identified by other credible sources. Identify worst-case estimates as such, and cite ranges of risk estimates when appropriate.

*Points to Consider:* • Trust and credibility are difficult to obtain. Once lost they are almost impossible to regain completely.

### 5 COORDINATE AND COLLABORATE WITH OTHER CREDIBLE SOURCES

Allies can be effective in helping you communicate risk information.

*Guidelines:* Take time to coordinate all inter-organizational and intra-organizational communications. Devote effort and resources to the slow, hard work of building bridges with other organizations. Use credible and authoritative intermediaries. Consult with others to determine who is best able to answer questions about risk. Try to issue communications jointly with other trustworthy sources (for example, credible university scientists, physicians, or trusted local officials).

*Points to Consider:* • Few things make risk communication more difficult than conflicts or public disagreements with other credible sources.

### 6 MEET THE NEEDS OF THE MEDIA

The media are a prime transmitter of information on risk; they play a critical role in setting agendas and in determining outcomes.

*Guidelines:* Be open with and accessible to reporters. Respect their deadlines. Provide risk information tailored to the needs of each type of media (for example, graphics and other visual aids for television). Prepare in advance and provide background material on complex risk issues. Do not hesitate to follow up on stories with praise or criticism, as warranted. Try to establish long-term relationships of trust with specific editors and reporters.

*Points to Consider:* • The media are frequently more interested in politics than in risk; more interested in simplicity than in complexity; more interested in danger than in safety.

### 7 SPEAK CLEARLY AND WITH COMPASSION

Technical language and jargon are useful as professional shorthand. But they are barriers to successful communication with the public.

*Guidelines:* Use simple, nontechnical language. Be sensitive to local norms, such as speech and dress. Use vivid, concrete images that communicate on a personal level. Use examples and anecdotes that make technical risk data come alive. Avoid distant, abstract, unfeeling language about deaths, injuries, and illnesses. Acknowledge and respond (both in words and with actions) to emotions that people express -- anxiety, fear, anger, outrage, helplessness. Acknowledge and respond to the distinctions that the public views as important in evaluating risks, e.g., voluntariness, controllability, familiarity, dread, origin (natural or man-made), benefits, fairness, and catastrophic potential. Use risk comparisons to help put risks in perspective; but avoid comparisons that ignore distinctions that people consider important. Always try to include a discussion of actions that are under way or can be taken. Tell people what you cannot do. Promise only what you can do, and be sure to do what you promise.

*Points to Consider:* • Regardless of how well you communicate risk information, some people will not be satisfied.

• Never let your efforts to inform people about risks prevent you from acknowledging -- and saying -- that any illness, injury, or death is a tragedy.

• If people are sufficiently motivated, they are quite capable of understanding complex risk information, even if they may not agree with you.



# EPA's Comparative Risk Projects

## Public Involvement



### What Does It Mean?

In the Comparative Risk context, public involvement is a process for including the public: (1) as stakeholders who, as a cross-section of the public, bring to their role as Steering or Public Advisory Committee members diverse perspectives, and (2) as concerned citizens whose environmental values are surveyed by a project and who comment in public meetings and focus groups about the project and its products, such as the Phase I technical reports. Stakeholders themselves represent a good cross-section of the public: they represent community groups, state/local government agencies, industry groups, and environmental organizations.

More specifically, public participation plans call for the widespread dissemination of scientific and technical data collected by project technical committees. Those data serve to educate the public, and ultimately can be used by the public to make more informed choices about what environmental policies and programs to support.

### How Is It Done?

Typically, a strategy encouraging public involvement throughout a Comparative Risk project is managed by the public sector agency sponsoring the project. But other project participants and volunteers engage in various public outreach activities as well. Ways that projects have

created opportunities for public involvement include:

- Holding "Environmental Summits": an effective means of obtaining public input on environmental issues facing a state/community. At those

summits, the public has the opportunity to review scientific/technical information collected by project technical committees and then to rank risks posed by those environmental problems targeted by the project for assessment.

Some projects hold follow-up summits and ask the public to suggest strategies for addressing what the project has ranked as the highest-risk problems. For example, an initial and follow-up summit sponsored by the Washington State Comparative Risk project attracted over 500 participants.

### Why Do It?

Increasingly, government officials are finding that they make better decisions about environmental policy and programs and that the public is more likely to support their decisions if public-sector decisionmakers are informed both by scientific/technical data AND by information from the public: (1) about its environmental values, and (2) what it believes are risks to the environment. By integrating a public involvement/participation component into Comparative Risk projects, project sponsors

**ensure that public decisionmakers receive input from the public regarding its beliefs about the environment.** Therefore, public involvement is a vital part of any Comparative Risk project.



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**- Holding Regional Meetings:** in large states, a single summit may be replaced or supplemented by smaller, regional meetings. The format is very similar to that used for a single small-state meeting: technical information is provided to and reviewed by the public, which then expresses its opinions about the most serious environmental risks.

Holding a series of regional meetings within a state effectively reaches out to a diverse audience, but each regional presentation can be tailored to focus primarily on those issues of major concern to that region. For example, one of the Colorado project's meetings was held in Denver, where meeting attendees were urban dwellers concerned about urban air quality and transportation issues. At one of the project's rural regional meetings, ranchers and farmers focused on water quantity and quality issues as well as on the environmental impacts of ski area development and tourist sprawl.

**- Using the Media:** most projects have media outreach programs:

(1) Television, radio, and the print media receive regular press releases from projects on their progress; projects cultivate working relationships with reporters whose articles appear in local and regional newspapers, and, like the Maine project, write op-ed pieces about the project to those papers. The Washington State project used the media to publicize its Environmental Summit; the Vermont project used major newspapers to announce when the project would be discussed at town meetings around the state.

(2) Newsletters are used to reach out to interested members of the public directly. For example, Ohio and Maine Comparative Risk project newsletters are regularly distributed to over 2,000 individuals on project mailing lists;



(3) Project staff and volunteers hold press conferences, appear on local radio talk shows, and tape public service announcements about projects. For example, Ohio project staff have appeared on seven radio talk shows, including a very successful call-in show.

**- Teaming Up For Outreach:** Comparative Risk projects often team up with respected local organizations to carry out public involvement activities. One typical strategy followed by projects is to give presentations about the project at regularly-scheduled meetings of community groups such as the PTA and service clubs.

Project participants often give speeches about the project in their own community. For example, the regional Case Western Reserve project for four counties and the city of Cleveland, Ohio formed a partnership with a local non-profit, the Federation for Community Planning, which had been working in minority communities in the region for forty years. The Federation coordinated outreach to and feedback from targeted communities on the Comparative Risk project. As a result, those communities participated in the project to a much greater extent than they would have without Federation involvement.

**- Public Values Assessment Tools:** these are a means for Comparative Risk projects to collect and aggregate data on public values concerns about environmental risks. Several projects have conducted general surveys of the public, while others have conducted formal telephone polls or distributed and collected completed informal ballots on environmental risks at a state fair. The Arizona Comparative Risk project used a telephone poll to survey citizens statewide, and held 10 focus groups around the state, giving project staff, participants, and Public Advisory Committee members a much better understanding of public concerns about environmental issues than they otherwise would have had.

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# EPA's Comparative Risk Projects

## *Comparative Risk on the Internet*



### Introduction

The Internet is quickly evolving as the premier tool for gathering and disseminating information, including information about environmental management. This communications medium can be particularly useful for Comparative Risk projects, both as a means for researching published reports and locating databases containing information on specific environmental issues related to Comparative Risk, and as a general environmental management information clearinghouse.

### Using the Internet as a Data Source

There are many ways to search for information on the Internet. Most browsers (e.g., Netscape, Mosaic, WATS, gopher...) include search functions that allow users to input a few key words and then return the addresses of relevant sites. If these sites do not have the specific information a user is looking for, it is likely that they will provide links to other sites with information about the question at hand.

For example, a Comparative Risk project human health technical committee that is gathering data about the toxicity of a certain compound might search the on-line toxicology index located at Emory University School of Medicine (<http://www.cc.emory.edu/WHSC/medweb/toxicology.html>) where, in addition to that School's own databases, there are more than 25 links to other toxicology sites. Or, a second starting point might be the Center for Disease Control (CDC) National Center for Health Statistics Home Page (<http://www.cdc.gov/cdc.htm>). This CDC address contains CDC documents as well as links to other health-related sites.

A Comparative Risk project ecological health technical committee that is gathering data about changes in the amount of wetland acreage in a state or specific geographic area might begin by examining the National Fish and Wildlife Service's National Wetlands Inventory (<http://www.nwi.fws.gov>). The Wetland Ecosystem Team Home Page (<http://www.fish.washington.edu/people/asif/WET.html>) would also be a useful source of information for that technical committee.

A quality of life technical committee searching for demographic data for a particular state or community may

find them on the U.S. Census Bureau Gopher/HTTP server (<http://www.census.gov>) or on the University of California Lawrence Berkeley Laboratory site ([http://cedr.lbl.gov/mdocs/LBL\\_census.html](http://cedr.lbl.gov/mdocs/LBL_census.html)).

### Using the Internet as an Information Clearinghouse

A Comparative Risk project director may choose to set up his or her own server that publicizes project activities and serves as an on-line library that posts project documents for public perusal. Using a project server, project participants and other interested parties would have access to project meeting minutes, technical reports, ranking criteria descriptions, and ranking results.

A project director could also set up an Internet site where project participants could electronically exchange information and ideas. Or, a quality of life technical committee could set up an Internet site to electronically disseminate public environmental values surveys and collect and store survey data.

### Caution

Although the number of people using the Internet is growing exponentially, not all communities and members of the public have ready or complete access to this new technology. Project directors must continue to use traditional means of written communication; i.e., use of the Internet can supplement, but not replace, written communication and public meetings. If project directors fail to use traditional communications mechanisms, large segments of the public that do not have access to the Internet could be excluded inadvertently from full participation in a project.

### SEE REVERSE SIDE FOR SEVERAL USEFUL INTERNET SITES

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### COMPARATIVE RISK PROJECTS

**No Title Provided** <<http://www.state.ky.us/agencies/nrepc/2000/erik.htm>>

Kentucky Outlook 2000: A Strategy for Kentucky's Third Century is a cooperative project between the Kentucky Natural Resources and Environmental Protection Cabinet and the Kentucky Long-Term ....

**Comparative Environmental Risk** <<http://www.ilgard.ohiou.edu/projects/comprisk.html>>

Environmental Priorities. Athens County, Ohio. 1. What is Comparative Risk? In a nutshell, comparative risk is an environmental planning process which attempts to bridge the gap between ...

