

Building Trust and Relationships in Cleanup Community Engagement, from Theory to Practice



Disclaimer

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Foreword

The U.S. Environmental Protection Agency (EPA) is charged by Congress with protecting the Nation's land, air, and water resources. Under a mandate of national environmental laws, the Agency strives to formulate and implement actions leading to a compatible balance between human activities and the ability of natural systems to support and nurture life. To meet this mandate, EPA's research program is providing data and technical support for solving environmental problems today and building a science knowledge base necessary to manage our ecological resources wisely, understand how pollutants affect our health, and prevent or reduce environmental risks in the future.

The Center for Environmental Solutions and Emergency Response (CESER) within the Office of Research and Development (ORD) conducts applied, stakeholder-driven research and provides responsive technical support to help solve the Nation's environmental challenges. The Center's research focuses on innovative approaches to address environmental challenges associated with the built environment. We develop technologies and decision-support tools to help safeguard public water systems and groundwater, guide sustainable materials management, remediate sites from traditional contamination sources and emerging environmental stressors, and address potential threats from terrorism and natural disasters. CESER collaborates with both public and private sector partners to foster technologies that improve the effectiveness and reduce the cost of compliance, while anticipating emerging problems. We provide technical support to EPA regions and programs, states, tribal nations, and federal partners, and serve as the interagency liaison for EPA in homeland security research and technology. The Center is a leader in providing scientific solutions to protect human health and the environment.

Remediation, removal, and redevelopment at contaminated, or potentially contaminated sites, often involves engaging with diverse communities. Social science theories provide a deep understanding of how community engagement intersects with trust and relationship building. Meanwhile, insights from cleanup practitioners show how these concepts operate on the ground. This report connects the theory and practice of community engagement, providing a nuanced understanding of the social interactions inherent to cleanups. The objective is to highlight the community engagement work that is already taking place, while situating these practices within a broader social framework. The discussion may be informative for a variety of audiences, such as federal and state agencies, contractors, and applied environmental social scientists.

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Abbreviations

CAG	community advisory group
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
CESER	Center for Environmental Solutions and Emergency Response
CI	community involvement
CIC	community involvement coordinator
EJ	environmental justice
EJSCREEN	Environmental Justice Screening and Mapping Tool
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
LUST	leaking underground storage tank
NEJAC	National Environmental Justice Advisory Council
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OLEM	Office of Land and Emergency Management
OSC	on-scene coordinator
OSWER	Office of Solid Waste and Emergency Response
PCB	polychlorinated biphenyl
PRP	potentially responsible party
QC	quality control
RCRA	Resource Conservation and Recovery Act
RPM	remedial project manager
SALT	Strategy, Action, Learning, Tools
TSCA	Toxic Substances Control Act
UST	underground storage tank

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Executive Summary

This report provides an evidence basis for why and how to undertake community engagement during contaminated site remediation, removals, and redevelopment. It explains the science behind community engagement, trust, and building relationships and shares insights from research with personnel from the U.S. Environmental Protection Agency (EPA). By weaving together social science theory with data on engagement practices in different cultural and environmental contexts, it highlights the interconnections among community engagement, trust, and relationships throughout the course of a cleanup. The report demonstrates the importance of community engagement, trust, and relationships to cleanup processes and outcomes, especially when trying to advance justice, equity, and empowerment. Key findings are:

Cleanup practitioners all undertake engagement, trust, and relationships. The form, type, and degree depend on their role, contaminated site situation, community context, and cleanup stage.

Community Engagement

- If done well, community engagement benefits both cleanup processes and outcomes.
- Staff undertaking community engagement require significant time commitments and support.
- Dimensions include: emotional connections, knowledge, behavior, and empowerment.
- It is important to pay attention to power asymmetries, whose knowledge counts, emotions, cross-cultural communication, using the right method at the right time and place, and self-reflection.
- EPA staff use creative approaches to outreach, listening, networking, capacity building, and empowerment that correspond with the social scientific literature.

Building Trust

- Trust is an essential part of environmental cleanups.
- Trust among the different parties waxes and wanes over the course of a cleanup.
- Cleanup work involves multiple, interconnected dimensions of trust: in the management process; in the cleanup outcome; and in the agency representative or person.
- Building trust is time intensive; trust is fragile and if lost, can be difficult to regain.
- Practices for building trust can be categorized into: showing up, communication, listening, learning, sharing, and respect.
- EPA staff use several ways of gauging how they have built trust.

Building Relationships

- Fostering relationships in cleanup work contributes to trust building and community engagement.
- EPA staff actively cultivate relationships with many social actors during environmental cleanups.
- Building relationships leads to short and long-term benefits for cleanup work.
- Obstacles include limited time/resources and overcoming preconceived ideas about others.

This report is intended for use by federal, state, local, and tribal practitioners working in Superfund, brownfields, emergency response, and other cleanup situations. In connecting theory with practice, it has several potential applications: a justification for investing in engagement, a framework for trainings or tabletop exercises, or a resource to prepare a community involvement plan. Since engagement, trust, and relationship building need to be tailored to the contaminated site, community, and cleanup stage at hand, these findings are not meant to be used as strict guidelines or best practices but are a superstructure that users can customize to their own situation.

1 Introduction

In this section you will learn about:

- The purpose and objective of this report
- The main takeaways
- The audience for this report and how readers might use it

Community engagement is central to environmental management projects to restore land and revitalize communities. The objective of this report is to support practitioners who are involved in contaminated site cleanup to effectively integrate evidence-based community engagement practices into cleanup efforts. It explains the science behind engagement and shares insights from social science research with personnel from the U.S. Environmental Protection Agency (EPA). The intended audience includes cleanup practitioners and managers at federal, state, local, and tribal environmental agencies, contractors, and applied environmental social scientists.

Community engagement has many more dimensions than can be covered here. The scope of this report is limited to two interrelated components: building trust and building relationships. It analyzes the social scientific foundation of community engagement as part of environmental remediation, removal actions, and redevelopment of contaminated sites (e.g., Superfund, brownfields, emergency response). It synthesizes existing practices and strategies gathered through interviews and surveys with EPA personnel, guidance from EPA and other agencies, and the scientific literature.

This report builds on previous research on how to get to know communities near contaminated sites to carry out culturally informed cleanups (Maxwell and Kiessling, 2021). It complements existing resources such as the Superfund Community Involvement Handbook and Toolkit by providing a social science foundation for engaging with communities, building trust, and building relationships in cleanup work (EPA, 2019a, 2020). The report showcases practices used at EPA, connects them with theory, and details how they differ across cleanup stages and situations. The analysis shows that engagement, building trust, and relationships are interrelated and affect cleanup processes and outcomes. The report highlights the theories and practice associated with each and discusses their interconnections.

Main report takeaways

1. Community engagement, building trust, and building relationships are central to environmental cleanup processes and outcomes. It takes time, effort, resources, skills, and commitment to do engagement well.
2. Cleanup practitioners all undertake building trust and relationships. The form, type, and degree depend on the cleanup situation, timing, and local social context.
3. Social science provides insights into why and how to undertake community engagement and trust and relationship building.
4. Social, cultural, institutional, and power dynamics affect how community engagement plays out on the ground, so it is important to understand these contexts.
5. EPA cleanup practitioners use a number of strategies in different cleanup types, stages, and cultural contexts. They often go “above and beyond” community involvement requirements, employing strategies that correspond with techniques from the literature.

For each theme discussed in this report—community engagement, relationship building, and trust—the following are highlighted 1) insights from social science theory, 2) insights from EPA practitioners, and

3) applied takeaways. Tables 1 and 2 provide examples of how readers might use this report and where to find specific topics, respectively. Readers can jump to sections that might be most relevant to them.

