



Consulting
Group
Inc.

Assessing Social Impacts *in the* Superfund Process

FINAL

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EXECUTIVE SUMMARY

In 1998, the Environmental Protection Agency (EPA) asked the National Academy of Sciences National Research Council (NRC) to evaluate the risks, availability, effectiveness, costs, and impacts of technologies for remediation of PCB-contaminated sediment. In March 2001, the NRC released A Risk-Management Strategy for PCB-Contaminated Sediments, a report of its evaluation. An important finding in this report is that the existing Superfund decision-making protocols do not provide regulators with specific and adequate guidelines for the consideration of the social, cultural, and economic impacts of the Superfund decision-making process.

EPA's Office of Superfund Remediation and Technology Innovation (OSRTI) has initiated an effort to identify effective responses to the issues raised in the NRC report. The results are documented in this white paper. The OSRTI response involves three steps. The first step identifies and describes best practices for assessing the social and cultural impacts of risk management decisions and early and appropriate involvement of all stakeholders. This was accomplished through a literature review. The second step examines what EPA is currently doing in the field in these areas. A workshop with EPA staff provided the necessary information. The third step addresses the gap between best practices and current EPA practice, and provides recommendations to close the gap.

The literature shows that there are existing and time-tested models for understanding the social, cultural, and economic impacts of decision-making processes such as that of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). These models often are referred to as 'social impact assessments,' or SIAs, and involve stakeholders in a variety of ways. While SIAs have been used by environmental risk management decision-makers in a variety of federal agencies, a formal, documented, and widely accepted approach to the conduct of an SIA does not exist.

Information collected from Superfund remedial project managers (RPMs), community involvement coordinators (CICs), risk assessors and on-scene coordinators (OSCs) at a workshop shows that existing information collection processes, resources, or relationships can be leveraged to collect data on social and cultural impacts. Risk assessors, RPMs and CICs and OSCs are interested in addressing these impacts more fully if resource requirements are met and they are given clear direction as to how to incorporate this new assessment into the existing risk management process.

Finally, many government agency web sites that provide information on environmental decision-making processes have links to the EPA web site. EPA thus is in a position to take the lead in promulgating and formalizing the definition and structure for the assessment of social, cultural, and economic impacts at Superfund sites.

For EPA to move forward and require increased consideration of the social cultural and economic impacts of decisions made at Superfund sites, several issues need to be addressed:

1. **Develop a training program for management and staff on social impact assessment**, including data collection and analysis.
2. **Develop clear management support for the conduct of these assessments**, particularly since it adds a new requirement to an already complex process.
3. **Ensure that required resources are available**, including tools, time, and expertise (much of the expertise required to conduct a formal social impact assessment is not currently found among EPA staff).
4. **Formalize the requirements for the assessment of social, cultural and economic impacts**, clearly defining how the conduct and results of the assessments integrate with the conduct and results of ecological and human health risk assessments. This could be done through a directive, guidance, or the development of tools.

This white paper and related work was done under the EPA contract PO2W3711TASA. This document is intended to provide information and resources related to societal, cultural and economic impacts of Superfund sites and in no way constitutes EPA policy or procedures. The EPA contact for this work is Theresa Trainor, currently in the Office of Water.

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INTRODUCTION

Issue

There is a vigorous and ongoing national debate on appropriate ways to remediate polychlorinated biphenyl (PCB)-contaminated sites. The intensity of this debate mirrors the great potential impacts—human health, quality of life, and financial—attendant upon how the debate is resolved. This debate crosses public and private sectors and struggles to balance personal, business, and national needs. It also balances known health and ecological-based effects with value-based impacts that may be less easily identified though just as important to the American way of life.

In 1998, the Environmental Protection Agency (EPA) requested that the National Academy of Sciences' National Research Council (NRC) evaluate the risks, availability, effectiveness, costs, and impacts of technologies for the remediation of PCB-contaminated sediment. In March 2001, the NRC released *A Risk-Management Strategy for PCB-Contaminated Sediments*. An important finding in this report is that the existing Superfund decision-making protocols do not provide regulators with specific and adequate guidelines for the consideration of the social, cultural, and economic impacts of the Superfund decision-making process. The report noted adequate attention is not given to impacts other than human health and ecological risks:

...risk management of PCB-contaminated sediment sites should comprehensively evaluate the broad range of risks posed by PCB-contaminated sediments and associated remedial actions. These risks should include societal, cultural, and economic impacts, as well as human health and ecological risks. (NRC 2001: 7)

Further, although EPA has sought to include affected parties in the risk management process, inclusion has been inconsistent, often has not involved all affected parties, and has at times involved them only after key decisions have been made:

...risk management of PCB-contaminated sediment sites should include early, active, and continuous involvement of all affected parties and communities as partners. Although the need for involvement of affected communities is often recognized, it has not been implemented on a consistent basis. (NRC 2001: 8)

EPA's Office of Superfund Remediation and Technology Innovation (OSRTI) has initiated an effort to identify effective responses to the issues raised in the NRC report. The results are documented in this white paper.

OSRTI RESPONSE

OSRTI's response involves three steps, each building on the previous: summarizing the current state-of-the-art of this type of assessment; assessing ongoing EPA efforts that do or could inform a social, cultural, and/or economic impact assessment¹; and making

¹ For brevity's sake, these impacts will be referred to as "socio-cultural impacts" and the assessment process as a "social impact assessment (SIA)".

specific recommendations for consideration by EPA management to improve existing processes.