**PS Enterprises Client--California EPA** <<http://www.well.com/user/psel/calepa.htm>>

California EPA Comparative Risk Project. In late 1993, the California Environmental Protection Agency (Cal/EPA) began a Comparative Risk Project that will help set California's environmental ....

**Houston Environmental Foresight** <<http://www.harc.edu/4site/Intro.html>>

A regional consensus: Improving the Houston region environment. The Houston Environmental Foresight Committee works to identify and recommend meaningful improvements to the Houston region ....

**Maine Environmental Priorities Project Home Page** <<http://www.state.me.us/dep/mepphome.htm>>

Welcome to the World Wide Web Site for the Maine Environmental Priorities Project. This site will provide periodic news and information about the work of the Maine Environmental Priorities ....

### U.S. EPA SITES

**EPA Core Server** <<http://www.epa.gov>>

U.S. EPA Home Page

**EPA Regional and State Planning Division Server** <[gopher://gopher.epa.gov:7011/Offices/OPPE/futures](mailto:gopher://gopher.epa.gov:7011/Offices/OPPE/futures)>

Gopher menu for access to comparative risk, sustainable development, sector-based issues, etc.

### ENVIRONMENTAL INDICATORS

**Environmental Indicators** <<http://www.epa.gov/Indicators>>

Environmental data and information that may be useful for those who would like to develop and use "environmental indicators."

### SUSTAINABILITY

***Sustainable America: A New Consensus for Prosperity, Opportunity, and a Healthy Environment for the Future*** <<http://www.whitehouse.gov/PCSD>>

1996 Report of The President's Council on Sustainable Development

### MISCELLANEOUS ENVIRONMENTAL MANAGEMENT INFORMATION

**Econet** <<http://www.eco-ops.com/econet/>>

EcoNet serves organizations and individuals working for environmental preservation and sustainability. EcoNet builds coalitions and partnerships with individuals, activist organizations and non-profit organizations to develop their use of the electronic communications medium.

**Right to Know Network** <<http://rtk.net>>

RTK NET provides free online access to quantitative databases and numerous text files and conferences on environment, housing and sustainable development

**Environmental News Network** <<http://www.enn.com/>>

Daily and weekly environmental news from around the world

**The Ecological Society of America (ESA)** <[http://www.sdsc.edu/SDSC/Research/Comp\\_Bio/ESA/ESA.html](http://www.sdsc.edu/SDSC/Research/Comp_Bio/ESA/ESA.html)>

ESA's WWW Home Page provides information on membership, annual meetings, ESA officers and staff, ESA activities, the ESA Newsletter, environmental policy updates, and more

**Select - The Environmental Remediation Manager** <<http://www-stag.lbl.gov/select>>

The Need. Close scrutiny of environmental cleanup efforts is becoming a focus of many action groups, ranging in diversity from governmental advisory groups to local stakeholders. Given the large ....

# EPA's Comparative Risk Projects

## *The Centers*

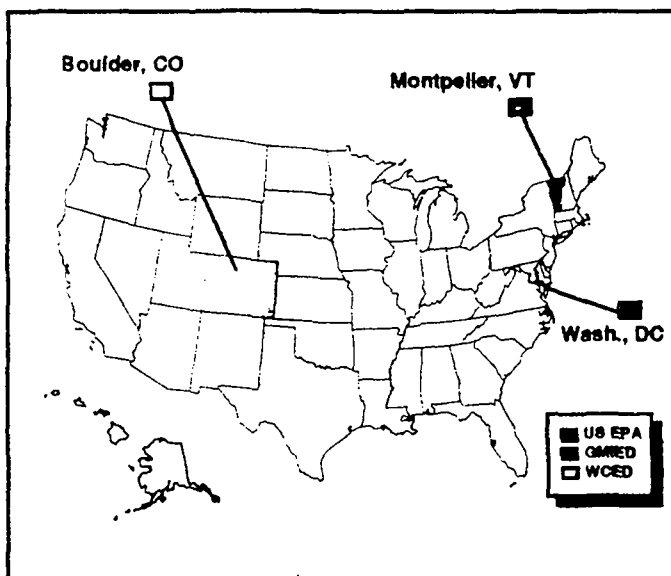


### **Roles and Activities**

The two Centers provide technical assistance to states and localities on a range of integrated environmental planning activities. More specifically, the Centers' staff may independently or in collaboration with EPA staff deliver training, provide ongoing advice to state and local Comparative Risk projects (on-site or by telephone), develop background and technical documents and analyses, facilitate meetings, provide general project management assistance, and share project information and experience with Comparative Risk practitioners across the country.

The Green Mountain Institute for Environmental Democracy (GMIED) also publishes a newsletter on Comparative Risk, and the Western Center for Environmental Decision-Making (WCED) sponsors monthly tele-conferences to discuss a range of environmental management issues.

Each Center operates through a cooperative agreement with the Regional and State Planning Division of the Office of Policy, Planning and Evaluation, U.S. EPA. States and localities do not bear any of the costs of technical assistance provided by the Centers.



### **History**

In 1990, when the number of state and local Comparative Risk projects was about to increase from four to nine, U.S. EPA recognized that it lacked sufficient staff resources to meet current and new projects' need for ongoing technical assistance. To meet that increased demand for technical assistance, EPA developed cooperative agreements with GMIED and WCED, both of which were headed up by former state and local government employees who had developed Comparative Risk expertise from having managed several of the first Comparative Risk projects.

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# EPA's Comparative Risk Projects

## *Environmental Justice*



### **What is Environmental Justice?**

Environmental Justice encompasses a broad range of activities and programs that raise awareness about and/or are intended to reduce the disproportionate impact of environmental risks on certain population groups. Environmental Justice efforts are designed to ensure that environmental protection, including enforcement, compliance, and policy formulation, is fairly implemented for all groups in the population regardless of their income, gender, color, race, ethnicity, religion, age, or national origin.

### **What Environmental Justice Is Not**

Environmental Justice does not prescribe the re-distribution of pollution sources so that all communities bear a standard level of risk. Rather, its goal is the development and implementation of strategies designed to reduce environmental risk to all populations.

### **Environmental Justice and Comparative Risk**

Comparative Risk projects can be an effective means of raising awareness of environmental justice issues and developing strategies to address those issues because: (1) during Phase I, data that is collected and analyzed may depict the disproportionate impact of environmental problems on particular communities, especially low-income and/or minority communities; (2) project participants are a cross-section of the community/state and bring to the project diverse perspectives that inform project choices and decisions; (3) the Comparative Risk process acknowledges limitations of the classical risk assessment model, which does not sufficiently take into account economics, culture, and lifestyles that could result in certain disproportionate exposure to risk experienced by certain populations; and (4) concrete strategies to reduce

environmental risks to all parts of the population are designed and implemented. Each of these reasons is discussed in more detail below.

#### 1. Data on Disproportionate Risks

During Comparative Risk projects' assessment phase, Technical Committees collect and analyze public environmental values as well as scientific and technical data. Projects' consideration of public values data helps ensure that the environmental values held by diverse parts of communities are taken into account during the assessment of environmental problem areas. Projects' use of scientific/technical data can spotlight low-income, minority, and other populations' exposure to disproportionately high environmental risks.

#### 2. Broad Public Participation

Public involvement is a key element of the Comparative Risk process. To ensure broad public participation in projects, Project Directors and Steering Committee members make every effort to recruit a good cross-section of the public for membership on Public Advisory and Technical Committees.

One effective way of identifying potential Comparative Risk project participants from minority and/or low-income populations is to refer to the *People of Color Environmental Handbook*. The *Handbook* lists over 200 North American groups that are active in environmental justice issues. Compiled by Robert D. Bullard of the Environmental Resource Center at Clark Atlanta University, the *Handbook* is available from the Charles Stewart Mott Foundation's Publications Hot Line at (810) 766-1766. The *Handbook* is also available on-line at "gopher.igc.apc.org". Project Directors can also contact local elected officials, community advisory panels, and local ministers to get names of individuals who are interested in being involved in community activities and might want to work on the project.

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### 3. Comparative Risk and Cultural/Lifestyle Assumptions

In the data collection and analysis (assessment) phase, Comparative Risk projects may go beyond traditional risk assessment by collecting and analyzing data on environmental risks to sub-populations. For example, risk assessors typically would not assume differential fish consumption levels for the different segments of a community's population because their goal would be to aggregate consumption data for the entire population. Those assessors would not, then, take into account cultural traditions and/or income factors that influence certain parts of the population to consume more than the average amount of fish, thereby failing to focus on data that demonstrate higher-than-average exposure to contaminants in fish for those segments of the population.

In contrast, a Comparative Risk project, whose goal is to identify the most serious environmental risks to human health, ecosystems, and quality of life for all segments of a community, and which has a diverse membership representing a cross-section of the community, might well focus on data depicting risks to one or more segments of the population from higher-than-average fish consumption.

Another point: no methodology for accurately quantifying the (1) synergistic effects of different compounds, or (2) cumulative effects of contaminants has yet been developed. As a result, risk assessors typically do not build synergistic or cumulative effects into their risk characterizations.

Comparative Risk projects, on the other hand, often include stakeholders from groups of individuals in the population that are likely to be at higher-than-average risk from exposure to the synergistic or cumulative effects of certain substances. By participating in environmental problem area identification as well as in data collection and analysis, those stakeholders have an opportunity to identify problem areas that may result from synergistic and/or cumulative effects. Those stakeholders can also influence their project colleagues to develop strategies for addressing those problem areas.

### 4. Phase II--Taking Action

Identifying and then ranking environmental threats are major steps in Phase I of a Comparative Risk project. During Phase II, projects develop strategies to reduce risks from environmental problem areas. As in Phase I, diverse stakeholders drawn from all segments of the population are active in Phase II work. That level of stakeholder involvement ensures that concerns about disproportionate risks to certain segments of the community receive attention, and that the project builds those concerns into the final Phase II risk reduction strategies that it recommends to policymakers.

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# EPA's Comparative Risk Projects

## Phase II: Assessment to Action



### Strategies and Actions to Improve Environmental Management

In the broadest sense, Phase II of Comparative Risk projects includes: (1) setting priorities and reviewing and selecting policy options to address the environmental risks identified in Phase I; and (2) selecting, implementing, and evaluating particular risk reduction efforts. Because Phase II efforts address a range of environmental problem areas, there is no one model for what Phase II should look like. Nonetheless, the steps listed below are common to all Phase II efforts.