Table 1. Potential Applications of This Report

<i>Who Could Use It</i>	<i>For What</i>
<i>On-scene coordinators (OSCs) and remedial project managers (RPMs)</i>	Learning which techniques to use at which stage of a project
<i>Resource Conservation and Recovery Act (RCRA) managers</i>	Prepare risk communication that fosters trust
<i>Brownfield managers</i>	Tailor technical assistance to community needs
<i>Community involvement coordinators (CICs)</i>	Justify the importance and resource needs of this work
<i>Environmental social scientists</i>	Explore how theories connect to on the ground practices
<i>State environmental agencies</i>	Manage relationships between affected groups and responders
<i>EPA branch chiefs</i>	Identify relevant trainings for staff

Table 2. Getting Started Guide

<i>I want to...</i>	<i>Read Section</i>
Identify what policies govern community engagement and involvement	2.2
Learn what community engagement is and what it entails	4.1.1
Understand how community engagement benefits cleanup work	4.1.2
Be aware of the challenges in doing community engagement work	4.1.3
Learn how different contexts might require different types of engagement	4.2.3
Learn about the different dimensions of trust	5.1
See examples of how EPA practitioners build trust	5.2.1
Learn about techniques for building relationships in cleanup work	6.2

2 Background

In this section you will learn about:

- How key terms are defined based on the literature
- The policy framework underpinning community involvement and engagement in cleanups

2.1 Key definitions

This research project uses the term *environmental cleanups* as encompassing site assessment or characterization, remediation or removal actions, and redevelopment or reuse of a variety of types of contaminated sites, including Superfund, brownfields, underground storage tank (UST) sites, Resource Conservation and Recovery Act (RCRA) corrective action sites, and emergency response. It uses the term *cleanup practitioners* to refer to professionals who carry out cleanup work. At EPA, this includes staff who work in remediation, removal, and redevelopment projects, e.g., on-scene coordinators (OSCs) for time-critical or non-time critical removals; site assessors or remedial project managers (RPMs) for Superfund sites; RCRA corrective action, UST/leaking underground storage tank (LUST), Toxic Substances Control Act (TSCA) or polychlorinated biphenyls (PCB) site managers; brownfield managers; as well as community involvement coordinators (CICs) or public affairs specialists. While CICs are often responsible for carrying out formal community involvement, *all of these practitioners* undertake community engagement as part of their work. This report defines a few key terms in the box on the next page; additional terms are defined in the glossary (Appendix 10.1).

Community engagement is “the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people” (McCloskey et al., 2011).

Community involvement is “the process of engaging with communities affected by Superfund sites” (EPA, 2020).

Building relationships is the process of creating positive social and affective connections between individuals and/or groups of people.

Building trust is the process of fostering confidence in a person’s reliability, honesty, and/or ability, and/or confidence in an organization’s management processes and outcomes, within a given situation.

In environmental management, *community engagement* is when a government agency, firm, or other organization establishes relationships and trust with public constituencies to solve an environmental problem. Public constituencies could include formal officials, informal leaders, everyday residents, and interest groups. Relationships range from shallow to deep, and public participation in problem solving ranges from tangential to central. EPA uses the term *community involvement* to refer to engagement in remediation and removal projects authorized under the Comprehensive Emergency Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Community involvement requires the development of a site-specific community involvement plan, based upon a community profile that includes community interviews, and details outreach, engagement, and decision-making for that site (EPA, 2020). Throughout this report, the broader term of community engagement is used because it covers a range of cleanup situations.

2.2 Policy framework and guidance

EPA’s use of community engagement and involvement in removal, remediation, and redevelopment has expanded over time (Charnley and Engelbert, 2005; Zaragoza, 2019). Both CERCLA and the NCP specify requirements for community involvement to which EPA must adhere. For example, a community involvement plan should be prepared for remedial actions and for removals lasting 120 days or more, or with a planning period of at least six months in which an engineering evaluation/cost analysis must be completed (EPA, 2021b). In 2001, a memo from the acting director of the Office of Solid Waste and Emergency Response (OSWER, now the Office of Land and Emergency Management (OLEM)) reinforced the importance of “early and meaningful community involvement” in Superfund decision-making (EPA, 2001a). In 2003, EPA published a Public Involvement Policy that covers decision-making across the Agency, including environmental cleanups. The policy states that the Agency should “continue to provide for meaningful public involvement in all its programs, and consistently look for new ways to enhance public input” (EPA, 2003c). A corresponding framework for implementing the policy lists seven steps for effective public involvement (EPA, 2003a). The 2019 Superfund Task Force Final Report iterated the Agency’s commitment to “engaging partners and stakeholders” in restoring land and revitalizing communities (EPA, 2019d). The report includes a partnership and stakeholder engagement strategy to help meet this commitment (EPA, 2019b).

The EPA Community Involvement Handbook provides legal and practical rationales for community involvement and extensive guidance on how to prepare community profiles, conduct community interviews, and create a community involvement plan (EPA, 2020). Community involvement in brownfield remediation projects is not mandated in the same way as with Superfund National Priority List sites. The EPA brownfield program’s emphasis on redevelopment and the fact that many brownfield projects are initiated locally means there is engagement and participation at many levels.

Executive Orders (E.O.) 12898, 13985, and 14008 on equity, environmental justice (EJ), and climate change provide additional impetus for community engagement and empowerment as part of cleanup work (The White House, 1994, 2021a, 2021b). EPA is obliged to “deliver environmental justice;” advance “equity, civil rights, racial justice, and equal opportunity;” and engage with “members of underserved communities” (The White House, 2021a). OLEM’s 2021 draft EJ Action Plan sets “improving community engagement” as a goal for advancing EJ in land revitalization and environmental cleanups (EPA, 2021a). Low-income, tribal, and communities of color in the United States long have highlighted environmental injustices in disproportionate impacts from contaminated sites and the need for fair treatment and meaningful involvement in cleanups (Allen, 2003; Checker, 2007; Hoover, 2017). EJ has four dimensions: distributional, procedural, recognition, and capabilities (see Appendix 10.1) (Eisenhauer et al., 2021; Schlosberg, 2007). Conducting cleanups in a way that addresses all four dimensions of EJ requires special attention to community engagement and empowerment.

3 Research methods and quality assurance

In this section you will learn about:

- What data was collected for this report and how data quality objectives were met
- Whose expertise is represented in the data

This report is based upon four years of mixed-methods social science research grounded in anthropology. It began with a multidisciplinary literature review on the social science of environmental cleanups (Maxwell et al., 2018). Data quality objectives were to ensure that data sources met EPA quality standards, the review was comprehensive, and information was accurately extracted from the articles. Objectives were achieved by having researchers cross-check inclusion ratings, random quality control (QC) checks, triangulating information from multiple sources, and periodically assessing data saturation (Maxwell et al., 2018). Data saturation is the point at which no new insights are gained from collecting more data. The literature found by the review addressed cleanup worker health, public engagement and decision-making, and societal benefits of cleanups (Maxwell et al., 2018).

The research team interviewed 25 cleanup practitioners at EPA to compare on-the-ground experiences with the literature (Kiessling et al., 2021). The sample consisted of OSCs, RPMs, CICs, and brownfield managers with a wide range of experiences in cleanup work. Data quality objectives were to ensure that questions generated productive dialogue, transcripts accurately captured the conversation, and coding was consistently applied to transcripts. Coding is a qualitative analysis technique where data are labelled thematically. Objectives were achieved by creating and pilot testing interview protocols and informed consent, QC checks on transcripts, periodically assessing data saturation, and coming to agreement on coding within the team. Interview results revealed three layers of sedimented social histories that interact to affect cleanup processes and outcomes: local and regional social contexts, institutional power and authority, and social actor relationships and networks (Kiessling et al., 2021).