Step 1: To identify and describe best practice in the areas in which EPA was found lacking, specifically the assessment of the socio-cultural impacts of risk management decisions, and early and appropriate involvement of all stakeholders.

Response: Literature Review. Conduct a literature review to determine best practice for assessing socio-cultural impacts, and the involvement of stakeholders in that process.

Step 2: To determine what EPA is currently doing in the field in these areas.

Response: Workshop. Hold a workshop with EPA staff to collect information from them as to their current activities and elicit from them any suggestions or comments as to their preferred headquarters action, if any, relative to the NRC comments.

Step 3: To determine what, if anything, needs to be done to help EPA staff move closer to best practices.

Response: Analysis. Develop an outline of best practices from the literature review, analyze actual practice based on feedback from EPA staff, perform an analysis identifying the gap between the two, and develop recommendations for next steps.

Part I: LITERATURE REVIEW – Description of Best Practices

Formal social impact assessments, or SIAs, are not a new concept. Assessment of the socio-cultural impacts of environmental management decisions, and the involvement of affected parties in the decision-making process, are required by many important pieces of legislation, and are practiced in varying forms by several federal agencies. In addition (see below), the definition of an SIA is described in a significant body of literature. A detailed review of the development and use of the SIA concept can be found in Appendix 1: Detailed Literature Review.

Federal Use of SIA

Legislative Foundation

The need for socio-cultural impact assessments was called for as early as 1969 with the passage and subsequent implementation of the National Environmental Policy Act (NEPA). NEPA required an “assessment of the human environment,” although it did not clarify either ‘assessment’ or ‘human environment.’ The President’s Council on Environmental Quality (CEQ) formalized that requirement in 1978 and made it part of the formal NEPA process. However, the CEQ did not establish any formal principles or guidelines for either the scope of the activity or the assessment process itself.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the enabling Superfund legislation, has very clear requirements for working with what it calls “affected groups.” This explicitly requires community engagement in the decision-making process. It also implies the performance of socio-cultural impact assessments, as EPA staff otherwise would have no accountable way to determine which groups were ‘affected’ and to what degree.

Two other pieces of legislation relate to the socio-cultural impacts of environmental management. Executive Order 12898, the Environmental Justice Executive Order issued in 1994, required federal agencies to identify and subsequently mitigate disproportionately high and adverse human health or environmental effects on minority and low-income populations. Finally, the Historic Preservation Act, passed in 1966, involves preserving the historical and cultural foundations of the nation, or things that are culturally and historically significant.

Agencies Assessing Social, Cultural, and Economic Impacts

In 1995, an inter-organizational committee consisting of representatives from several different government organizations and academic institutions was convened by the National Marine Fisheries Service to discuss the need to conduct assessments of the socio-cultural impacts of governmental decision-making and to begin to formalize the concept and practices for application in risk assessment arenas. The literature contains many definitions of socio-cultural impact assessments. The committee devised a definition that contains most of the concepts contained in other definitions. They labeled the assessment a social impact assessment, or SIA. According to the committee, an SIA is:

an effort to assess or estimate, in advance, the social consequences that are likely to follow from specific policy actions and specific government actions (Inter-organizational Committee on Guidelines and Principles for Social Impact Assessment, 1995).

A significant number of federal agencies offer reasonably detailed guidance on performing SIAs. However, the guidance varies from agency to agency, and not all agencies responsible for NEPA or CERCLA compliance have formal or official procedures, guidance, or frameworks for conducting them. Notably absent from the list is EPA.

§ The General Services Administration has a fact sheet or guidance that follows the Inter-organizational Committee guidance for conducting SIAs.

§ The U.S. Forest Service, under the Department of Agriculture, probably has some of the most intensive and complete guidance for SIAs. The Forest Service offers a training course in SIA with formal guidance available on the web. The Forest Service also holds national symposia and workshops on SIAs. All of the Forest Service's offerings follow the guidance of the Inter-organizational Committee.

§ The National Marine Fisheries Service of the National Oceanic and Atmospheric Administration, the lead agency on the Inter-organizational Committee, also offers detailed guidance on how to conduct an SIA, which follows the Inter-organizational Committee guidelines.

§ The Federal Highway Administration (FHA) of the Department of Transportation gives detailed guidance on the collection of social impact data in its Environmental Impact Statement guidance. The FHA process does not define itself directly as an SIA, but follows many of the precepts outlined by the Inter-organizational Committee.

Performing A Social Impact Assessment

There is a significant body of literature that discusses how to perform an SIA. It is worth emphasizing that although the literature provides a forum for discussion and development of the principles and important components of an SIA, there is no single approach or formal set of guidelines or guidance that could be recognized by all as “the SIA framework.” Further, an SIA, however it is defined and implemented, is not synonymous with public participation or involvement. Rather, the latter are data collection tools that can be used as part of an assessment and can be leveraged in performing these assessments. An SIA also does not directly yield a risk management decision. It is part of the suite of information-gathering processes that also include human health and ecological risk assessments. All three of these assessments should be used together in making a decision.