#### Steps of Comparative Risk Management

- REVIEW relative risk rankings from Phase I assessment
- PRIORITIZE problem areas that risk management efforts will address.
- CONSIDER "non-risk" factors such as available technology and political feasibility
- DEVELOP concrete strategies for addressing priorities
- IMPLEMENT risk management strategies
- MONITOR implementation to determine environmental progress
- RE-EVALUATE and revise strategies and implementation efforts if necessary

How projects design and implement Phase II varies depending on many factors, including those that can be directly influenced by project participants (e.g., setting project goals early on in the project planning process) and those over which the project has little or no control (e.g., an ever-changing political climate). Since those factors vary from project to project and/or change over the life of any one project, it is important that a Phase II plan be flexible enough so that project members can seize positive opportunities for change, even when those opportunities were not included in the original Phase II plan.

It is important to begin planning for Phase II early in the design of a Comparative Risk project, and to link the portion of the project plan that applies to Phase II with the assessment efforts in Phase I as well as with the original goals laid out during project start-up. This will facilitate project participants' capitalizing on the risk information, partnerships, and momentum for change developed during Phase I.

### Successful Phase II Efforts: Some Examples

(1) The successful targeting of and public support for state legislation requiring tougher clean air standards as proposed by the Washington State Comparative Risk project; (2) the influential role played by the Cleveland Comparative Risk project in effecting improved regional transportation planning efforts; (3) the development of strategies to reduce impacts on habitat from construction activities by creating incentives for developers to destroy less natural habitat by letting stand existing trees; strategies were developed by a diverse group of 200 volunteer citizen activists, Health Department staff, and interest group representatives in Columbus, Ohio; (4) formation of a team that is developing options to address the cross-media, negative impact of toxics on habitat preservation and sediment and water quality in the Elizabeth River watershed (Virginia); the team was formed by the Elizabeth River Comparative Risk project in collaboration with the Virginia Department of Environmental Quality.

### Questions Projects Should Ask About Phase II

The questions posed below are among those that should be considered during the planning for Phase II. It is important to consider such questions early-on in the overall project design process, as they may point to the particular type of data that a project will need to collect and analyze in Phase I, what methodology to use in conducting the integrated risk ranking, and what types of policy options or action strategies to plan for in Phase II.

There are no standard answers for these questions, and initially, project participants may find it difficult to develop satisfactory responses. Nonetheless, projects should raise these questions early on and refer back to them not only throughout the project planning process, but as they move through the assessment phase and into Phase II.

#### Establishing Clear Goals

1. What are the goals of the project?
2. Do the original goals need to be modified or changed?
3. Do Phase II goals influence choices about data collection, criteria selection, ranking methodology? If so, how?
4. What are the public involvement goals for the project?

#### Who Participates

1. Who should be involved in Phase II work groups as action and implementation efforts proceed?
2. How will the public be involved in the design, implementation, and evaluation of Phase II implementation/risk reduction strategies?
3. How can the project director keep volunteers and participants motivated throughout the project?

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### Project Design

1. How will Phase II be structured in terms of work groups, expertise, and leadership?
2. Who will participate and what will their roles be?
3. What steps can be taken during Phase I to secure funds for the action Phase?
4. Are there activities associated with risk management that can be carried out in advance of assessment like:
  - surveying the public about who should be responsible for taking action,
  - conducting inventories of current program effectiveness,
  - collecting model legislation on environmental issues,
  - networking with the legislature and the governor's office?
5. Are there other environmental planning initiatives that the project could link up with such as:
  - agency strategic planning initiatives (goals, budget, indicators, National Environmental Performance Partnership Agreements, etc.),
  - intra-agency initiatives,
  - inter-governmental planning initiatives (Federal grant negotiations),
  - gubernatorial initiatives and press events?

### Transitioning from Phase I to Phase II

1. How will Phase I results influence and impact ongoing environmental planning and management initiatives (e.g., communication about environmental risks, developing information about public environmental values and perceptions, ranking risks, improving communication across environmental agency staff, forming public-private partnerships)?
2. How in Phase II will the project make use of the products developed and partnerships fostered during the assessment phase, including: the new partnerships and collaborative relationships formed across natural resource and planning agencies; the technical reports produced by Human Health, Ecology, and Quality of Life technical committees; public values about and perceptions of environmental risk as indicated by Phase I survey data; the inclusion of diverse stakeholders in project design and decisionmaking; the connections developed as the result of a robust public participation effort; the results of the risk ranking?

### Analyzing and Selecting Strategies

1. What environmental problem areas will be identified for priority action and the development of action strategies?
2. What criteria will be used to select priority action areas (e.g., public commitment to the need for action, feasibility, highest potential for risk reduction)?
3. Who will develop criteria for prioritization and development of action strategies?
4. Will action strategies include evaluation of the effectiveness of current environmental management programs?

### Creating Positive Environmental Change

1. What environmental management decisions does the project want to influence?
2. Who are the key decisionmakers and audiences for the project?
3. How will the project measure success and show progress for action strategies?
4. Are benchmark or indicator data available to gauge changes over time?
5. Who will ensure that project results continue to influence environmental management decisions?

### More to Come

EPA's Regional and State Planning Division (RSPD) has formed a Risk Management Team that includes representatives from each of two Centers: the Western Center for Environmental Decision-Making (WCED), and the Green Mountain Institute for Environmental Democracy (GMIED) and two RSPD staff members. The Team's goal is to provide information about Phase II activities, and develop Phase II products and services to assist Comparative Risk project managers.

As many state and local Comparative Risk projects begin moving from assessment to action, the Team will provide project managers and other project participants with Phase II information on lessons learned, innovative risk reduction activities, and implementation strategies. More Phase II articles will appear in the *Comparative Risk Bulletin* published bi-monthly by GMIED. GMIED has also produced a useful paper entitled *Thinking About Risk Management: An Introduction with Case Studies to Policy Tools, Analytic Criteria and Institutional Arrangements*. A more detailed bibliography of Phase II literature is under development.

At the January, 1996 National Conference of Environmental Management Practitioners, the Team sponsored a session entitled *From Assessment to Action: Effective Strategies for Making the Transition (and Getting Results!)*. The session summary, including Conference proceedings, is available from GMIED. It provides a useful and interesting summary of Phase II experiences from around the country.

As you consider your project design and Phase II issues, please call RSPD or Centers staff to discuss your project's goals and general approach to action and implementation.

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# EPA'S Comparative Risk Projects

## *EPA's National Environmental Goals Project*



### Why Environmental Goals?

Over the past 24 years, EPA has focused on developing programs that effectively implement the relevant statutes enacted by Congress. However, the most important measure of effectiveness is not the amount of work underway (how many regulations are promulgated or permits issued), but rather the degree to which human health, ecosystem health, quality of life, and pressures on the environment improve.

With this in mind, EPA's senior career leadership has, over the past few years, been engaged in the National Environmental Goals Project. The project's main objective is to develop a detailed set of national environmental goals and companion 10-year objectives, or milestones, that will enable EPA to determine whether we are, in fact, moving toward those goals.

Other recently-developed results-oriented initiatives have given additional momentum to the goals project. One initiative is the 1993 Government Performance and Results Act, which supports the concept of managing for results, and requires each Federal agency to develop a strategic plan and annual performance plans for major programs. Another related initiative is the Clinton administration's Reinventing Government, which requires each agency to develop accountability for results.

### How Are the Goals Being Developed?

EPA's goals project is being developed with the involvement of public- and private-sector stakeholders. The Agency began the project by examining environmental goals set by other Federal agencies, states, and countries. Staff conducted research on past environmental trends. Staff also assessed the implications of public and private behavior for meeting different results targets. A group of senior staff then drafted a set of long-range goals and milestones for the year 2005, keeping in mind two criteria: (1) milestones should be measurable aspects of environmental quality, and (2) the targets should be realistic.

In 1994, EPA discussed the environmental goal-setting perspectives of business and agricultural interests, environmental advocates, government officials, and the general public at a series of roundtable meetings around the country. One strong recommendation to come out of the roundtables was: the goals should cover not only environmental results, but also improvements in the process by which different levels of government and stakeholders make decisions.

In 1995, EPA asked government agencies and the 1994 roundtable participants to comment on a summary report of proposed national goals. While virtually everyone encouraged EPA to continue its pursuit of goals development, one dominant message from reviewers was that more information was needed to determine whether EPA's targets were realistic yet also ambitious enough.

EPA then prepared a more detailed report explaining the reasons for setting targets at particular levels and how EPA plans to reach the targets. The more detailed report also includes an overview of the costs and benefits of environmental protection. This report will be circulated widely for review and comment, first to government agencies and then to the public.

### How Will the Goals Be Used?

EPA hopes that the proposed goals will provide a line of sight to the environmental outcomes most Americans want. Working with states and other partners, EPA will use the goals to update its strategic plan and formulate annual plans. Budget requests to Congress will express resources needed to fund one year's work toward the 10-year targets. With Congressional support, the goals-focused plans are intended to direct most of EPA's operations as well as influence the activities of EPA's partners in environmental protection. The plans will include development of environmental indicator information for evaluating progress toward the goals, and a report on progress to date in reaching the goals. EPA and its partners may revise the 10-year milestones as new information becomes available or as circumstances change.

The milestones will serve as an EPA management tool that will offer more flexibility to the people who carry out our programs than is now the case. With established measurable outcomes, EPA will be less prescriptive about how work is done and more attentive to actual environmental results. State and local governments will have flexibility in choosing how to use the national goals.

### The Goals Project and Comparative Risk

EPA's State and Regional Planning Division encourages Comparative Risk projects to build environmental goals and other environmental planning tools like indicators into their Phase II implementation plans. For example, the Division recommended to several states beginning Phase II work in FY 1996 that Phase II activity include developing environmental goals for each activity that the projects will recommend to policymakers for long-term implementation.