Following the interviews, the research team conducted a survey of nearly 400 EPA employees on engagement, trust, and relationship building in cleanup work. The survey reached a deeper and wider sample of EPA personnel who work in Superfund, removals, RCRA corrective action sites, underground storage tanks, emergency response, brownfield redevelopment, and federal facilities. Data quality objectives were to ensure that sampling and recruitment reached the population of interest, the survey instrument captured data as intended, survey data were recorded accurately, and the dataset maintained integrity throughout the analysis. Objectives were achieved by following the sampling frame, pilot

testing the questionnaire and informed consent, technical testing of the survey instrument, undertaking extensive recruitment and outreach, using eligibility questions, reviewing daily data reports, conducting random QC checks, and establishing protocols for outliers and other data concerns.

The final piece of data is an examination of EPA resources and guidance on community involvement and public participation (Appendix 10.2). The research team reviewed materials produced by the Superfund Program, Community Involvement University, Office of Water, and former National Center for Environmental Innovation (EPA, 2002, 2003b, 2020). Materials were identified using snowball sampling, beginning with the Superfund Community Involvement website (EPA, 2022). Materials from other agencies were also examined (e.g. McCloskey et al., 2011).

4 Community engagement in cleanups

In this section you will learn about:

- How social scientists describe the dimensions of community engagement
- The benefits and challenges of community engagement in cleanup work
- How EPA practitioners carry out community engagement in different cleanup types and stages

4.1 Theory about engagement

This section presents theories and evidence from the literature on what community engagement is, potential benefits to cleanups, and challenges that arise. Next, it integrates evidence from the literature, EPA materials, and interview and survey data on engagement practices, providing examples of creative outreach, listening, capacity building, networking, and empowerment. It discusses the importance of putting in the time, then turns to how engagement strategies differ along cleanup timelines and in varied social and environmental contexts. Throughout, it incorporates interview quotations to highlight important points of alignment or divergence between the literature and research findings of this project.

4.1.1 What is community engagement

A considerable amount of social science literature is devoted to unpacking the complex dimensions of community engagement. Researchers have shown that it has cognitive, affective, and behavioral aspects—that is, how people think, feel, and act all contribute to how engagement plays out. Community engagement entails *affective commitment*, or an emotional attachment from feeling valued or belonging; *positive affectivity*, which is the generation of positive emotions such as excitement or enthusiasm; and *empowerment* of the people involved (MacNamara, 2019). Effective engagement supports decision-making, but community engagement can also take place outside of a decision context. Likewise, it is related to but not synonymous with public participation in environmental management and decision-making (Reed, 2008).

Community engagement is conceptualized as a *process* of creating and sustaining relationships and bi-directional communication, a *strategy* for soliciting local perspectives on critical issues, a means of working *collaboratively* to solve problems, a route to community *empowerment* in decision-making, and an *interpersonal* connection (Cox et al., 2019; MacNamara, 2019; Taylor and Kent, 2014). It is not a set suite of activities, rather needs to be adaptive over time and tailored to place (Cox et al., 2019; Taylor and Kent, 2014)—something practitioners grapple with moving from one cleanup to another. How context affects community engagement and how practitioners adapt to these contexts is a theme explored throughout this report.

Community engagement is categorized into levels of increasingly intensive types of interaction and extensive outcomes. The National Park Service distinguishes between *shallow* and *deep* engagement in its outreach programming (NPS, 2011). Williamson (2022) utilizes a six-step community engagement scale in environmental research: outreach, consult, involve, collaborate, shared leadership, and community-led. Bowen et al. (2010) organize it into three categories in the business world: *transactional*, where a firm simply donates time or resources to a local cause; *transitional*, which has more two-way communication and interactions; and *transformative*, which requires authentic dialogue and critical reflection. The principal difference between transitional and transformative community engagement is *trust* (Bowen et al., 2010).

Delving into the social theory of community engagement provides insights into why practices work as they do and inspiration for overcoming challenges. For example, if local residents are dissatisfied or mistrustful, shifting from *shallow* to *deep* engagement might help. Deeper engagement could entail appealing to core values and beliefs, committing more time to being on site, and other trust building actions.

4.1.2 Benefits to cleanups

Researchers have found that community engagement is beneficial to environmental cleanups in several ways. Here, these benefits are grouped into two main categories, instrumental and normative (Figure 1). *Instrumental* benefits are where agency or local social actors accomplish objectives they have for progressing through cleanup *processes* or achieving desired cleanup *outcomes*. *Normative* benefits are where community engagement helps *advance higher-order values* such as equity, justice, and participation (Beckett and Keeling, 2019; Dearing, 2019; Lehigh et al., 2020; Metcalf et al., 2015). Potential benefits of community engagement can span both categories (normative and instrumental), and come to fruition in the short term (e.g., complete a record of decision) and/or long term (e.g., foster relationships with state environmental and health agencies).

Instrumental	Process effects
<ul style="list-style-type: none"> • <u>Agency</u>: help them get to a decision; inform solution; educate the public; enable progress; secure buy-in and support; reduce conflicts; meet statutory requirements; come to consensus; lead to creative solutions • <u>Local</u>: help them get to a decision; incorporate their values, concerns, and knowledge into decisions; become informed; build capacity; provide input into decisions 	
Instrumental	Outcome effects
<ul style="list-style-type: none"> • <u>Short term</u>: Achieve better environmental, social, and health outcomes of cleanups • <u>Long term</u>: Repair and/or nurture relationships, trust 	
Normative	Achieve higher order values
<ul style="list-style-type: none"> • Equity, environmental justice, sustainability • Participatory decision-making • Include multiple forms of knowledge 	

Figure 1. How community engagement benefits cleanup work.

Instrumental benefits for agencies include securing public buy-in, enabling progress, making a decision, coming to agreement about acceptable solutions, making better decisions, saving costs, increasing public confidence in decisions, and meeting statutory requirements for community involvement (Cundy et al., 2013; EPA, 2001b, 2020; Foley et al., 2017; Jawed and Krantzberg, 2019; Petrie, 2006; Zaragoza, 2019). It can help agencies avoid delays, litigation, and other problems that arise when decisions do not have adequate public involvement (EPA, 2000, 2003c). Affected communities and populations might also see instrumental benefits in the form of education, capacity building, and building relationships (EPA, 2020; Krantzberg and Rich, 2018). It can help them influence agency decisions and figure out their own vision for revitalization (Apitz et al., 2018; Ellerbusch et al., 2006; Metcalf et al., 2015). Community engagement is associated with more innovative solutions and improved environmental and health outcomes (Daley, 2007; Petrie, 2006). It helps address psychosocial stressors often connected to chronic exposure to contamination (Couch and Coles, 2011). Reductions in such stress can contribute to reductions in health risks such as depression, anxiety, and even cardiovascular disease (Calloway et al., 2020). Community engagement can help cleanups incorporate local concerns, leading to more positive societal outcomes and fewer unintended consequences (Apitz et al., 2018; Cruz, 2019; EPA, 1998b, 2020; Folk, 1991; NEJAC Waste and Facility Siting Committee, 1996).

The issue of *whose knowledge counts* refers to how well remediation decisions are inclusive of different ways of knowing, types of evidence, conceptualizations of risk, and lived experience (Allen, 2007; Brown et al., 2020; Capek, 1993; Clapp et al., 2016; Frickel, 2012). Incorporating multiple forms of knowledge in decision-making provides instrumental benefits by being able to use critical pieces of information about site history, and ecological, social, and health conditions (Burger et al., 2005; Carr and Halvorsen, 2001). It also advances normative benefits regarding equity and environmental justice, as cleanup practitioners acknowledge histories of racist environmental practices and work with communities to find equitable solutions.

Interviewees saw community engagement as largely positive and connected it with having a successful cleanup overall (see box on right). The social scientific literature also asserts that remediation requires the repair and rebuilding of social relationships, along with remediation of toxicity and redevelopment of contaminated sites (Beckett and Keeling, 2019; Tsosie, 2015). Another benefit interviewees stated was that engagement helped them build long term relationships, which to them was an end in and of itself.