The literature on SIAs underscores the complexity of human communities and notes that actions and changes that prompt an SIA can have an impact, which, in turn, can lead to further change. This is an evolving, iterative, and non-linear process; therefore, an SIA needs to be conducted at points throughout the entire Superfund process.

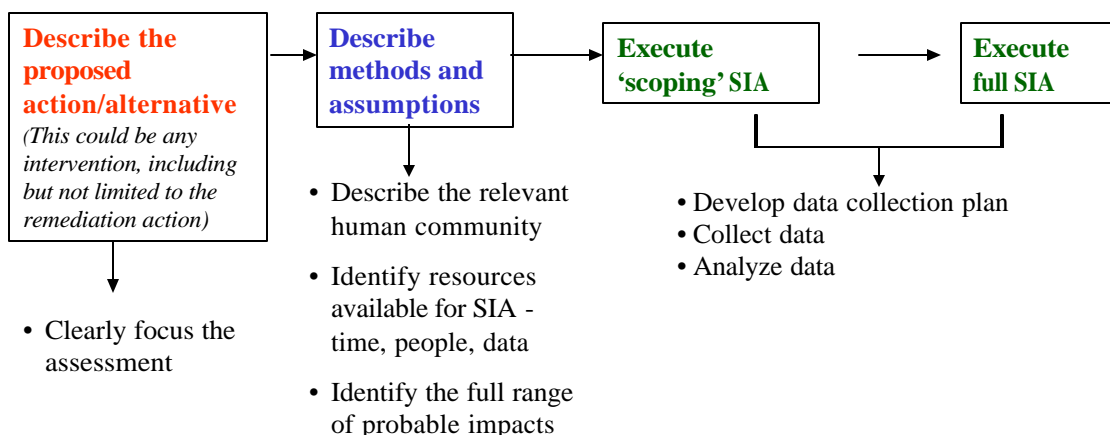
An SIA is an exercise that compares an existing baseline state to hypothetical future states. It is important to the ultimate usefulness of the assessment that its objectives are articulated early in the process. Additionally, appropriate data that address those objectives needs to be collected consistently and with dependable and credible data collection methods. Access to expertise in socio-cultural and economic analyses and data collection methodology can be critical to completing an assessment that provides the information needed for a decision.²

The Social Impact Assessment Process

The process shown in Figure 1 below provides a framework within which a situation-specific assessment process can be developed. It combines several approaches described in the literature, including that of the Inter-organizational Committee. Each step builds on the previous step. Note that while the literature provides little in the way of specific guidance in terms of bounding questions, or of a description of a set of impacts, there is consensus about the importance of a clearly focused problem statement, an explicit description of the relevant community, an assessment of available resources, and an early description of probable impacts and associated data requirements.

² A person trained in SIA or the person conducting an SIA will be referred to as an "assessor".

Figure 1: The Social Impact Assessment Process



Describe the Proposed Action/Alternative. First, *the proposed action or alternative needs to be clearly identified and the problem statement needs to be very clearly defined.* It is important to clearly define the action in question. An action could be any step in the Superfund process, including but not limited to the actual remediation action. For example, the decision to begin the process of deciding whether to list a site on the National Priorities List can have a social and economic impact on the community, since such a decision can significantly affect property values or the attractiveness of the community as a tourist destination. Clear definition of the problem statement at this stage is critical to the performance of a focused assessment.

Describe the Methods and Assumptions. Once the proposed action is clearly described, it is important to *describe methods and assumptions.* The assessor staff needs to *describe the relevant human community* spatially, temporally, socially, and ethnically. They need to identify the *resources available* for conducting the assessment, which include the time frame to produce an assessment, the number and types of people and other resources available to conduct the assessment, and the kind of data that can be collected. Clarity at this stage will determine what data are needed and when in the process they need to be collected.

The assessment should be designed to *account for impact inequities.* Most communities are socially and culturally heterogeneous along various dimensions of interest (such as income, ethnicity, etc.). Environmental justice concerns require that uneven socio-cultural distributions do not get translated into inequitable impacts from environmental decisions and decision-making processes. Social impact assessments are an effective means of anticipating and then tracking these types of impacts.

The assessor needs to identify the full range of probable impacts on the defined community by the identified action. The output from an SIA should *describe alternate futures*, including one resulting from no action. As noted earlier, this type of assessment

is essentially a comparative exercise: a "no action" future is a good way to evaluate the impact of an environmental decision. Having developed this set of assumptions about what needs to be assessed, the assessors are in a position to outline the type of data needed to conduct the assessment and the associated means of collecting that data. They can then realistically match resources to the problem and develop a data collection plan.

A well-constructed *data collection plan* will lead to a well-managed data collection effort. It is very important to set boundaries for the data collection effort that ensure that it is congruent with the defined problem statement, with available resources, and with analytic requirements. The data collection plan must be driven by a clear problem framework as described above, and follow accepted data collection processes in order to yield a credible assessment. The data collection plan will focus on only those data related to an impact. (A more detailed description relative to identifying probable impacts, indicators of those impacts, and data collection and analysis follows in the next sections.) *Data gaps* should be expected. Some data on human populations are not economically or socially (culturally) feasible to gather. These types of gaps must be accounted for as part of the data collection plan. Social impact assessment practitioners can make informed judgments about missing data, and will be able to help ensure that those gaps that do occur have as little impact as possible on the analysis.