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Office of Strategic Planning  
and Environmental Data

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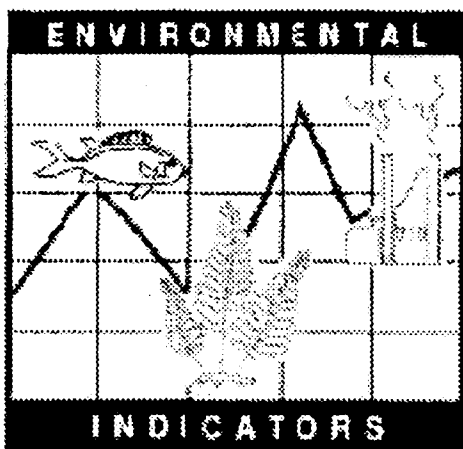
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# EPA's Comparative Risk Projects

*Environmental Indicators:*

*A Powerful Planning Tool*



## TECHNICAL ASSISTANCE AVAILABLE

Through cooperative agreements the Agency has and will continue to provide a variety of technical assistance services to states, regions and communities. These services include on-site training on environmental indicators, limited peer-to-peer travel, indicator conferences, maintenance of a network of indicator users, project summaries and directories and an Internet home page on state and national indicators and databases. Also available are hard copy products on selected indicator review lists and catalog, survey of state environmental planning tools in use and a list of potential national indicators for state use.

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## WHAT ARE ENVIRONMENTAL INDICATORS ?

An indicator is analyzed information that provides a message in a simplified manner about a complex condition or trend or communicates a trend not readily detectable. Indicators should quantify and simplify information or data making it more easily understood. Environmental Indicators (EI) describe and summarize scientifically based information, usually metric, on environmental status and trends. EI's may be direct measures of health or ecological effects, sometimes referred to as the state of the environment; or indirect measures of emissions or environmental concentrations, sometimes referred to as pressures on the environment. EI's should not be confused with performance measures, which generally do not describe actual results in the real world but track activities such as numbers of permits issued or training courses taught. EI's do not necessarily replace performance measures, but may be used in combination for a comprehensive understanding of environmental phenomena.

## A LONG HISTORY

Environmental indicators have been used since the late sixties with the start of the environmental movement. The first popular use was probably in 1969 when the National Wildlife Federation published its first "National Index of Environmental Quality." In 1970 the President's Council on Environmental Quality (CEQ) published their "First Annual Report" which included the development of indexes for a comprehensive national system of environmental analysis. In the early 1970's Montana, North Carolina, and Louisiana published reports on their environment including indicators in some fashion. Canada has long used environmental quality indexes.

More recently, in 1989 the US EPA Deputy Administrator requested a report on the progress of Agency programs to developing environmental indicators and assessing the links between that information and EPA's environmental goals and strategies. Environmental indicators were brought to their greatest prominence in May 1995 with the formalization of the National Environmental Performance Partnership System (NEPPS) that sets forth environmental goals and measures of accountability in terms of environmental results.

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## ENVIRONMENTAL INDICATOR GUIDELINES

- EI's are tools of accountability that can be used to assess progress toward a vision or goal in an integrated planning framework.
- EI's should be based on identified environmental issues and goals rather than available data.
- EI's at any level of use are only as good as the data quality on which they are based. This does not mean one must have ideal data to get started; indicators are an excellent tool to communicate data gaps and insufficient data collection methodologies.
- The "science of environmental indicators" is the ability to choose the best or most appropriate indicator(s) to measure progress toward a goal. It is essential that the set of indicators monitored overtime accurately accounts for the attribute of concern. For example, tracking only physical/chemical properties of surface waters alone may not be sufficient to indicate good biological water quality (assuming that is the goal).

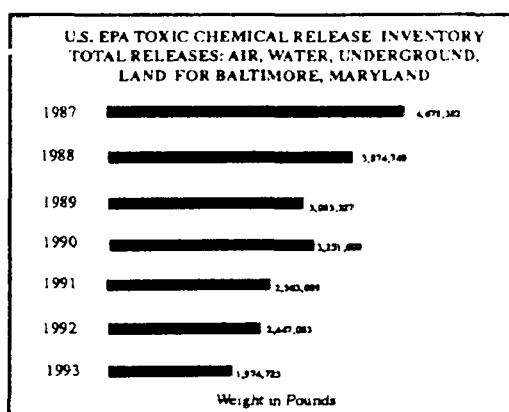
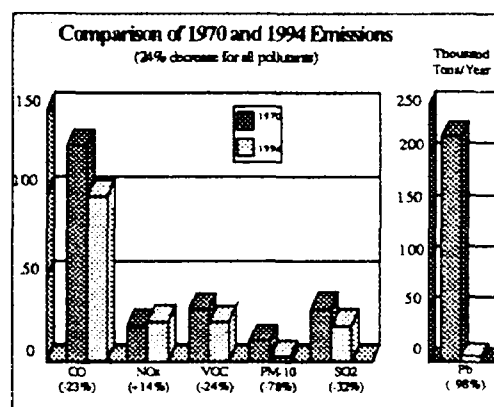
*Examples of  
trend data used  
as indicators*

## USES GALORE

There is no one indicator or set of indicators that is right for all situations. One must determine such things as geographic scale (i.e., community or state level, etc.) and the result to be communicated (i.e., the state of the environment indicators may differ from those used to monitor the success of a given management strategy).

Generally, environmental indicators are used either in a decision-making context or as a public outreach tool to:

- show trends (changes) in the state of the environment
- show trends in human activities that impact the state of the environment
- show relationships among environmental variables
- measure and communicate environmental achievement and progress toward a goal
- make strategic planning and budget decisions
- develop public relations and education programs
- communicate a message, theme or story clearly and succinctly ("Process for Selecting Indicators and Supporting Data," OPPE, USEPA, 1996 Draft).



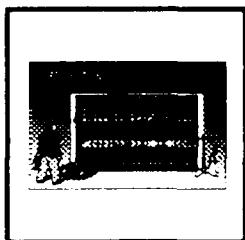
# EPA's Comparative Risk Projects

## *Futures Research*



### What is Futures Research?

Futures research can be defined as *the use of several kinds of analytic tools to project or forecast trends and emerging issues* that may affect the quality of the environment in the future. The tools are used to gather and analyze social, economic, and environmental data to help environmental professionals anticipate potential changes in the environment and incorporate information about those changes into environmental decisionmaking. The most commonly used of those tools, **Scanning, Lookout Panels, Trends Research, and Scenario Building**, are described on the reverse side.



### Why Do Futures Research?

Bringing human activities into harmony with our planet's resources will mean expanding our research horizons to help us better understand and anticipate environmental protection needs. Environmental planners have recently developed a new, anticipatory approach which begins with a vision that reflects public values and scientific data traditionally collected on *current* problems and adds to that data which is now collected on *emerging* environmental problems.

Challenges and opportunities will continue to unfold as we analyze the long-term environmental impacts of current problems. Some long-term environmental consequences stem directly from current trends in driving forces such as demographic change and economic activity, which have direct impacts on water and waste treatment infrastructure, ecosystem carrying capacity, biodiversity, pollution, and habitat loss tolerances. Data on those impacts can be extrapolated to scenarios for future environmental conditions.

While emerging problems may not pose much of a current threat, some have the potential to develop into serious risks if left unaddressed. The recently-developed, anticipatory model for futures research helps us identify and better understand these developing problems before they become full-blown, and enables us to develop strategies and solutions to reduce or prevent their projected impacts and consequences.

Carrying out futures research gives us the capability to monitor driving forces for changes that bring us closer to the capacity limits of infrastructure and habitat loss tolerances and to be alert to technological innovations that exacerbate the nature of current problems, create new threats, or offer new ways to avoid or mitigate environmental hazard.

### Comparative Risk and Futures Research

In Comparative Risk projects, futures scenarios that include projections about the impact of driving forces such as population and economic growth can significantly inform projects' understanding of the future course of current environmental problem areas. Opportunities for implementation of pollution prevention strategies and other anticipatory risk management options can in many cases become apparent with the inclusion of such scenarios.

Several early Comparative Risk projects used futures tools: Washington 2010, Colorado Environment 2000, and Louisiana Environmental Action Plan 2000 began with a vision for a desired future, added caveats about emerging and longer-term problems, considered trends, examined the requirements of sustainability, and otherwise attempted to anticipate changes in environmental conditions and lay out possible and necessary responses over time.

Currently, the Comparative Risk project for Charlottesville, Virginia and the surrounding area has an ambitious plan to identify barriers to their goals for a sustainable community and address them with practical strategies. Another Comparative Risk project, Kentucky Outlook 2000, is building various futures scenarios of environmental "hotspots" in which hypothetical alternative risk reduction strategies are applied.

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## FOUR TOOLS FOR CONDUCTING FUTURES RESEARCH

### FOCUS GROUP AND ROUNDTABLE DISCUSSIONS

These are forums sponsored by environmental planners during which specific scientific and technological developments and public environmental values are discussed. The idea behind such efforts is to step back from dealing with day-to-day issues and consider long-term environmental planning approaches.

### SCENARIO PLANNING

This tool creates a "picture" of the future given a specific direction in one or more key driving forces; may help project members anticipate a range of potential environmental problems by making them aware of the interactions among the social, economic, and cultural factors that will shape future threats. This picture will help the the project prepare for challenges and help identify opportunities to protect against them.

### SCANNING, EARLY-WARNING/LOOKOUT PANELS

This tool offers a window on emerging threats and opportunities. In a scanning exercise, a group of people monitors media reports and other sources to identify changes in cultural, economic, and social trends that could affect future environmental conditions.

A Lookout Panel is typically a specific group designated to monitor professional journals and other sources for new research and technological activities that point to emerging environmental threats and/or solutions to environmental problems.

### TRENDS ANALYSIS

This tool provides information on existing problem areas and driving forces, examines historical data, and supplies background information for forecasting. For example, state transportation boards and utilities often monitor patterns of road, energy, and water and sewer use to develop long-term projections about and predict necessary changes in utility infrastructure. When selecting risk management options, a Comparative Risk project could use these projections to design pollution prevention programs that would avoid predicted risks.

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# EPA's Comparative Risk Projects

## *Planning for Sustainability*



### What is Planning for Sustainability?

In 1987 the World Commission on Environment and Development (Brundtland Commission) issued a report that defined sustainable development as "meeting the needs of the present generation without compromising the ability of future generations to meet their own needs."

The same definition was adopted by the President's Council on Sustainable Development (PCSD), a group of Federal agency heads, top industry executives, and environmental group leaders appointed by President Clinton in 1993 to advise him about "integrating the economy, equity, and environment into national policy."

### First Steps in Sustainability Planning

The first task for planners who seek environmental sustainability is to ask what the community they work in wishes to sustain. The resulting spectrum of public values may range from wilderness area protection and biodiversity to job creation and the availability of mass transportation, to name a few. Once the question of what to sustain is resolved, planners will have to ask how the government, economy, and society must develop and change to support the quality of life and environment that is desired. Researching potential answers to this question will sometimes offer the planners and decisionmakers ideas for new synergistic relationships between short-term and long-term social, environmental, and economic elements. A first step in this research is to define barriers to sustainability. Comparative Risk offers a process for analyzing barriers to sustainability.