Benefits of Community Engagement, from interviewees

“[Without it], you may have gotten work done, but there’s still all the frustration, anger, and discontent that will just make it seem like the project may have been a failure.”

It “pays dividends.”

“I feel [that public input is] 60 percent of how to get a project successful... even if they’re not happy, as long as they feel like they’re involved, and they *are* involved, things move smoothly.”

While community engagement provides many positive impacts on cleanup process and outcomes, it also involves tradeoffs. It can extend the time needed between site characterization/assessment and completion of remedial or removal actions (Cruz, 2019; Daley and Layton, 2004; Folk, 1991; Little, 2009; Petrie, 2006). It takes time to do things such as organize meetings and make decisions involving multiple constituents (Foley et al., 2017; Jawed and Krantzberg, 2019). Interviewees acknowledged that community engagement does slow specific decisions, but felt that overall, it enables progress. It creates opportunities for community members to be a part of the process, lessening resistance and increasing support for a project. Practitioners also reported that community engagement helped identify creative solutions and reach compromises.

4.1.3 Challenges in doing it well

Doing community engagement well is challenging and requires significant time, effort, and commitment (see section 4.2.2). What ‘community engagement’ is and who ‘the community’ is mean different things to different people (Cruz, 2019; Little, 2009). This report groups challenges based on whether the contributing factor originates with the government agency, community, their interactions, or externally (Figure 2). Such grouping is not about assigning blame, but about showing how the social dynamics of community engagement are embedded within an institutional, cultural, psychological, and political milieu.



Figure 2. Social and institutional challenges to implementing community engagement.

Government agencies face internal obstacles to implementing community engagement such as limitations on *resources, time, funding, staff, and expertise* (Chess and Purcell, 1999; McCaffrey, 2018; McCloskey et al., 2011; NPS, 2011). Additionally, *staff turnover* is an impediment to building relationships and trust (Ramirez-Andreotta et al., 2014; Stern and Coleman, 2015; Walker and East, 2014). Other limiting factors are *management and leadership support* (Jawed and Krantzberg, 2019;

McCaffrey, 2018; NPS, 2011). If managers and supervisors do not think community engagement is a priority, staff might not receive resources to carry it out effectively. Agency knowledge of local cultures is important yet can be difficult to achieve (Maxwell and Kiessling, 2021; NPS, 2011). An *organizational culture* oriented towards taking action,

“[Organizational culture] doesn’t always provide the bandwidth to really listen to communities.” (Interviewee)

not time to listen, can also be a challenge (see box on left). This research indicates that proactive community engagement is better able to build relationships and trust over time. Community engagement can be reactive rather than proactive, though, simply due to capacity constraints.

At the **community** level, a significant challenge is who is included or excluded, which is especially problematic if exclusion reproduces socioeconomic inequities and power asymmetries (Miller, 2016). One obstacle can be the sheer number of individuals and organizations. Research on the Portland Harbor Superfund site found over 280 separate interest groups (Apitz et al., 2018). Local social actors exhibit complex, at times conflicting perspectives on remediation (Cooper and Wardropper, 2021).

Timing of inclusion is also a factor. In two studies, local social actors who felt they were not brought on early enough did not support later cleanup decisions (Jawed and Krantzberg, 2019; Metcalf et al., 2015). Beginning early leaves time to identify and reach out to social networks, community-based organizations, environmental advocates, and other social and cultural groups, minimizing unintentional exclusion (Chess and Purcell, 1999; Cundy et al., 2013; EPA, 2001b; Metcalf et al., 2015). Perko et al. (2019) recommend providing compensation for participation to equal the playing field.

Participation differs among neighborhoods, population groups, and cleanup stages (Cruz, 2019; Miller, 2016; Perko et al., 2019). *Uneven participation* results from a combination of irregular outreach; local awareness of/ interest in the site; fragmented or competing interests, values, and priorities; trust in institutions; capacity and access to resources; relationships with the potentially responsible party (PRP); and structural barriers to participation (e.g., job hours, childcare needs, trauma, historic marginalization, language) (Charnley and Engelbert, 2005; Kim, 2017; Miller, 2016; Stephan, 2005). During long projects, local participation waxes and wanes due to *issue fatigue*; whether they felt that previous input was heeded or not; demographic shifts; emergent organizations; sustained outreach efforts; and changes in local values, opinions, trust, expectations, and capacity (Cox et al., 2019; Danielson et al., 2008; EPA, 2001b; Lehigh et al., 2020; Miller, 2016; Perko et al., 2019; Reed et al., 2009). Higher levels and duration of engagement are found when there is a stable community partner, a common understanding of the issue consensus on a vision for redevelopment or reuse, and willingness to collaborate among all parties (Ellerbusch et al., 2006; Foley et al., 2017; Zaragoza, 2019).

External factors affecting engagement are also at play, as the literature and interviews indicate (Cox et al., 2019; Danielson et al., 2008; National Research Council, 2008). *Media* coverage and *political interest* affect the course of engagement. If multiple state and federal agencies are involved, community members are not always clear on who has authority for which parts of the project. They lose trust when one agency's messages contradict another. The COVID-19 *pandemic* has affected social interactions around the nation and has meant changing guidelines, technologies, and capacity for CE.

Some challenges emerge from the forms and types of **interactions** between communities and agencies. Public meetings are required in community involvement, for example, but are not always conducive to exchanging dialogue, developing consensus, or building trust (Carr and Halvorsen, 2001; Chess and Purcell, 1999; EPA, 2019a; Jenkins et al., 2012; Rowe and Frewer, 2000). If a public meeting agenda focuses on technical content, locals might not see a space for them to raise non-technical concerns; when agency-invited experts sit on a dais and expound on scientific details to an audience seated below, locals might feel condescended to by agencies (Chess and Purcell, 1999; Kaminstein, 1996).

These problems reflect the underlying challenges of **whose knowledge counts** and **power asymmetries**. Community engagement in cleanups often centers on technical decisions (e.g., cleanup action levels,

remedy options). It approaches risk in a narrow sense (e.g., possible exposure routes for a specific chemical), rather than a holistic discussion of health, well-being, community aspirations, and the environment. The language or discourse used is grounded in risk assessment, science, and engineering (e.g., quantitative modeling, fate and transport). As such, power asymmetries emerge in terms of whose knowledge counts (Allen, 2007; Brown et al., 2020; Capek, 1993; Clapp et al., 2016; Frickel, 2012). Scientific expert assessments of risk are characterized as rational, objective, and authoritative, while local experiences with risk and perspectives on comparative risk are characterized as subjective and based on misconceptions (Fiorino, 1989; Freudenburg, 1988; McCaffrey, 2018). Power asymmetries thus arise, not just with respect to who has the authority to make decisions about site assessment or remedy selection; but also in terms of who frames the terms of engagement, what topics are on the table, and what are appropriate ways of talking about these topics (Fiorino, 1989; Foley et al., 2017; Kaminstein, 1996; Lehigh et al., 2020; McCaffrey, 2018; Till and Meyer, 2001). Power asymmetries between agencies and communities, among agencies, and within a community will never go away completely, and need specific attention to mitigate.

Community engagement also places an *emotional burden* on cleanup practitioners (see box on right). Practitioners might get yelled at in public meetings. In emergency response and time-critical removals, OSCs mandate evacuation from homes or order decontamination and disposal of a family's personal belongings, which is emotionally charged for all involved. Emotional labor, or managing one's own and others' emotions in the workplace (Wharton, 2009), is part of the intensive effort of cleanup work.

“You’re gonna hear about everything that they’ve been upset with the federal government about for their lives... that’s really hard, because we are there for just a portion of it.”
(Interviewee)

Another challenge is that there can be *cross-cultural communication mismatches* in community engagement interactions. Local knowledge of place and ways of knowing about the environment and health are not always legible to agency scientists or redevelopment planners. In contrast, when scientists and project managers stick to purely technical scripts, community members feel patronized and view agency personnel as uncaring (Capek, 1993; Kaminstein, 1996; Lehigh et al., 2020; Walker and East, 2014). Designing engagement in a way that addresses cultural differences can lead to bridging any disconnects, what the team refers to as *culturally informed cleanups* (Maxwell and Kiessling, 2021).