Execute Scoping and Full Social Impact Assessment. After completing the planning step, the next step is the execution of a scoping SIA, which is analogous to a scoping ecological or human health risk assessment. The methodology is the same as that used for the full assessment. The difference lies in the amount of data collected and the depth to which the analysis is taken, and, therefore, the resources required to execute it. A scoping SIA could be completed in a month or two; a full assessment would take much longer. The scoping assessment may determine that the proposed action or intervention will have little or no social, cultural, or economic impact on the target community. In this case, EPA staff may decide that the investment required for a full assessment is not a prudent investment and terminate the process at this point. If a decision to proceed with the full assessment is made, then the results from the scoping assessment may influence the methods and assumptions of the full assessment.

Identifying Impacts and Indicators. After identifying and explicitly describing the proposed action or intervention, and clearly defining the target community (stages 1 and 2 above of the process), the assessor must identify the probable socio-cultural impacts on that community caused by the proposed intervention.

Social impacts involve changes in the way a community is organized. These might stem from changes in political or social structures, the emergence of new kinds of interest groups, or the development of new government entities to deal with Superfund site impacts.

Cultural impacts involve changes in valued behaviors as a result of the proposed action or intervention. For example, the Superfund-related activities may preclude cultural practices because the site where they have been historically practiced becomes off limits

to the population. Alternatively, any dispersion of ethnic communities caused by the closing of certain residential areas which pose an unacceptable risk to human health might mean that cultural festivals can no longer be held because people are no longer co-located.

Economic impacts are the easiest to measure, as they are the most easily quantified. They are manifested through changes in market value of property, in basic economic indicators like employment, or in the rise or fall of major industrial sectors within the community because of the proposed action or intervention.

Impacts of an intervention are not necessarily negative. They can be positive. Some examples that could be either positive or negative are: changes in population size (up, as the Superfund remediation activities attract new workers, or down, as the stigma of a Superfund site causes families to move from the community); changes in the ethnic mix of a population (more homogenous, as the attraction of new workers strengthens certain ethnic groups, or less, as environmental impacts on certain neighborhoods causes an exodus of families of certain ethnicities); changes in the community infrastructure (new interest groups rise and old ones disappear, new political and social structures come to the fore, and new government entities are created to deal with some of the issues raised by the proposed action). Table 1 lists many of the common types of probable impacts of concern and their associated indicators (means of measuring them).

Table 1: Social, Cultural and Economic Impacts and Associated Indicators

Indicators		IMPACT TYPE		
		Social	Cultural	Economic
Population impacts				
	Population change			
	Influx or outflux of temporary workers			
	Presence of seasonal (leisure) residents			
	Relocation of individuals and families			
	Dissimilarity in age, gender, racial or ethnic composition			
Community Infrastructure Needs				
	Change in community infrastructure			
	Land acquisition and disposal			
	Effects on known cultural, historical, sacred and archeological resources			
Community / Institutional Arrangements				
	Interest group activity			
	Alteration in size and structure of local government			
	Presence of planning and zoning activity			
	Industrial diversification			
	Enhanced economic inequities			

	Change in employment of minority groups			
	Change in occupational opportunities			
	Formation of attitudes toward the project			
Conflicts between residents and newcomers				
	Presence of an outside agency			
	Introduction of new social classes			
	Presence of weekend residents			
	Change in the commercial/industrial focus of the community			
Political and social structures				
	Changes in distribution of power and authority			
	Changes in mechanisms for exercise of power and authority			
Individual and family level impacts				
	Disruption in daily living and movement patterns			
	Alteration in family structure			
	Disruption in social networks			
	Change in leisure opportunities			
	Dissimilarity in religious practices			
	Perceptions of public health and safety			

Selecting Indicators to Measure Impacts

An important principle for conducting any type of assessment is to collect only the data that matters, starting with those indicators of impact that are most strongly affected by a proposed action and adding indicators as resources allow. There is almost always a wealth of data that can be collected about any given situation; however, an SIA does not target the total human environment, but only those areas affected by a proposed event or action. Given limits on time and resources and the need to collect data that will actually support an assessment, it is very important to choose not just the relevant impacts but also the indicators that will address those impacts.

Following are some guidelines for selecting relevant impacts and associated indicators.

- o *Select only those indicators that are affected by the proposed action.* For example, if the action will not affect the use of leisure activity facilities, collecting data on them is not important.
- o *Select only those indicators that will generate an impact.* For example, if the community is large enough to absorb temporary workers without any kind of change in infrastructure such as schools or traffic patterns, the influx of temporary workers does not represent a significant indicator in terms of the proposed action.
- o *Select only indicators that can be measured.* An indicator need not be quantifiable to be measurable—qualitative measurements such as good/bad or more/less are acceptable.

Participatory techniques, such as community meetings, focus groups, and interviews, are often the best way to begin to identify relevant socio-cultural indicators. Secondary sources such as census data and community profiles will help identify economic indicators.

These principles are illustrated in Figure 2.