### Comparative Risk and Sustainability

Comparative Risk is a tool that planners, policymakers, and representatives of diverse segments of the population of states and communities use to identify and analyze the causes, distribution, and extent of damage (i.e., risk) associated with the most serious environmental threats to human health, ecosystems, and quality of life. From an environmental sustainability planning perspective, these same threats may be regarded as barriers to a state/community's desired level of sustainability. Using a working definition of sustainability programs which defines them as those which "restructure human activities so that natural resources are not depleted and environmental quality remains unimpaired," Comparative Risk practitioners can integrate sustainability planning into Comparative Risk project activities.

Comparative Risk projects that want to plan for sustainability should consider the following steps :

- 1) Develop a community vision for a sustainable environment.
- 2) Develop goals for sustainability in economic, social, and environmental sectors and identify opportunities for and challenges to attaining those goals.
- 3) Use comparative risk analysis to help understand the impacts on health, ecology, and quality of life from environmental problems that have been identified as barriers to sustainability.

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- 4) Once problem areas have been analyzed and priorities have been set, risk reduction strategies may be identified that balance environmental/economic relationships and the distribution of costs and environmental benefits with the kind of future people want.
- 5) Futures research techniques, including analyses of trends in driving forces such as demographics and overall economic conditions, may offer a window on the long-term direction of environmental problems and the viability of risk reduction strategies.
- 6) Buy-in from every sector of the community is necessary throughout the project, from defining sustainability to making it a reality.
- 7) Careful monitoring of environmental and economic trends will ensure that strategies remain appropriate and continue to bring the community closer to sustainability.

#### **Advantages of Public Involvement**

Involving the public in sustainability planning will help to ensure broad support; for example,

- public understanding of environmental and economic processes can create grass-roots pressure for change and become the driving force that moves consumer and commercial activity closer to sustainability;
- public involvement helps dispel misconceptions about relationships between economic activities and environmental quality (good environmental quality doesn't call for drastic reductions in numbers of jobs or diminished lifestyles).
- in their roles as project participants and decision-makers, community members learning about sustainability as part of the Comparative Risk process are inclined to hold government, commercial, and other individuals accountable to the community's environmental vision and goals.

#### **More on the PCSD**

The President's Council on Sustainable Development recently completed a report detailing opportunities for the United States to move closer to sustainability. That report includes 10 goals for a sustainable future and makes 154 recommendations for specific actions to be taken that would improve economic and regulatory policy, natural resources management, education, and international policy.

The U.S. EPA has already instituted several successful programs in support of that report's recommendations. Recommended activities are planned or are already underway in several other Federal agencies as well. One common theme of many strategies intended to implement PCSD goals is a reliance on cooperation and mutually-beneficial relationships between government, the regulated community, and/or environmental groups. For more information on the PCSD, write to:

**PCSD**  
**730 Jackson Place, N.W.**  
**Washington, DC 20503**  
**e-mail: [pcsd@igc.apc.org](mailto:pcsd@igc.apc.org)**

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# EPA's Comparative Risk Projects

## *Integrated Environmental Planning*



There are many frameworks for thinking about how to tie together environmental planning, resource allocation, and monitoring into an integrated process. There are also many tools that can be used in integrated environmental planning.

The major elements of integrated environmental planning listed below and an accompanying diagram provide one vision of how to proceed given the luxury of starting with a clean slate. The elements suggest a process for those who are thinking about how their work in various areas might connect to larger goals for the places they live in.

- 1) Finding consensus on a public vision;
- 2) Setting goals for a healthy, ecologically-diverse environment, now and in the future;
- 3) Identifying barriers to those goals (developing a list of environmental problem areas);

4) Understanding the relative risks posed by each problem area (analyzing, comparing, and ranking environmental problem areas);

5) Building strategies for cooperation and providing incentives to achieve environmental goals;

6) Understanding trends that may affect future environmental conditions;

7) Developing and measuring indicators of environmental conditions;

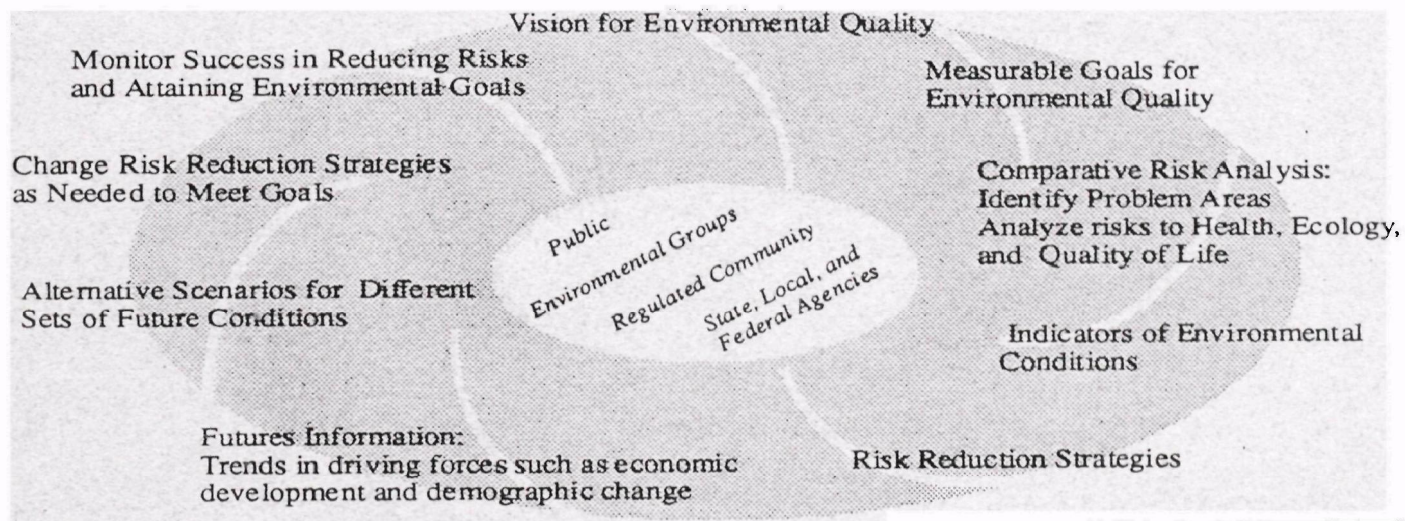
8) Monitoring progress towards environmental goals;

9) Changing strategies as needed; and

10) Keeping the public and regulated community informed and involved.

EPA's Regional and State Planning Division offers technical advice on combining environmental goals, comparative risk, futures research, risk management, and indicators into a planning process with substantial public involvement.

## Integrated Environmental Planning



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# EPA's Comparative Risk Projects

## *Project Director Checklist*



### THE BASICS OF PLANNING AND IMPLEMENTING A COMPARATIVE RISK PROJECT

Note that planning and implementation are ongoing, and that Comparative Risk projects are non-linear processes. Project directors are often involved in project planning and implementation concurrently.

#### PLANNING FOR THE PROJECT

- ☐ 1. Assemble basic materials on Comparative Risk, including:
  - a. EPA's Environmental Planning Information Packet
  - b. EPA's *A Guidebook to Comparative Risk*, including Appendices
  - c. Several C.R. project final reports
  - d. *A Practitioner's Guide to Comparative Risk*
  - e. *A Comparative Risk Bulletin*, published by the Green Mountain Institute for Environmental Democracy (GMIED) <sup>a/</sup>
  - f. EPA Cooperative Agreement Application Package guidance and application forms
- ☐ 2. Talk with EPA Regional and State Planning Division (RSPD), GMIED, and Western Center for Environmental Decision-Making (WCED) staff about project planning and start-up<sup>b/</sup>
- ☐ 3. Talk with several Comparative Risk project directors/participate in Comparative Risk Links Network call<sup>c/</sup>
- ☐ 4. Talk with EPA Regional staff about Comparative Risk and potential scope of project
- ☐ 5. Prepare Comparative Risk Qs and As for marketing and educational use
- ☐ 6. Educate potential stakeholders about and market Comparative Risk
- ☐ 7. Identify as a major goal extensive public involvement in the project
- ☐ 8. Identify top-level state/local decisionmakers who will support the project and the potential changes that it might propose
- ☐ 9. Identify the state/local agency that will formally apply for Cooperative Agreement funding from EPA
- ☐ 10. Identify additional sources of project funding
- ☐ 11. Network with governmental, industry, citizen, environmental advocacy groups to begin identifying potential Public Advisory Committee (PAC) and Steering Committee representatives
- ☐ 12. Network with minority communities to identify minority stakeholders who could serve on the PAC and Steering Committees
- ☐ 13. Develop public participation plan that lays out strategy for public involvement over the life of the project
- ☐ 14. Provide draft Statement of Work (part of formal application for funding) to EPA Project Officer and Regional Office contact for review and comment
- ☐ 15. Prepare final application forms and submit to EPA

#### PHASE ONE

- ☐ 1. Meet with Steering and Public Advisory Committees to discuss:
  - a. Broad project plan
  - b. Project Kickoff event
  - c. Committee meeting dates for the first year of project
- ☐ 2. Hold Project Kickoff event

<sup>a/</sup> Green Mountain Institute for Environmental Democracy (GMIED) in Vermont; formerly called the Northeast Center for Comparative Risk (NCCR).

<sup>b/</sup> GMIED and WCED (formerly the Western Center for Comparative Risk, or WCCR, in Boulder, Colorado are non-profit organizations funded by EPA to provide technical assistance to state/local/tribal Comparative Risk projects.

<sup>c/</sup> Comparative Risk Links Network is made up of all Comparative Risk project directors who talk monthly via a conference call with the Centers and EPA RSPD staff.