Because effective community engagement is so context specific, it is difficult to generalize best practices across the board (Cruz, 2019). This difficulty is seen when agencies deploy what can be an effective community engagement method, but at the *wrong time or place*. Kaminstein (1996) describes one public meeting where the hosting agency cultivated an atmosphere that was welcoming, calm, empathetic, and reasonable. However, this approach backfired entirely. “The officials’ use of friendliness and positive reinforcement was perceived by the residents as a form of mockery” (Kaminstein, 1996: 461). In another contentious remediation project, relationships with a majority African American neighborhood were at a low when the agency installed a new site manager, also African American. This move did not appease locals, who felt it was “a ploy to control them by ‘one of our own’” and, adding insult to injury, a sign that the site manager would have “very little independent power” (Capek, 1993: 15). The next section builds upon these findings and highlights community engagement in practice. It discusses creative examples of community engagement, the importance of putting in the time, and how EPA practitioners deal with applying community engagement at the right time and place.

4.2 Engagement in practice

The following three sections integrate lessons learned from practitioners along with the literature. While not exhaustive, it provides examples of how practitioners carry out community engagement. These examples highlight the immense variety of community engagement strategies. These sections also discuss the amount of time that community engagement often takes, and how practitioners adapt to different community contexts.

4.2.1 Creative examples of doing it well

Doing community engagement well entails a combination of culturally appropriate and creative outreach, listening, capacity building, networking, and empowerment in decision-making. The social scientific literature, EPA materials, and interviewees offer suggestions (see large box on the following page) (EPA, 1996b, 1998b, 2001b, 2013, 2020, 2021b; Waste Programs Sub-workgroup for Community Engagement, 2017). As examples of *creative outreach*, in one project, high schoolers performed a ‘pump and mix dance’ (Foley et al., 2017). Another included elementary school and high school students in designing a playground and practice field for a brownfields redevelopment (Gute and Taylor, 2006).

Creative community engagement techniques from literature, interviews, surveys

Creative outreach, what: media (press conference, radio show, TV), exhibits (booth, bulletin board), mailings (letters, neighborhood association newsletter or listserv, insert in water bill, door hangers, mailbox flyers), documents (pamphlet, flyer, brochure, fact sheet), community-based social marketing, the arts (artwork, poetry, songs, dance, theater), public or town hall meetings, marketplace booths, poster sessions, signage and ads (on-site, billboards, bus ads)

Creative outreach, where: grocery store, library, community center, fairs or special events, schools, neighborhood association, religious centers, public meetings/town halls, online (social media, project website, email listservs), phone (hotline, 1-800#, reverse 911), YMCA, beauty salon, Rotary club, fire department, high schools, in person (door-to-door, give presentations to local association meetings, meetings hosted in local homes), on site (tour, open house, drop-in sessions, technology exploration)

Creative listening: door-to-door, formal consultations (e.g., community advisory groups (CAGs)), focus groups or interviews, design charrettes, suggestion boxes, information booths, neighborhood meetings, visioning session, survey cards, quick polls using mobile phones or web conferencing, neutral facilitator

Creative capacity building: peer-to-peer education, technical assistance grants, training workshops, bidirectional learning, compensation, train local ambassadors

Creative networking: tap into existing social networks, host community dinners, partner with universities or schools, hold targeted stakeholder meetings, bridging organizations

Creative empowerment in decision-making: advisory board or CAG, people’s technical panel, multi-stakeholder collaboration, consensus conference, referenda vote, public hearing

Equally important to outreach is *creative listening* as part of bidirectional communication and dialogue (EPA, 2020; MacNamara, 2019; Taylor and Kent, 2014; Walker and East, 2014). EPA practitioners also assert that listening is essential to building trust, defusing conflict, and creating consensus on solutions. It helps ensure that multiple forms of knowledge and ways of assessing risk count are used. In order to reduce power asymmetries and ensure that everyone can share their voice, *creative capacity building* for community members and organizations is vital (EPA, 1996b, 2001b; Lehigh et al., 2020; McCloskey et al., 2011). For example, providing technical support to communities through grants or university

partnerships allows them to conduct their own sampling or analysis and learn about scientific understandings of contamination and risk (Daley, 2007; Ellerbusch et al., 2006). Undertaking **creative networking** can expand inclusion and participation of local constituencies (McCloskey et al., 2011; Walker and East, 2014). Suggestions include working with bridging or boundary organizations, formal and informal community leaders, and culture brokers (FEMA, 2019; Maxwell and Kiessling, 2021).

Creative empowerment can help amend agency-local power asymmetries (Clapp et al., 2016; Foley et al., 2017; Perko et al., 2019; Rowe and Frewer, 2000). Indeed, in social theory, empowerment is part of the essence of community engagement. Community advisory groups (CAGs) or other advisory boards are a regularly used means of doing so. Interviewees stated that CAGs can help build trust, demonstrate that an agency is listening, provide locals with a voice, and smooth the path for later decisions (see box on right). They play a role in building trust and are associated with improved cleanup processes and outcomes (Clapp et al., 2016; Daley, 2007; Danielson et al., 2008; EPA, 1996a, 1996b, 1998a). It should be noted, though, that a local advisory board is not a panacea. In one case, it increased information flows between the agency and the board but not with the broader community (Laurian, 2005). CAGs need to be constructed and managed carefully to not be plagued by their own inclusion problems and power asymmetries.

When there is a CAG: “Two years down the road, when you have to come up with a remedy that they might not totally agree with, they feel it because they’ve been a part of that. They may not agree with it, but they understand how you got there.” (Interviewee)

4.2.2 Putting in the time

Community engagement is a long-term commitment throughout the cleanup process (Chess and Purcell, 1999; Cundy et al., 2013; Ellerbusch et al., 2006; Metcalf et al., 2015). It takes time, training, and resources to carry out multiple forms of engagement through distinct communication channels for different constituents (see box on right). As several of the interviewees stated, “early and often” is key to success. This means that practitioners should start community engagement in the site assessment or characterization stage and should continue frequently throughout the lifetime of a cleanup. Interviewees also explained that communities appreciated when EPA staff took the time to become a visible member of the community, attending local events. As discussed later in this report, this often involves going above and beyond the expected duties and responsibilities of a cleanup practitioner. Consequently, limited resources, time availability of cleanup practitioners, and staff turnover can impact the success of a cleanup.

“Something we kept hearing over and over and over again... that the engagement [from federal agencies] was just too high level, and it wasn’t grassroots enough. They just didn’t want to see us on TV giving an interview. They wanted to see us at town halls, they wanted to see us come to their churches, they wanted to see us come to their Rotary club meetings, go to the YMCA ... beauty salons. We were just driving our cars, [to] go to these locations, hand out materials, talk to residents, and get feedback from them.” (Interviewee)

4.2.3 EPA practices across cleanup types and stages

The social science literature points to the need for community engagement that adapts to social, cultural, political, and environmental contexts. Few studies document trends in engagement strategies, particularly in different cleanup situations. Not all outreach and engagement methods are appropriate depending on cleanup type, stage, and cultural context. Knocking on doors, as interviewees told the team, is a great inroad to building trust in some locations; in others, having a government representative knock on the door is seen as intimidating and intrusive. What types of cleanups and community settings

do practitioners actually face? What community engagement strategies are used, and when? What factors determine the strategies that practitioners use? This section answers these questions.