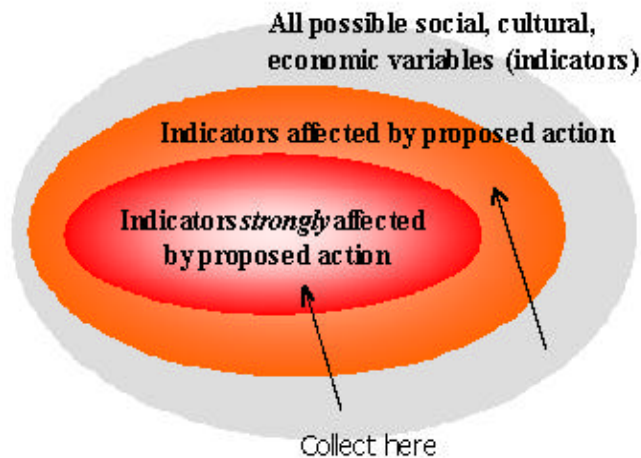


Figure 2: Data Collection Principles

Data Sources

Once the relevant impacts and associated indicators have been identified, a data collection plan needs to be developed. Data on indicators can and should be collected from a variety of sources. The nature of these sources will be defined partially by the type of data needed and partially by available resources. The SIA process will benefit from experts from the fields of history, economics, psychology or anthropology.

Local knowledge accessed through participatory techniques (interviews, focus groups, advisory groups, community forums, oral histories, surveys, participant observation, etc.) can provide substantial amounts of information on indicators as well as direction as to which indicators are important to the community. This is particularly relevant for social and cultural impacts and, to a lesser degree, to economic impacts. The community involvement plan developed under the CERCLA process may already be collecting this type of data and may support the needs of the SIA as well.

Secondary or archival sources, such as local histories, census data, and social and economic profiles, can provide a significant amount of quantitative data. This is particularly useful for the assessment of social and economic impacts.

Measuring Change in Indicators

Changes in indicators should be measured in a variety of ways. Strength of change can be measured along such dimensions as *duration*. For example, will people move out of the impacted area over the next month only, or over the course of a year, or five years? Will people move back? Intensity of change also can be measured as a function of *time*. Is the change more dramatic or intense initially, diminishing over time, or vice versa? Will most of the people move out of the neighborhood in the first three months, and then a diminishing number each month thereafter, or will such movement remain fairly constant over the course of a year? Intensity is also a function of *geography*. Can the change be associated with space and/or location? For example, are more people moving out of the northeast quadrant of an area than the northwest? To where are these people moving?

Intensity of impact should be mapped as a function of social heterogeneity measured by such socio-cultural indicators as ethnicity, race, or income. This addresses many of the environmental justice as well as cultural impacts of change. For example, are individuals in certain ethnic neighborhoods more likely to be affected by the proposed action? If so, is that because they have certain cultural practices that will be affected by the proposed action? Are more densely populated or lower income areas more likely to be affected?

When data are analyzed, a projection of various estimated impacts, including inequitable, indirect, and cumulative impacts, may then be made, including predictions about possible responses.

Part 2: WORKSHOP – Description of Current Practice

Social, Cultural, and Economic Impacts at Existing Superfund Sites

The literature review in Appendix 1: Detailed Literature Review provides a description of the more formal SIA methodology. Note that the definitions and process are still evolving. In order to understand the extent of EPA's current activities within this context, a workshop was held on November 6 and 7, 2002, that brought together 43 EPA professionals from across the country. Remedial project managers (RPMs), community involvement coordinators (CICs), risk assessors, and on-scene coordinators (OSCs) met in plenary session and in small groups to discuss their relevant experience. About half the participants completed surveys about their sites.

Several clear themes emerged from the workshop.

- o Participants were aware of and able to identify a range of the social, cultural, and economic impacts at Superfund remediation sites. Participants also identified a broad array of information already being collected that could readily be leveraged by an SIA.
- o There was general consensus on the importance of these impacts in the overall remediation process. However, the remediation process is complex and resource-intensive and has legal requirements to meet clearly defined health and ecological standards—requirements that may at times conflict with or preclude possible responses to socio-cultural impacts.

- o There is no clear requirement for, or guidance on, conducting an SIA, much less an understanding of how to integrate it with existing requirements. Given time and resource constraints, this affects the collection and use of this type of information, and means that socio-cultural impacts are dealt with differently at every site.

The results of this workshop made it clear that staff at most sites do work with affected communities to manage the socio-cultural impacts associated with the Superfund site decision-making and remediation process. Participants identified both how information is collected as well as specific impacts they have identified. However, information on these impacts is not collected consistently across sites, nor is its collection guided by any analytical context, since there is neither guidance nor an accepted framework for such activities.

Collection of Relevant Information

Although information on these types of impacts is collected at all points in the Superfund process, the Community Involvement Plan (CIP), is, in most cases, the primary place where this information is documented. Depending on the site, information may be collected well before the proposed listing on the National Priorities List (NPL), during the Remedial Investigation/Feasibility Study (RI/FS) process, well after the Record of Decision (ROD), or during the 5-Year Review. The Responsiveness Summary in the ROD may include extensive discussion of comments or concerns about impacts raised during public comment on the Proposed Plan.

Information on socio-cultural impacts is gathered both formally and informally in a very broad range of venues. EPA staff collect information through: community interviews; site visits/tours with the community; public meetings and records of public meetings; listening sessions; group discussions; meetings with local officials; businesses and non-profits; town hall council meetings; interactions with the media; phone calls; establishment of a storefront office; advisory committee meetings; analyses of census data; use of the internet; interactions with Centers for Disease Control (CDC) and local health departments; analyses of zip code data to identify sensitive areas; reviews of real estate data; interaction with experts, lenders, and appraisers; observation of living and use patterns; and EPA and local health department questionnaires.