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- ☐ 3. Develop detailed project plan, including goals, milestones, timetable for the entire project
- ☐ 4. Consult with EPA Project Officer, Regional contact, GMIED/WCED staff on an ongoing basis
- ☐ 5. Implement plan for public involvement; i.e., educate project members and the public about Comparative Risk, public environmental values, the benefits of community involvement; develop and implement Comparative Risk project marketing strategy to include such items as regularly-published newsletters and TV bulletins, public roundtable discussions, gubernatorial press conferences, etc.)
- ☐ 6. Develop list of environmental problem areas and categorize problem areas in one or more of the following groups: (1) Human Health, (2) Ecology, (3) Quality of Life (Socio-economic or Social Welfare, Aesthetic, Cultural)
- ☐ 7. Form Technical Committees
- ☐ 8. Provide model technical reports from other Comparative Risk projects and other guidance materials to Technical Committees
- ☐ 9. Develop methodologies for scientific/technical data collection and analysis, including collection and analysis of public environmental values data
- ☐ 10. Develop risk ranking criteria
- ☐ 11. Implement scientific/technical data and public values data collection and analysis efforts
- ☐ 12. Provide Quarterly Reports to EPA Project Officer in hard copy/electronically and on floppy disk on a quarterly basis over the life of the project
- ☐ 13. Hold regular meetings of PAC
- ☐ 14. Create a Home Page on the World Wide Web to give all interested parties electronic access to project information and technical data
- ☐ 15. Review on an ongoing basis the progress of data collection and analysis
- ☐ 16. Develop risk ranking methodology options
- ☐ 17. Review funding status; if necessary, identify additional sources of funding to support Phase I and Phase II activities
- ☐ 18. Develop preliminary Phase II (Comparative Risk Management and Evaluation) plan and timetable
- ☐ 19. PAC reviews ranking methodology options and selects one for use by the project
- ☐ 20. Technical Work Groups present analyses of data to PAC, making explicit the uncertainties and assumptions underlying the data
- ☐ 21. On an ongoing basis, Project Director reviews project documentation for completeness and accuracy
- ☐ 22. Schedule and carry out three risk rankings of problem areas, one for each of the three categories of risk
- ☐ 23. Revisit original problem area definitions; if necessary, revise definitions to reflect Technical Committee definitions; make available to all project participants revised definitions before conducting integrated risk ranking
- ☐ 24. Schedule and carry out the integrated risk ranking
- ☐ 25. Prepare and release to the sponsoring agency and to the public a Phase I final report
- ☐ 26. Develop recommendations for priority setting on the basis of rankings and PAC discussions
- ☐ 27. Market the final report and the major activities that are planned for Phase II

### PHASE TWO

- ☐ 1. Review risk ranking and priority setting recommendations from Phase I
- ☐ 2. Finalize Phase II plan and timetable
- ☐ 3. Review level of public involvement in this phase; if necessary, recruit new stakeholders to ensure continued extensive and diverse public participation
- ☐ 4. Develop environmental goals and indicators that would measure the success of those goals in terms of environmental outcomes
- ☐ 5. Establish state/local/tribal environmental priorities
- ☐ 6. Review current environmental statutes, policies, and programs; establish whether they would effectively enable the state/locality/tribe to meet the project's recommended priorities and environmental goals and whether current programs' environmental outcomes can be measured
- ☐ 7. Involve public decisionmakers in appropriate agencies in discussion of current policies and programs
- ☐ 8. Develop and analyze a set of proposed strategies and policy tools that would implement project priorities and goals; consider non-risk factors such as political and technological feasibility of strategies and tools
- ☐ 9. Hold well-publicized public discussions about alternative Phase II strategies
- ☐ 10. Develop concrete strategies, including demonstrations or pilots, for addressing priorities, directly linking them to environmental goals and indicators
- ☐ 11. Prepare a final project report
- ☐ 12. Release final report to the public via a senior policymaker press conference and extensive news coverage

# EPA's Comparative Risk Projects

## *Eight Questions State/Local Environmental Directors Should Ask and Answer Before Undertaking a Comparative Risk Project*



### **1. Why do we want to do a Comparative Risk project?**

Clearly articulating what you want a Comparative Risk project to accomplish is critical to carrying out an effective project. Project goals should be developed at start-up and re-visited periodically. Project activities that lead to achievement of those goals should be developed and evaluated on the basis of how effectively they will enable you to meet your goals. Over the life of a project, some goals may have to be re-defined, enhanced, or scaled down depending on the project's progress. Continual re-visiting of original project goals will keep project participants focused on your project's core objectives.

Questions about project goals that you should ask yourself and be able to respond to regarding why you are implementing a project include:

- **Administrative:** Is there an administrative impetus for carrying out a project? For example, do impending budget cuts or a need to set priorities for Performance Partnership Agreements make it critical to set environmental management priorities, and if so, will a Comparative Risk project help you set those priorities?
- **Political:** Are there political reasons for doing a Comparative Risk project (e.g., the recent election of a new governor who is interested in developing better ways to do environmental management and who supports doing a Comparative Risk project)?
- **Programmatic:** Are your natural resources/environmental protection/planning agencies at a point in their evolution when they are looking for new ideas and new direction, or for validation that current programs adequately address environmental risks?
- **Organizational:** Does the agency need broader public support for environmental management strategies than it now receives? If so, would a Comparative Risk project, which would likely include participants from the general public, the legislature, other state agencies, help develop that support? Would a Comparative Risk project result in increased contact and cooperation with other governmental entities, thereby improving the state's/locality's capacity to do more collaborative environmental management?
- **Process:** Does the agency need to build new or better relationships with the public, the legislature, other agencies? If so, would a Comparative Risk project result in increased contact and cooperation with other governmental entities and institutionalize those enhanced relationships for the long-term?
- **Behavioral:** Does the agency want to encourage a change in environmental behavior through increased public involvement and education which could result from a Comparative Risk project?

### **2. How will the Comparative Risk project be structured?**

Typically, one state agency supports key project staff, which at a minimum consists of one full-time project director. Many projects have a small policy advisory board (sometimes referred to as a Steering Committee) that may be made up of state agency as well as other state/community representatives and that provides guidance to the project director.

Several technical committees, often broken down by human health, ecological, and quality of life environmental problem areas, are formed by project members. The committees recruit volunteers to help project members gather and evaluate data on and prepare technical reports about the targeted environmental problem areas. The reports are used by project participants, or some subset of participants such as a Public Advisory Committee, to help determine the magnitude of risk to the state/community posed by each problem area.

No two project structures are exactly the same, and the project should develop an organizational structure that it expects will best help it achieve its goals.

### **3. What is our desired Comparative Risk outcome?**

All Comparative Risk projects produce technical documents, including data and analyses, about the risks posed by environmental problem areas that were identified at the project's inception as the focus of project concern. The documents also include data on public perceptions about environmental risks. The data and analyses are used by projects to rank the risks from environmental problem areas and to inform project participants as they develop risk management recommendations.

Projects differ on what their desired outcome is. Some projects decide up front that they want to recommend changes in the way environmental management is carried out by recommending that new legislation be adopted. Or, projects may decide that their primary desired outcome is to influence the setting of new priorities through the budget process. Another outcome may be the increased integration and institutionalization of long-term, cross agency environmental policy and planning activity.

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**4. Who are the key audiences for our project?**

Comparative Risk project directors have found that the most efficient and effective means of outreach to the public is to identify major subsets of the public that have a fundamental interest or stake in environmental management issues, invite representatives of those groups to participate in the project, and reach out on a continuing basis to the public by means of a well-designed and implemented public involvement and communications strategy.

Project directors have found it especially important to target for project participation (1) representatives of groups who would be affected, or perceive they would be affected, by changes in the state's/locality's environmental management; (2) those with expertise in environmental management policies and programs who can make conceptual and practical contributions to the project; (3) those who are in a position in the community, in industry, within state/local government to facilitate changes in environmental management that could result from project recommendations; (4) those who traditionally may have been excluded from participation in environmental policy and program forums, but whose concerns about environmental policy issues can appropriately be considered in the context of a Comparative Risk project.

**5. What is our public participation plan?**

Developing a well-designed public participation plan is key to implementing an effective Comparative Risk project. Defining the goals of the plan and laying out how the plan will help achieve overall project goals and fit into the broader project context are the major first steps of plan design.

As Question 4 indicates, a major aspect of public participation is identifying key audiences and deciding how you will involve them and/or interact with them throughout the life of the project. Note that communications about the project with the public should be consistent, even-handed, and interesting.

As part of your overall public participation strategy, you will have to decide how you want to obtain and use information you gather from the public. For example, will input from the public on the technical reports be used by project members during their overall assessment of environmental problem area risks? If so, how will the input be made available to project members, and how significant a role will it play in development of project recommendations? To keep public expectations in line with project implementation strategy, you'll need to communicate how and to what extent public input will be worthwhile to those who, for example, take time to come to public meetings or comment on project documents.

**6. What are the barriers to a successful Comparative Risk project? How can we plan for success?**

Implementation of a Comparative Risk project is complex, and will ultimately involve such issues as: (1) management of conflict about difficult technical data, interpersonal/group dynamics; (2) attacks on the project in the media; and (3) political controversies that arise during an election season. By gathering information from other projects and trying to anticipate early on potential barriers to your own project's success, you will be better able to realistically approach and plan management of obstacles to the project's success.

**7. Do we have the resources to do an excellent project?**

Funding from EPA is intended as project seed money and is not intended to completely support a full-scale project. Most state agencies provide financial or in-kind contributions such as staff time and office space to projects. The total cost of past and ongoing projects has ranged from \$70,000 plus in-kind contributions for a local project to over \$400,000 plus in-kind contributions for a state project. One state project estimated that nearly \$1 million in staff time was spent completing just the technical analysis portion of its project.

Given the potential cost that a state/locality may incur over the life of a project, project sponsors should develop a fundraising strategy for obtaining sufficient resources to support a high-quality project.

**8. Are we on the right course toward success?**

Evaluation of project activities should occur throughout the project, and mid-course corrections should always be an option. One simple way to assess a project's status is to periodically ask project team participants if they believe the project is going well and what they think could be changed to make it better. Other ongoing evaluation approaches include asking project participants for periodic written evaluations, pre-testing project material with a pilot group prior to making them available to all project participants; periodically assessing whether project activities are moving the project toward the goals developed during project start-up; documenting aspects of project success and failure which can be referred to if necessary in the future.

# EPA's Comparative Risk Projects

## *Fundraising Tips*



### Foundation and Corporate Fundraising

Comprehensive Comparative Risk projects that undertake the full range of technical analysis, data gathering, and public participation activities exceed the \$50K-\$100K that EPA traditionally provides along with in-kind technical assistance. Raising the remaining necessary capital often requires that a project search for additional sources of funding.

Projects initiated by state agencies, municipalities, or tribal governments typically receive additional funding and staff support from those public-sector entities. And, Federal agencies other than EPA that have a stake in the outcome of new approaches to environmental management may also provide funding to projects.