“It was really hard to get people to talk to us in some of the homes. They might be renters, they’re not owners. They don’t know if they have the right to ask, to let us come in and sample. It took a lot of persistence, a lot of just going back over and over again.” (Interviewee)

The team’s research highlights key contexts that affect engagement. Interviewees reported that working with renters versus homeowners requires a different approach (see box on left). They explained that renters might be hesitant or resistant to engagement attempts because of uncertainty over permission for property access. Another related aspect is the level of interest and knowledge about a site amongst the community. Are people interested in the site, and are they

worried about impacts? Is the problem visible? These factors affect whether people are eager to engage or more apathetic. Interviewees explained for example, that if community members are worried about the health of their families, they are more likely to ask questions, and be receptive to engagement.

The team’s survey data also provides unique insights into the type of cleanup sites, which can be used to derive some conclusions regarding community engagement. EPA practitioners work on a wide variety of cleanup sites, with nearly half working on former industrial facilities (45%) (Figure 3 next page). EPA practitioners also work in a mix of different communities, with almost an even split between urban (38%), suburban (29 %), and rural (26%) (Figure 4). A smaller, yet still significant, percentage of practitioners have experience working with tribes (7%). This diversity in cleanup contexts demonstrates why practitioners need to adjust community engagement approaches, as no two cleanups are alike. Specifically, the interviewees stressed the impact that working with indigenous or tribal communities can have on engagement. Interviewees explained that such engagement required different background knowledge and usually incorporated some language translation. Indigenous communities often have experienced long histories of environmental contamination, coupled with distrust of government/outside entities. Some might be okay with their concerns being categorized as environmental justice; others might not. Interviewees described how these factors sometimes made engagement challenging. A community’s history with certain types of industries can also impact engagement. For example, if the contamination is related to an economically important business in the area, people could have a different tolerance or perception of the risks associated with contamination. They might have priorities, such as keeping their job, that could complicate their feelings related to the cleanup.

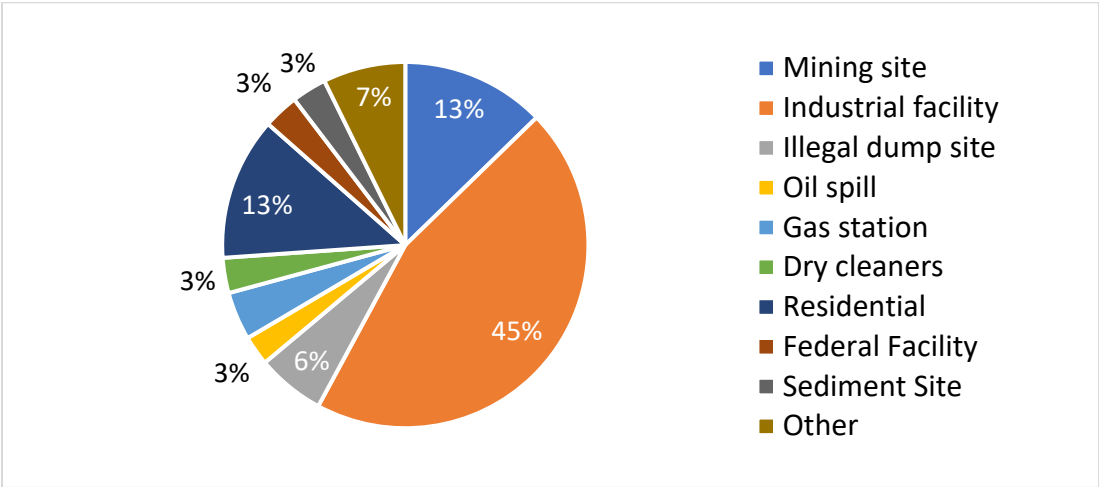


Figure 3. Contaminated sites where EPA cleanup practitioners commonly work, weighted.

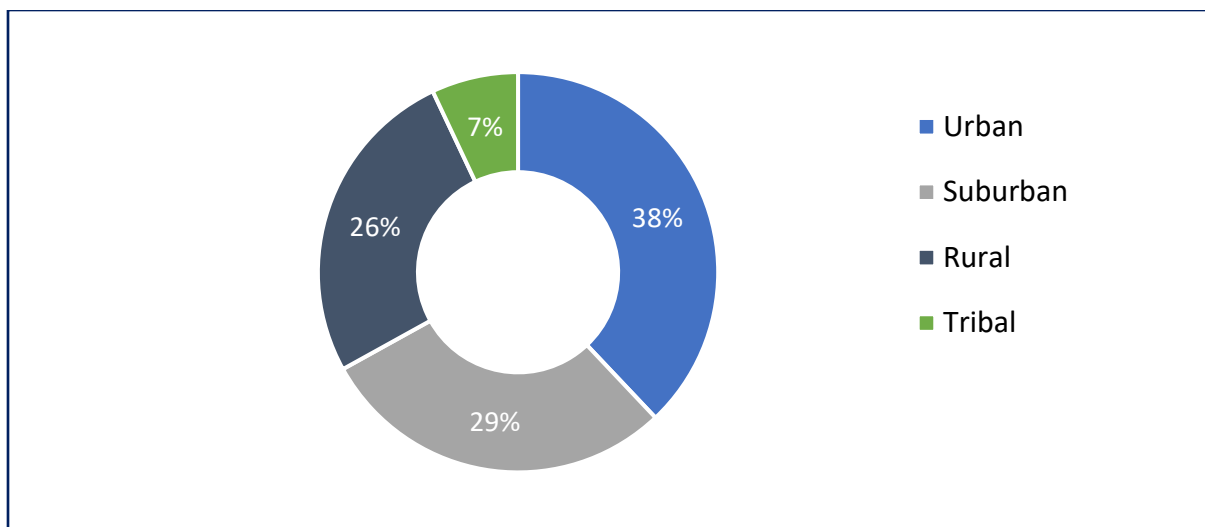


Figure 4. Types of communities where EPA cleanup practitioners work on sites, weighted.

Additionally, the survey data shows that as practitioners work through different cleanup stages, their approaches to community engagement change (Table 3). Some strategies are more common in the beginning of a cleanup (evaluating contamination) versus the end (redeveloping the site). For example, the second most common community engagement strategy in the beginning of a cleanup is door-to-door visits (18.7%), yet in the final stage of cleanup, the strategy of door-to-door visits is only used by 5.1% of practitioners. However, the data also shows that certain strategies remain highly utilized throughout the cleanup process, no matter the stage. Public meetings and fact sheets are two common strategies that are highly utilized from cleanup beginning to end.

Table 3. Engagement Strategies Used by Cleanup Stage, Column Percentage, Weighted

Strategy	Cleanup Stage, Column Percentage, Weighted				
	Evaluating contamination at the site	Deciding on cleanup actions	Doing the cleanup	Completing the cleanup	Redeveloping the site
Door-to-door visits	18.7	5.9	13.6	7.4	5.1
Social media (e.g., Facebook, Twitter)	2.3	3.1	5.8	6.7	7.0
EPA websites	11.6	10.8	13.9	19.9	12.5
Fact sheets or flyers	18.3	19.7	23.2	23.0	15.5
Phone calls or text messages	7.0	3.0	7.0	3.9	2.0
Community advisory groups	10.8	16.9	9.6	9.6	14.2
Public meetings or town hall meetings	21.7	33.5	20.1	21.2	25.1
Other	4.4	3.8	3.8	3.3	4.2
N/A – This cleanup stage is not relevant to my work	5.2	3.3	2.9	5.2	14.4
Total	100	100	100	100	100

Note: N/A = not applicable. Respondents could choose up to two strategies per stage. Some respondents chose more than two strategies per stage (e.g., by selecting “Other” and providing an open-ended text response).

These results, highlighting the nuances of community engagement during cleanups, demonstrate that the type of strategy matters depending on the temporal context. The data suggests that not every strategy is effective, or perhaps appropriate, in every stage of cleanup. Practitioners assess the situation and the needs of the community before they decide the engagement approach. While public meetings might be the cornerstone of engagement because they are a mandated requirement for many cleanups, the data show that other non-mandated strategies are important as well (e.g., door-to-door visits, CAGs, and phone calls). This means that practitioners are often going “above and beyond” requirements for community involvement, pointing again to the time commitment discussed in the previous section.