In addition, community members actively contribute information through: direct one-on-one contact with EPA staff; Technical Assistance Grant (TAG) groups, Community Advisory Groups (CAGs), Redevelopment Groups, Restoration Advisory Boards (for federal facility sites), and public advisory committees; radio, TV, newspaper reporting; feedback after briefings; town hall meetings; and organizations such as the League of Women Voters.

Impacts at Federal Facility sites are usually discussed at public meetings, such as Department of Defense (DOD) Restoration Advisory Boards (RABs), and Department of Energy Site Specific Advisory Boards (SSABs). These are created and managed by the lead Federal agency, not EPA. In the case of Formerly Used Defense Sites (FUDs),

community members are rarely involved in the process, and DOD and Congress make determinations about Base Realignment and Closure (BRAC) sites.

Many impacts related to Tribes are ascertained through a Tribal cultural resource assessment, which is funded by a general assistance program (GAP) grant. Tribal concerns generally are specific to their cultural practices.

Impacts Identified by Participants

The NRC *Strategy* covers a broad range of issues, gleaned from research and one-on-one interviews at selected sites, and includes a list of example social, cultural and economic impacts from these sites. The impacts identified in the NRC *Strategy* include both direct and indirect human use effects as well as non-use or more passive values that are difficult to quantify but which relate to preservation of the environment for present and future generations.

Workshop participants discussed the impacts they experienced through their work. The resulting list is shown below in Table 2. These track well with those identified by the NRC. Note, also, the many similarities to the list of general impacts shown earlier in Table 1.

Table 2: Social Impacts Identified by Workshop Participants

Impact	Impact Type		
	Social	Cultural	Economic
Relocation of residents			
Loss of recreational use of body of water			
Loss of fishery			
Disruption in traffic flows due to dredging and transport			
Change in land use plan and ultimate land use			
Potential increased development			
Stigma on community due to NPL listing/Superfund activities			
Loss of neighborhood cohesiveness and integrity			
Fear of the unknown			
Noise, traffic, and dust impacts			
Increased community distrust of EPA			
Increased potential for vandalism			
Illegal dumping			
Feelings of helplessness			
Exposure to contamination due to cultural practices (subsistence fishing, raising free range chickens)			
Loss of historic site			
Impact on Tribal opportunities for economic development			
Impact on Tribal ceremonial, religious and medicinal practices			
Increased presence of non-tribal members on tribal lands			

Destruction of cultural resources			
Limitations on future uses for land			
Lower property values			
Difficulty selling property			
Refusal by lenders to finance residential developments			
Loss of tax base for schools			
Decline in tourist visits due to loss of recreational sites			
Concerns by PRP of negative image and its impacts			
Changes in business operating hours			

Socio-cultural Impacts and the Remediation Process

Understanding socio-cultural impacts can be a positive element in the Superfund site remediation process. However, such knowledge can also create issues for EPA staff that need to be addressed.

Understanding the Importance of Social, Cultural, and Economic Impacts

Understanding the socio-cultural impacts of an intervention enables staff to better understand citizens' behaviors and perspectives, to be more sensitive to the targeted community's possible (lack of) acceptance of certain actions, and to better understand what makes citizens distrustful of EPA. Such understanding makes EPA more accessible and approachable to local residents and officials. It can enable EPA to involve citizens in decision-making, help EPA make better decisions, and improve EPA's ability to implement these decisions.

Failure to address the social consequences of EPA processes and actions can produce a hostile public environment. It can result in antagonistic working relationships, reduce community cooperation, complicate negotiations in such areas as the cost of land transfers, and potentially result in the selection of a remedy perceived as not consistent with community needs. It can result in non-acceptance by Tribes, community distrust and resistance to proposed actions, and ultimately, a cleaned-up site that nobody wants to reuse. Failure to consider these impacts can produce bad press, increase political pressure on EPA staff, increase project costs, lawsuits, and class actions, and potentially lead to the need to amend a ROD.

EPA is aware that citizens who are involved in the site cleanup process have greater ownership of the process and a vision of a healthier environment. Greater cooperation, openness, and trust among stakeholders and improved communication/understanding of site issues between EPA and the community can result in a better understanding of what EPA can and cannot do. On the other hand, community involvement also can create a more politicized and controversial process involving increased public communication to EPA regional and headquarters leadership, and can potentially delay the entire process.

Overall, workshop participants felt that community responses to EPA's handling of Superfund sites are both positive and negative. The positive responses appear to depend on the amount of communication between the community and EPA, and the level of community involvement in the process. Negative responses are generally explained by EPA staff as due to their "not being able to satisfy everyone all of the time." This is often

a function of the wide variety of agendas present in any given community, stemming from the socio-cultural diversity of the population. In other cases, dissatisfaction arose from unmet expectations that were beyond EPA's control or intentions. For example, citizens may expect that clean-up activities will yield a pristine site—which often does not occur. Other sources of dissatisfaction were the frequent turnover of EPA staff (RPMs and CICs especially), influence of or perception that EPA was 'bought out' by potentially responsible parties (PRPs), general distrust of EPA as a government agency, the perception that EPA has a lot of money but is very slow to do anything, and the perception that EPA skews information in its favor. For these and many other reasons, some Tribes and citizens are wary of providing sensitive information to EPA for FOIA and privacy concerns, potentially impacting the data collection process and subsequent analysis.