Foundations and corporations are another potential source of support for Comparative Risk projects. That support is mutually beneficial, because these entities enhance the credibility and outreach of projects and provide an entree to state and community networks that may otherwise have been unknown or were not easily accessible to project staff. And supporting Comparative Risk projects gives a foundation and corporate sponsor the opportunity to meet its institutions' philanthropic goals.

### Foundations: Key Information

Foundations often have small service areas (regions, states, counties, municipalities) to which they provide grants or loans. While foundations generally have broadly-stated goals for the types of activities they want to support, such as "to reduce poverty, enhance education, and promote a better learning environment," they actually support a very limited category of activities. For example, the foundation with broad-based goals cited above in fact currently limits its grants to supporting the establishment of community day care centers.

Foundations provide funding for what they consider to be unmet needs. They target their overall mission to a specific set of issues, and are very unlikely to fund projects that do not fall within that overall

mission. They need to be convinced that their contribution to an activity or project would facilitate a unique and novel approach to solving a problem, and that alternative funding is not readily available.

At the same time, foundations are much more willing to contribute to a project that has already received partial funding from another source. Foundations are often impressed and are more inclined to support a project when they learn that EPA is providing it with substantial funding and technical assistance and that the state or local government also is providing the project with funding and in-kind support.

For example, a leading scientist who worked on the plan for the Elizabeth River project in Virginia indicated that EPA funding was forthcoming when he talked with a major foundation interested in Virginia environmental issues. As a result, that project received significant funding from the endowment.

A large number of foundations are especially interested in activities that increase or foster public participation. Foundations may also be interested in the extent to which a project has potential to educate the public to support or participate in an informed decisionmaking process.

Foundations generally have staff who screen inquiries, work with applicants to ensure the completion of adequately-prepared applications, and make recommendations to a Foundation Board on the merits of each application. Meeting periodically (anywhere from monthly to annually), Foundation Boards set policy about the kind of projects the foundations will sponsor during a given time period, and approve grants that fit with the foundations' overall philanthropic goals.

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## Corporations: Key Information

Corporations are sometimes willing to contribute to Comparative Risk projects. The key factors influencing corporate involvement are whether they believe they have a vested interest in the process and results of a project, whether their views and concerns would be addressed by the project, and whether they believe their contribution would be publicly acknowledged. Among specific incentives for corporate involvement are: 1) enhanced, collaborative working relationships with government agencies and other groups in the community, and 2) clear contributions to the quality of life in the communities where they are located.

Both the Elizabeth River and Houston projects received funding from corporations that was used to defray a variety of project costs. In both cases, project stakeholders whose networks in the community gave them access to corporations were the means of outreach to corporate donors.

Though some may have a concern that substantial corporate involvement could leave a project vulnerable to criticism of bias towards corporate contributors, careful accounting and allocation of corporate resources provided to projects can mitigate this concern.



## Partnering With Other Entities

A Comparative Risk project involves making connections and working jointly with a wide range of organizations in the community. The project manager should consider enlisting the support of a range of public sector agencies such as state commissions, Councils of Government, and utility districts.

Environmental groups can play an instrumental role in obtaining and suggesting the appropriate use of foundation and corporate funding. Some environmental organizations may themselves provide funding or in-kind contributions, including meeting facilities or vehicles for travel to public meetings. Or, like foundations and corporations, these groups may prefer to fund specific aspects of a Comparative Risk project such as public outreach or printing costs.

### Resources

*The Directory of Environmental Grantmaking Foundations* (located in public library Reference Sections)

The Foundation Center  
1001 Connecticut Avenue, N.W.  
Suite 938  
Washington, D.C. 20036  
(202) 331-1400

Environmental Grantmaker's Association  
1290 Avenue of the Americas  
Suite 3450  
New York, New York 10104  
(212) 373-4260

Environmental Financial Advisory Board  
EPA Office of the Comptroller  
401 M Street, S.W. (Mail Code-3304)  
Washington, D.C. 20460  
(202) 260-1020

# EPA's Comparative Risk Projects

## *Volunteers in Comparative Risk Projects*



### **Volunteers--The Backbone of Projects**

Comparative Risk project directors rely heavily on project volunteers to carry out many of the tasks involved in Comparative Risk project implementation. Volunteers are essential to all projects because project funding is limited and does not generally cover human resource costs beyond those of a project director and sometimes one staffer.

Volunteers who participate in Comparative Risk projects bring a rich mix of perspectives and experiences to projects. A typical volunteer pool includes scientists, academics, business and industry representatives, environmental organization representatives, and community and citizen activists. These individuals invest considerable personal time and effort in project tasks, and, as a result, develop a strong sense of commitment to the project. This commitment is critical to maintaining momentum when challenges to projects, such as changes in political or project leadership or funding reductions, arise.

### **Typical Volunteer Activities**

Project tasks in which volunteers are heavily involved include: gathering data for and writing Human Health, Ecological Health, and Quality of Life technical reports about targeted environmental problem areas; developing and distributing survey instruments; collecting and analyzing survey data depicting

the results of public opinion polls and surveys regarding the public's environmental values and perceptions of risk. The technical report and public values data collected and analyzed by volunteers are used by project Public Advisory Committees to help characterize and rank risks associated with environmental problems and then develop Phase II action proposals for decisionmakers.

### **Finding and Keeping Volunteers**

Since project directors often rely on volunteers to do a considerable amount of project work, directors need to develop a strong pool of prospective volunteers with the skills and time available to commit to the project. The following useful tips are drawn from the experience of several Comparative Risk projects that have relied on volunteers to do much of the project's work.

### **Recruitment and Retention Tips**

- **Know your project's needs and the types of individuals who would best meet those needs:** use that information to identify sources of volunteers who are well-suited to carry out project tasks.

- **Tap "big names" for service on the project's Steering Committee:** prominent, highly-visible individuals with well-established reputations in the state or community may not have the time to carry out detailed technical risk analyses or other time-consuming project tasks; they can be tapped instead for service on the project's Steering Committee.

- **Look for committed volunteer "workers":** search out those who seek to serve the community at large and have the time to commit to service on one or more project committees.

- **Tap into the knowledge base of previous or ongoing projects:** contact the Green Mountain Institute for Environmental Democracy at (802) 229-6070, or the Western Center for Environmental Decision-Making at (303) 494-6393 to learn more about how volunteers work in projects.



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- **Recruit volunteers at project Kick-Off meetings**, which is where many project directors identify potential participants. Other recruitment avenues include:

- **word-of-mouth** in environmental or health agencies;
- **postings** at local academic institutions, on library bulletin boards and state and local government office bulletin boards;
- **project director attendance** at regular meetings of potential stakeholder groups;
- **placement of articles** describing the project in stakeholder newsletters;
- **placement of articles** about the project, along with a contact telephone number, in local newspapers.

- **Seek training in volunteer management:** numerous consulting groups provide inexpensive training to non-profit groups who recruit and manage volunteers.

- **Identify a clear set of project goals:** let volunteers know how their efforts help the project reach its goals.

- **Tell volunteers what's in it for them:** let volunteers know how their participation in the project will further educate them about environmental issues and provide them with opportunities to influence policymakers and to network.

- **Be clear with volunteers about what you expect** from them; for example, be sure they understand how much time they may have to invest in data collection and analysis, technical report writing, final ranking, report preparation.

- **Leave the door open** so that volunteers can communicate their concerns and articulate what they need from you.

- **Provide model material** to volunteers to guide their work (e.g., copies of well-done technical reports or public opinion surveys from other projects).

- **Treat your volunteers well:** provide food, refreshments, and a comfortable environment whenever possible.

- **Seek work products early:** allow time for re-working of products, and provide early feedback to avoid subsequent delays.

- **Have a fall-back plan:** unforeseen circumstances occasionally dictate changes in plans that can leave a project manager without a necessary product. Prepare in advance for this possibility.

- **Seek regular input from your volunteers**, not only about substantive issues, but also about the Comparative Risk process. Follow-up to let them know how their input has been used.

- **Regularly remind volunteers about the value** of the process and product. Frequently communicate an optimistic vision of where the project is going.

- **Not all volunteers are the same:** some individuals receive release time from work during which they can participate in a project, while others participate without employer support at their own expense and on their own time. Understanding the differences in volunteers may help you meet all their needs as well as adjust your expectations about how much time and effort each volunteer can put into a project.

- **Recognize that there will be attrition** in the volunteer ranks: develop and maintain a pool from which new volunteers can be drawn.

- **Be sure to thank all volunteers** for their efforts and, if they leave the project before it's completed, talk with them about why they are leaving. Their feedback may assist you in the work you do with other volunteers.

State and local projects in which volunteers have played a major role include:

- Arizona
- California
- Colorado
- Florida
- Maine
- Mississippi
- Texas
- Washington State
- Wisconsin Tribes
- Elizabeth River Watershed (Virginia)
- Houston
- Seattle

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# EPA's Comparative Risk Projects

## *The National Environmental Performance Partnership System (NEPPS) and Performance Partnership Grants (PPGs)*



### The Changing Nature of Environmental Protection

As resources for all Federal programs become more scarce, and as environmental problems in particular become more complex and diffuse, EPA and the states increasingly need to collaborate in order to distribute the work in a way that jointly recognizes national goals, state, tribal and local needs, and the respective capabilities of Federal, state, and tribal participants.

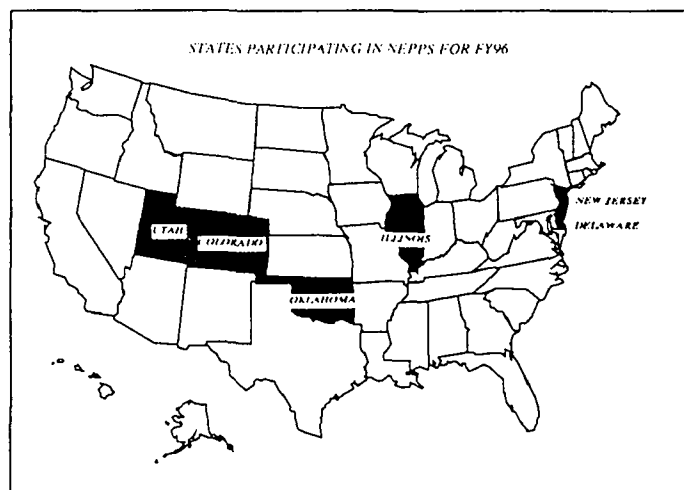
### Descriptions

The National Environmental Performance Partnership System (NEPPS) and Performance Partnership Grants (PPG) are both tools for developing a new relationship between the different governmental entities. NEPPS is the result of discussions between EPA and the states, and has as a central feature reform of EPA's oversight of state and tribal programs. This new approach received its formal unveiling on May 17, 1995, when state leaders and EPA Administrator Carol Browner signed an agreement embodying a joint commitment to reforming oversight and adopting a framework for change. The document was endorsed by a broad range of state commissioners and senior EPA managers.