4.3 Practical takeaways

1. Government agency, community, interactive, and external factors affect how and why community engagement plays out as it does in each cleanup.
2. Agencies need to be attentive to power asymmetries, whose knowledge counts, emotions, cross-cultural communication mismatches, and using the right method at the right time and place.
3. Practitioners should draw on creative approaches to outreach, listening, capacity building, networking, and empowerment. Approaches differ depending on the site, community, and cleanup stage.
4. Community engagement requires significant time commitments. Proactive works better than reactive.
5. Key elements of successful community engagement are to cultivate stable community partners, a common understanding of the issue, consensus on a vision for the future, and willingness to collaborate.

Table 4. Meeting Challenges in Engagement

<i>Community Engagement Challenges</i>	<i>Actions for Effective Community Engagement</i>
<i>Resource limitations</i>	Maintain continuity of site knowledge and relationships if staff turnover.
	Create a stakeholder map. Cultivate relationships with leaders of historically under-represented constituencies.
	Learn about and address local priorities and values.
	Find a trusted community partner.
<i>Uneven participation</i>	Address structural barriers to participation (e.g., childcare).
	Include local knowledge and address cumulative risks.
	Do not treat local risk perceptions as lesser than agency approaches.
<i>Whose knowledge counts</i>	Have a strong, neutral facilitator run town hall meetings.
	Encourage staff to use Employee Assistance Program resources.
<i>Emotional burden</i>	Seek feedback from culture brokers on materials before sharing.
	Self-reflect on cultural assumptions being made.
<i>Cross-cultural mismatches</i>	

5 Building trust

In this section you will learn about:

- What social science says about institutional and interpersonal trust
- How practitioners build trust during cleanups
- Social factors that negatively affect trust
- How to know when you have built trust

This section begins by explaining the underlying social science of trust between communities and agencies, breaking it down into trust in the institution, the person, and the management process or

outcome. It then turns to practice, presenting evidence from the literature and research findings on strategies EPA cleanup personnel use to build trust. It addresses factors that can break trust and techniques EPA personnel use to gauge when trust is achieved.

5.1 Theory of trust

Cleanup practitioners and researchers alike identify trust as a central component to community engagement and, indeed, to cleanup progress and outcomes as a whole (Bowen et al., 2010; Danielson et al., 2008; EPA, 2001b; Foley et al., 2017; Little, 2009; Metcalf et al., 2015). But what is trust, exactly? In the social sciences literature, it is conceptualized as “a psychological state in which one actor (the trustor) accepts some form of vulnerability based upon positive expectations of the intentions or behavior of another (the trustee), despite inherent uncertainties” (Stern and Coleman, 2015: 118-19). Trusting is not simply a rational act based on objective facts; it involves emotions and observations that get interpreted through the trustor’s mental models (Gray et al., 2012).

Scientists have identified multiple dimensions of trust in government agencies (Davenport et al., 2007; Mabon and Kawabe, 2018; Smith et al., 2013; Stern and Coleman, 2015). Social scientists distinguish between *institutional* trust in the management *process* and/or in management *outcomes*, along with *interpersonal* trust in individual representatives of an agency. Trust varies, depending on trustor’s *dispositional*, or baseline levels of trustingness, their perceptions of the trustee’s moral and technical *competence*, expectations of management outcomes, and a combination of emotions, values, identity, and beliefs. Trust in scientists involves similar factors, i.e., trustor perceptions about scientists’ competence, benevolence or warmth, integrity or honesty, and openness or willingness to listen (Besley et al., 2020). These interpersonal and institutional dimensions of trust all come into play in cleanup work (Figure 5).

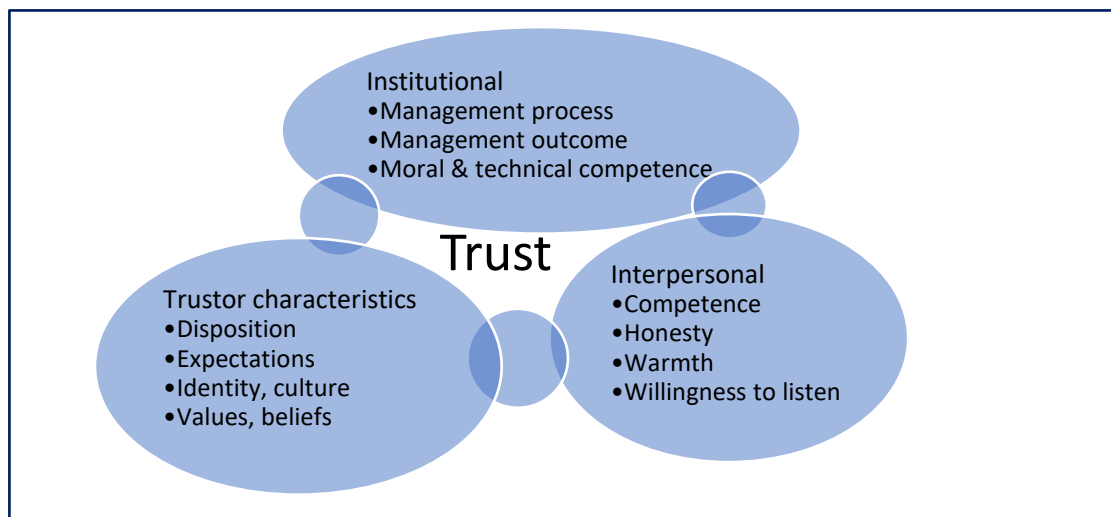


Figure 5. Components of trust in cleanup work.

Interestingly, an increase in trust does not necessarily lead to an increase in public participation. Smith et al. (2013) find that those who trust most easily are *less* likely to become involved with natural resource management, possibly because these people trust agencies to carry out the actions they say they will do. In another study, public interest in a contaminated site *declined* over time: as EPA built up trust with the public, the public felt less need to be involved (Danielson et al., 2008).

Building trust during environmental cleanups requires action on several fronts as relationships among different parties, spatial scale of the contaminated site, institutional level (e.g., federal, state), scientific

uncertainty, and timing all come into play (Danielson et al., 2008; Gray et al., 2012; Mabon and Kawabe, 2018; Metcalf et al., 2015; Prior and Rai, 2017; Stern and Coleman, 2015). EPA practitioners highlight the need to build trust within and among several different parties (e.g., community-agency, intra-community, agency-PRP, inter-agency, PRP-community). Brownfields redevelopment is supported by fostering trust among community members, not just community-agency (Ellerbusch et al., 2006). Danielson et al. (2008) observe a *chain of trust* connecting EPA to a CAG to the broader community; this chain was built up and broken down throughout the course of the remediation.

Social factors that support trust building include identifying and articulating *shared values and culture* (Danielson et al., 2008; Davenport et al., 2007; Gray et al., 2012; Prior et al., 2014). Techniques for identifying salient values can be borrowed from the social sciences (Appendix 10.3). Doing so is not easy, though, if there are dozens or more involved parties, each of whom has multiple values that could be internally inconsistent or inchoate (Gray et al., 2012). The next section unpacks the difficult process of building trust and details the approaches practitioners use.

5.2 Building trust in practice

This section focuses on real-world examples of how practitioners build trust with communities. Readers might notice reoccurring trends between this and previous sections. This highlights the overlap between trust building and community engagement, how each relies upon or builds upon the other. Because it can be difficult to know when trust has been achieved, the discussion also covers how trust might be broken and the signs of successful trust building.

5.2.1 Processes for building trust

This report groups techniques for building trust into six elements: showing up, communicating, listening, learning, sharing, and respecting (Figure 6) (Burger et al., 2005; Christopher et al., 2008; Danielson et al., 2008; Ellerbusch et al., 2006; EPA, 2001b; Foley et al., 2017; Kaminstein, 1996; Mabon and Kawabe, 2018; Metcalf et al., 2015; Perko et al., 2019; Till and Meyer, 2001).