Social Impacts and Decision Making

Workshop participants recognized that knowledge about the impacts of a given intervention or action can provide important input to the risk management process. But (and this was a large caveat) it was not clear to these professionals just how this information should or could affect final CERCLA-related decisions, given that there is no clear guidance on how to incorporate it into the decision-making process and (a related point) to balance this information with other, existing legal requirements.

Participants struggled with ways to balance concern for socio-cultural impacts with their legal responsibility to protect human health and the environment. The Superfund decision-making process is governed by the nine prioritizing criteria outlined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). These criteria are, *in order of application*:

threshold criteria:

- a) overall protection of human health and the environment,
- b) compliance with Applicable or Relevant and Appropriate Requirements (ARARs);

primary balancing criteria:

- c) long-term effectiveness and permanence,
- d) reduction of toxicity, mobility, or volume through treatment,
- e) short-term effectiveness,
- f) implementability,
- g) cost; and

modifying criteria:

- h) state acceptance, and
- i) community acceptance.

There was a concern among workshop attendees that the focused attention brought to social impacts by the performance of an SIA would create high expectations within the communities—expectations that EPA cannot meet for a variety of reasons. Participants cited: the priority that must be given to addressing human health and ecological concerns under current guidance; the diversity of impacts arising in any community because of the heterogeneity of the community and the sometimes conflicting approaches to addressing those impacts; the difficulty of working with both subjective or perceived impacts and

objective impacts; and the difficulty of dealing with both emotional and scientific issues in the same process. Furthermore, many community concerns that will surface during these types of processes are not within EPA's purview.

Participants did identify several different ways in which they had historically incorporated socio-cultural impact information into the risk management process. In some cases, knowledge about social impacts affected the definition of clean-up goals. In other cases, it affected the way the clean-up was conducted. Targeted clean-up levels and the pace of cleanup has been influenced in some cases by anticipated future land use considerations. Known or suspected impacts affected remedy selection in other cases, and resulted in improvement and modification of remedial design and actions that accommodated community concerns. In one case, an assessment of potential community impacts guided the choice between using a pipeline or trucks for removal of dredged material. Knowledge about community impacts has affected decisions about well abandonment and the definition of plume boundaries, as well as the issuance of fish advisories. Knowledge of the potential impact upon cultural uses of resources has guided decisions regarding surface soil removal and sediment cleanup.

Participants stressed that all impacts are considered in the risk management process, but not all influence decision-making to the same degree. Participants believed that EPA's first responsibility is to protect human health and the environment (see the NCP nine criteria above). In cases where probable socio-cultural impacts could not affect the remediation decisions and design because other legal requirements took precedence, workshop participants described a variety of actions they had taken to address community concerns in other ways. Many reported listening to, affirming, or explaining information, or dispelling false information, about the decision-making process and the impacts of the remediation decision. Others reported asking residents for alternative strategies. Others brought in experts to explain issues related to impacts (e.g., local tax commissioners to talk about the loss of the tax base for schools and possible alternative sources of revenue, or local officials to explain the general Superfund process and schedule, and the benefits of a municipal water hook-up). Most participants emphasized that they do their best to contact and facilitate coordination with other federal, state, and local agencies and organizations to help communities address concerns that are outside of EPA's legal mandate

Implementation of Social Impact Assessments

Workshop participants were asked to discuss what they would need in order to more consistently and rigorously integrate socio-cultural impacts into the assessment and intervention process. The resulting vigorous discussion identified a full list of specific suggestions, which are listed in Appendix 2: List of activities identified by Workshop Participants. The most important actions, as prioritized by the group, fell into four main areas:

- o need for clarification of socio-cultural impacts and how an SIA fits into the EPA mandate;
- o the need for clear management support for implementing SIA;
- o the need for clearer guidance on how to assess socio-cultural impacts; and

o the need for a tool box and associated training.

The need for better communication within EPA, between EPA and other agencies, and between EPA and the public ran through the entire discussion.

Clarify Socio-Cultural Impacts and the Role of a Social Impact Assessment in the Decision-making Process. There was a strongly expressed need for a better definition of socio-cultural impacts themselves, of SIA in general, and of the role of an SIA in the CERCLA decision-making process. How should impacts be measured and at what point do they become significant enough to be considered? At what point(s) in the process should an assessment be performed? How are the three risk assessments (ecological risk assessment, human health risk assessment, and socio-cultural impact assessment) integrated, and how are their impacts balanced against each other?

Provide Management Support for the Performance of Social Impact Assessments. Nearly every participant noted that management support is critical if the SIA process is to be accepted and implemented. EPA staff feel that their current workload already strains existing resources. Adding new kinds of data collection and analysis activities to their portfolio without additional resources would be very difficult. Resource needs included: more time to allow proper attention to be given to community concerns; more time and money to increase the number and length of site visits; more money to contract social, cultural and economic expertise (perhaps by partnering with local universities), translation services, and culturally knowledgeable sources; and more resources for training EPA staff in various parts of the SIA process. Participants suggested that such support could be pursued by speaking to Division Directors, holding focus forums, and through direct conversations with EPA management at all levels. Participants also would like to see better-coordinated efforts among federal, state, and local governments. Finally, there was a great deal of discussion about the length of time the full CERCLA process takes. Participants believed that extending the process time would be detrimental to both impacted communities and the environment, as well as to EPA.