Under this new system, EPA's focus would change from a command-and-control based relationship to one that is broadly diagnostic. The change in focus would also mean that EPA would concentrate more on providing technical support and would base program evaluations less on activities and more on changes in regional and national status and trends. Specific features that are viewed as important parts of NEPPS include:

- Increased use of environmental goals and indicators
- New approaches to program assessments by states that include state self assessments
- Environmental Performance Agreements between EPA and the states

- Differential oversight based on state capabilities and past performance
- Integral public outreach and involvement
- Joint EPA-State system evaluation
- The potential for some individual, advanced state programs to be designated as Performance Leadership Programs



EPA and Native American tribes and Alaskan Villages are working on a similar, but separate, change in relationships. A Tribal EPA Agreement (TEA) is the result of a dialogue between EPA and a specific tribe. The agreements are formulated with the aim of clearly defining with each tribe mutual expectations and respective roles and responsibilities for environmental protection. Each TEA is targeted to meet individual tribal needs as well as to fulfill EPA's Federal trust and treaty responsibilities to tribes.

PPGs are another tool for implementing the new framework. PPGs combine two or more categorical grants into single grants. Their main advantage is that the new single grant can be allocated with more flexibility to address the same range of issues than can individual categorical grants.

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PPGs can be used to achieve four different levels of flexibility. They can be used to simplify administrative and reporting requirements while maintaining separate categorical grants. They may also be used to consolidate several grants into a single grant, and may be integrated with Performance Partnership Agreements.

At this time, the list of grants that may be part of a PPG include, but are not limited to, the following:

1. Air pollution control (CAA section 105);
2. Water pollution control (CWA section 106);
3. Nonpoint source management (CWA section 319);
4. Water quality cooperative agreements (CWA section 104(b)(3));
5. Wetlands program development (CWA section 104(b)(3));
6. Public water system supervision (SDWA sections 1443(a) and 1451(a)(3));
7. Underground water source protection (SDWA section 1443(b));
8. Hazardous waste management (Solid Waste Disposal Act section 3011(a));
9. Underground storage tank (Solid Waste Disposal Act section 2007(f)(2));
10. Radon assessment and mitigation (TSCA section 306);
11. Lead-based paint activities (TSCA section 404(g));
12. Toxics compliance and monitoring (TSCA section 28);
13. Pollution prevention incentives for States (PPA section 6605);
14. Pesticide enforcement (FIFRA section 23(a)(1));
15. Pesticide applicator certification and training/pesticide program (FIFRA section 23(a)(2)), and
16. General Assistance Grants to Indian Tribes (Indian Environmental General Assistance Program Act of 1992); only eligible tribes can propose including these funds in a PPG application.

Once these grants have been incorporated into a PPG, the funds may be used to address those sets of activities or issues that are allowed by the original grants. For example, if water and solid waste funds are combined, and the solid grant stipulations allowed use of resources for public outreach, funds that originally would have been prevented from this use under the water grant may be used for groundwater leachate protection or similar outreach efforts.

## LINK TO COMPARATIVE RISK

When viewed in the context of integrated environmental management (which may include tools such as goal-setting, strategic planning, and relevant measuring systems), the Comparative Risk process can be used by states, tribes, and communities during their process of determining which programs they want to have increased flexibility. Comparative Risk provides several additional benefits, including:

- The risk assessment portion of a Comparative Risk project provides a methodology for looking at risks across a wide range of areas of concern (projects often analyze environmental issues in terms of their risks to human health, ecosystem health, and quality of life).
- When combined with other information about program performance, Comparative Risk may help states establish funding priorities. It also can be used to build government, stakeholder, and public consensus about what the environmental protection priorities should be.
- The Comparative Risk process can make explicit the available scientific knowledge, the accompanying uncertainties, and public values in an understandable format that is both representative of state tribal concerns and understandable to EPA and other agencies.
- The Comparative Risk process can be a mechanism for states, tribes, and localities to meaningfully involve the general public in systematically comparing environmental problems in their jurisdiction and then translate them into feasible priorities for action.
- The Comparative Risk process can lay the groundwork for developing a system to set environmental goals and track measurable environmental results. It can contribute to the building of a new relationship between EPA and states, tribes, and localities which is based on EPA's shift away from oversight and toward facilitation.

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# EPA's Comparative Risk Projects

## Phase I Principles



**JEROME TINIANOW**, Steering Committee Chair for the Columbus, Ohio Comparative Risk project, developed the following list of Principles for effective implementation of the assessment (Phase I) portion of a community-based Comparative Risk project. Mr. Tinianow developed the list following the completion of Phase I. The Principles are based on the experience of a community-based project, but they are also applicable to regional and state projects.

1. The limitations of risk assessment should be publicly acknowledged at the outset of the project and throughout its duration.
2. The community undertaking the project should expressly acknowledge its obligation to shoulder its fair share of the burden for reducing local, regional, national, and global risks.
3. Specific roles of project participants may differ, but membership in the project should be open to all. There should be no "quotas" used to select committee members.
4. All participants in the project should serve in an individual, not a representative, capacity.
5. All participants in the project should agree at the outset that everything (i.e., any environmental risk and any existing risk reduction program) could be subject to assessment during the project.
6. The project should focus not only on risks to human health, but also on risks to ecosystem health and to quality of life.
7. Environmental Justice considerations should be incorporated throughout the project provided that the term "Environmental Justice" is clearly defined and agreed upon by project members.
8. Risk assessment should not be confused with cost-benefit analysis. The degree of threat posed by a risk is not the same as the costs and benefits of preventing or reducing it.
9. Risk ranking should not be confused with priority-setting. Risk ranking is a tool to be used in priority-setting.
10. Each risk ranking level should be clearly defined in the risk ranking report.
11. Risks should be ranked "as currently regulated." For example a "low" ranking means the risk is low assuming current regulatory regimes remain in place. It does not imply that current regulations should be reduced/eliminated. Replacement of current regulation with an alternative approach should be considered only if the resulting level of risk under the alternative approach is no greater than it is currently, and the current level of risk reduction is not decreased. Current regulations can be replaced, but for "low" risks current regulations should only be replaced with something that maintains the current level of risk reduction.
12. A strategic plan should be prepared for the reduction of each risk assessed in the project, regardless of its ranking.
13. Every aspect of the project's operations should be open to the public.





# EPA's Comparative Risk Projects

## *Training Tips for Projects*



### **The Role of Training and Presentation in Projects**

Conducting training and, especially, giving presentations about any aspect of a Comparative Risk project are major activities of all projects, and can be key to project effectiveness. Training and presentations are two of the single most important means of communication among project participants and between project participants, the public and policymakers. They also provide unique educational, recruitment, motivational, analytic, and marketing opportunities for project staff and participants.

For example, over the life of a project, staff and participants may find themselves needing to: (1) train a diverse audience whose members have varying levels of knowledge about Comparative Risk; (2) describe project activities to the public; (3) present scientific data and analyses to a diverse audience, including project participants and members of the public who have little or no scientific or technical background; (4) educate potential foundation and corporate donors about Comparative Risk; (5) brief the media about the status and results of the project.

### **Training Tips**

It may be helpful to consider the following as you plan Comparative Risk training sessions:

- *Identify the purpose of the training.* When project directors train new project members, the purpose of the training is to bring newcomers up-to-speed about the process and substance of Comparative Risk so they can quickly become active and effective project participants.

- *Know the audience.* Since Comparative Risk projects bring together stakeholders with diverse backgrounds, education, and professional experience, the trainer needs to decide what level of complexity and detail is appropriate for different types of audiences, which could range

from new stakeholders who know little about Comparative Risk to a group of scientists who are collecting and analyzing data for project technical reports, or a mix of scientists and non-scientists who have varying levels of knowledge about traditional and comparative risk assessment.

- *Consider that adults learn differently than younger people.* For example, adults solve immediate problems and make immediate application of training material. Adults also rely increasingly on prior knowledge and experience, and sometimes lack confidence that they can take risks with what they've just learned. Familiarize yourself with the principles of adult learning before you design and present the training.

- *Have available binders/reading material about Comparative Risk that trainees can write in and refer to after the training.*

- *Be prepared not to use visual aids,* so that if an overhead projector or screen is unavailable or broken, you can still proceed with the session.

- *Some rules of thumb for visual aids are:*

- slides are used to create visual information (like chart and graphs) and to provide visual commentary or enhance a concept by transforming it into an image
- each slide should contain no more than six lines of text with six words per line
- overheads are easily read six feet away if the type font is 24 pt. or larger
- slides are easily read at arm's length
- flipchart lettering should be one inch tall for every 15 feet from the back row

- *Have an agenda to avoid surprises, but continually ask trainees what they want;* be flexible by making adjustments to your agenda.

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- *An effective training session is broken into several well-planned segments*; tips on the beginning and ending sections include:

1. Use an ice breaker to get people involved. Set the tone by letting them know why the session is being held. State your objectives. Let the audience know what's in it for them. Give them a preview of the material to come.

2. Have the trainees summarize the top five points made during the training session. Discuss what they can take away from the session and apply to their Comparative Risk project. Ask them what they liked most about the session. Link this segment back to the introductory segment. Provide a closing opportunity for comments and questions. Always have a specific closing, such as a quotation, that is your "hook". Rehearse that closing so that it will be memorable.

- *Evaluation.* Give each person an evaluation sheet to be completed before they leave. Ask for comments on session content and presentation.

- *Set the tone.* Remember, an introductory training session on Comparative Risk is one of the beginning activities of at least a two-year relationship for all who are involved in the project; your tone should be one of high energy and enthusiasm.

- *Five-minute version for top management.* Be prepared to give a five-minute version of your presentation in case a Steering Committee member who has limited time wants to learn the essence of what you are presenting.

- *Turn disaster into an advantage.* Remember that if things fall apart, i.e., if people seem confused, bored, or distracted, your session can still have a lasting impact. Take advantage of confusion to clarify major points. Prepare yourself to answer questions on the full range of topics covered in the session, and to refer trainees to additional material and/or sources of information. Practice, practice before giving the training.

- *Invite the Regional representative.* Extend an invitation to all training sessions to the EPA Regional representative with whom you've worked to develop the Comparative Risk project workplan.

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