Develop Clear Guidance and an Associated Toolbox. There was a good deal of discussion about the need to develop guidance and tools for assessing social impacts. Guidance would help staff determine the relationship of social impacts to the NPL's nine criteria and to manage necessary tradeoffs. Participants also asked for clear definitions of "social," "cultural," and "economic" impacts, and clarification of the charge to "consider" those impacts. Staff members cited the need for guidance on how to respond to legal constraints and the need for certainty that consideration of these impacts will not result in a lesser cleanup standard. Attendees asked that the Remedy Review Board include these impacts in its reviews if the SIA becomes a requirement. Some suggested that the Superfund Office partner with the Office of Environmental Justice to develop assessment practice and policy.

There was extensive discussion about the type of direction that should come from EPA Headquarters to support the assessment of socio-cultural impacts. There was a clear preference among attendees for direction that was not too prescriptive. Specifically, there

were three types of direction discussed: directives; guidance; and a toolbox. The following are participant perspectives on each of these:

- *Directives* are seen as prescribing expectations of what must be done on all occasions, and, in doing so, “politicize” the process. However, participants did feel that if a directive were not issued, there would be no investment in implementing SIAs.
- *Guidance*, if issued, must provide EPA staff the flexibility to select options that work best for the targeted community. The guidance could include a checklist of possible impacts to consider, as well as tools to use in an assessment. The checklist could be used as a screening tool early in the assessment process to determine the need for further study. Guidance on how to analyze and use the information as well as case studies of how other sites addressed identified impacts would be helpful. It was also suggested that the Hazard Ranking System, the ECO-Screening Tools, and the Environmental Indicators tools be used as models for assessing impacts.
- *A Toolbox* could include pointers to existing tools and explanatory materials. New tools and materials could be created as necessary.

Develop and Implement Training Activities. Participants expressed the need for more training to raise the general awareness of SIAs, definitions of impacts and how to perform SIAs. Participants were clear that although they are already collecting relevant socio-cultural impact information, they have not been trained in how to use it within an assessment framework that analyzes impacts and addresses related questions. Training could take the form of workshops or conferences designed around case studies of communities where socio-cultural impact assessments had been performed to give best and worst case examples.

Workshop Summary

This workshop, bringing together EPA staff from every EPA Region, made it clear that both the EPA and the NRC have stories to tell on both sides of many issues. Community involvement is uneven at CERCLA sites: some community involvement plans appear to be more actively engaged and followed than others. In most cases, it is clear that the output from the community involvement process is not formally incorporated into the CERCLA risk management decision process.

The workshop topics provoked dynamic discussion and debate among EPA participants. Responses to a written evaluation of the workshop indicated that participation in a diverse, cross-Agency, cross-Regional forum was very helpful to EPA staff. The majority of participants reported in their evaluations that the workshop increased their awareness and knowledge of the issues. Twenty-seven of the 32 respondents indicated they would recommend this workshop or a variation of it (training in new and/or existing tools, focus on case studies, and guidance on this topic) to their co-workers. And all but one respondent thought it would be a good idea to hold a workshop or other type of training in their Region. Nineteen respondents supported the idea of flexible, non-prescriptive guidance with case studies, 8 supported the reorganization and reemphasis of existing materials with a checklist, and 4 responded that nothing additional was needed.

Part 3: CONCLUSIONS AND RECOMMENDATIONS

The literature shows that there are existing and time-tested models for understanding the social, cultural, and economic impacts of an action such as that represented by the CERCLA process. The SIA has a respectable intellectual history, and has been used in environmental risk management decision-making by a variety of federal agencies. However, a formal, documented approach to the conduct of an SIA does not exist.

A workshop of EPA professionals responsible for conducting risk assessments and managing remediation activities at Superfund sites found that there are existing information collection processes, resources, and relationships that can be leveraged to collect information and implement an SIA at these sites. There also is interest among these professionals in addressing socio-cultural impacts more thoroughly if resource requirements are met and if they are given clear direction as to how to incorporate this new assessment process into the existing risk management process.

Finally, many of the government agency web sites that provide information to their own practitioners on environmental decision-making processes, such as SIAs, have pointers back to the EPA web site. EPA thus is in a position to take the lead in formalizing and promulgating the definition and structure for the SIA process.

If EPA decides to require greater consideration of socio-cultural impacts of decisions made at Superfund sites, there are several issues that EPA needs to address:

1. ***Develop a training program for management and staff for conducting social impact assessments***, including data collection and analysis.
2. ***Develop clear management support for the conduct of these assessments***, particularly since it would add a new requirement to an already complex process.
3. ***Ensure that required resources are available***, including tools, time, and expertise (much of the expertise required to conduct a formal social impact assessment is not currently found among EPA staff).
4. ***Formalize requirements for the assessment of socio-cultural impacts***, clearly defining how the conduct and results of these assessments integrate with the conduct and results of ecological and human health risk assessments. This could be done through a directive or through the issuance of guidance and the development of tools.

APPENDICES

Appendix 1: Detailed Literature Review

Appendix 2: List of activities identified by Workshop Participants