Showing up	<ul style="list-style-type: none"> • Immerse yourself in the community • Be on site frequently
Communicating	<ul style="list-style-type: none"> • Use plain language • Open and transparent
Listening	<ul style="list-style-type: none"> • Listen to people's ideas and goals • Show that you care
Learning	<ul style="list-style-type: none"> • Get to know them • Learn how people react
Sharing	<ul style="list-style-type: none"> • Share a drink or a meal • Identify a common experience
Respecting	<ul style="list-style-type: none"> • Respect perspectives & knowledge • Be inclusive & honest

Figure 6. Elements of trust building.

Some techniques that practitioners use are specific to environmental cleanups. Interviewees and survey respondents recommended using technical assistance grants to provide neutral science support to communities, for example. They spoke about the importance of clearly explaining how an agency's mission area and responsibilities affect the actions they can take in cleanups. They underscored the importance of being honest about environmental sampling results and risk assessment. Supporting community advisory groups (CAGs) was also suggested as a technique for fostering relationships, and in turn, building trust.

The survey and interview evidence aligns with the literature in terms of how trust building actions cluster into six elements (see box below). Part of respect for practitioners is always being honest and following through when you promise to do something such as report back on sampling findings. Although most participants did not articulate trust building in terms of emotions, the way they did express themselves backs up literature findings that trust building occurs through *affective* processes. Cleanup practitioners don't just build trust by sharing accurate information, they build trust by showing that they *care* (see box above right).

"First, you have to show you care." (EPA practitioner)

Strategies for building trust in cleanups, from interviews and surveys

Showing up:

"Just showing up, just being there and then being available and being consistent builds trust."

"The fact that we were out there, and they saw us, and they knew they could call us if there was a problem, that made a big difference."

Communicating:

"You might not have all those answers at a public meeting. Letting a person know: okay, I can get back to you. Give me your name and number."

"Checking in: so what questions do you have? Does that make sense?"

Listening:

"Being open to listening to people, listening to their concerns."

"Listening... that's the biggest thing."

Learning:

"Sitting down with people, looking at them in the eyes and saying: all right, let's understand what the problem is."

"One thing in particular is never walking into a room thinking that I know everything."

Sharing:

"I was sitting here with these tribal members, and they were giving me their traditional foods."

Respecting:

"You speak to people straight, face to face, and be honest with them."

"I try to treat people as I would be treated if I was in their circumstance."

Table 5 lists the trust building strategies deemed most effective by survey respondents. Top strategies were: follow up on responding to questions from community members (20.6%), have one-on-one or small group meetings (19.6%), and partner with trusted local leaders (15.5%). Successful trust building requires community engagement, and vice-versa.

Table 5. Most Effective Strategies for Building Trust with the Community During Cleanups, Weighted

Strategy	Percentage, Weighted
One-on-one or small group meetings with community members	19.6%
Follow up on and respond to questions from community members	20.6%
Partner with trusted local leaders	15.5%
Public participation in decision-making	12.2%
Be on-site as much as possible	11.1%
Participate in community events	3.8%
Discuss the science behind cleanups with community members	5.9%
Discuss the role EPA plays in cleanups	7.3%
Translate materials into different languages	3.0%
Other	1.0%

Note: Most of the “other” responses were iterations of the listed strategies.

Trust building strategies varied by cleanup role (Table 6). OSCs and CICs prefer one-on-one or small group meetings; brownfields managers rely more on partnerships and participatory processes. More than any other cleanup role, OSCs noted that being on-site as much as possible helps them to build trust.

Table 6. Trust Building Strategies Employed by Cleanup Role, Weighted

Cleanup Role	Strategy (Frequency, Weighted)									
	1	2	3	4	5	6	7	8	9	10
	One-on-one or small group meetings	Following up on and responding to questions	Partnering with trusted local leaders	Public participation in decision-making	Being on-site as much as possible	Participating in community events	Discussing the science behind cleanups	Discussing the role EPA plays in cleanups	Translating materials into different languages	Other
On-scene Coordinator	68.1	53.5	41.0	13.3	65.7	4.1	11.5	22.5	12.1	7.0
Community Involvement Coordinator	79.4	51.0	44.3	52.0	21.5	8.9	15.6	8.9	12.8	5.0
Site Assessor	41.9	80.6	58.1	38.7	19.4	0.0	41.9	19.4	0.0	0.0
Remedial Project Manager	57.3	68.6	43.7	39.4	29.7	14.2	15.9	19.6	6.0	9.0
RCRA Corrective Action Manager	37.8	69.8	51.8	37.8	12.3	8.5	38.7	32.1	5.7	3.0
Brownfields Manager	48.4	41.4	62.0	62.1	13.8	20.7	3.4	27.6	10.3	3.0
Management	57.7	62.9	41.6	45.8	20.1	7.2	19.7	14.9	7.3	9.0
Other (Specify)	48.2	51.8	52.3	33.2	21.5	19.3	28.5	28.0	17.2	0.0

Note: Respondents could choose three responses; thus, rows and columns will not add to 100 percent.

Practitioners talked extensively about building trust through *place-based interactions*, suggesting that location matters. Rather than solely relying on community members to come to a meeting, EPA

“One of the benefits we reaped by going door to door was, we were able to form these relationships with folks in the community who were really respected, and we were able to start employing them as ambassadors.” (Interviewee)

practitioners go to where people already gather (see box on left). They go to hardware stores, barber shops, and restaurants. They visit parks, community centers, and other public gathering spaces. They attend city council meetings and local festivals. Many of these interactions are informal, which reduces the pressure that community members and practitioners both can feel in more formal venues such as a town hall meeting.

Building trust takes time (see box on right) and depends on *timing*. It is easier to establish trust when interactions begin early in the process and remain consistent and frequent throughout. Meeting one-on-one with community members, being on-site, translating materials, attending local events, and the other trust building strategies listed in Table 5 are *time intensive*. Practitioners describe trust building as a *phased process*, involving multiple steps that build upon one another, gradually connecting with more people over time. This research shows that trust building is a weighty part of a practitioner’s duties and suggests that limits to staff resources--especially time--impact how much trust building can take place and how effective it is. Timing is especially crucial when working with tribes. Interviewees explained how *tribal histories* of trauma and broken government promises created mistrust. This legacy is not easy to overcome. It takes large investments of time and care on the part of EPA staff working with indigenous peoples and tribal governments.

“Building of trust [at a Superfund site] took a decade and required great sacrifices of time, resources and power by all actors.” (Danielson et al., 2008: 58)

“It’s [trust] not something you just get, you gotta earn it.” (Interviewee)

“It took a LOT of work, years and years, to build trust in [tribal] communities, so they would believe that we’re going to take the actions that we’re promising.” (Interviewee)

5.2.2 Factors that negatively affect trust

Building trust does not take place in a social vacuum. Factors that negatively affect trust in cleanup *processes* are: negative experience with an agency, mistrust in science or government, limited engagement, change in community composition, unclear communication, competing messages, delay in promised action, weak facilitation, staff turnover, lack of transparency in agency decisions, and power asymmetries (Capek, 1993; Clapp et al., 2016; EPA, 1996b; Foley et al., 2017; Metcalf et al., 2015). Practitioners encounter individuals or entire communities who *mistrust* “the government” or science, or *distrust* EPA as a “regulatory agency” (see box on right). Factors that negatively affect trust in cleanup *outcomes* are: competing values, conflicting messages, slow progress, perceived closeness of agency to PRP or CAG to agency, changing stories, inter-agency conflicts, and not giving straight answers to questions (Capek, 1993; Danielson et al., 2008; Kaminstein, 1996; Metcalf et al., 2015). Interviewees also mentioned that they have walked into cleanup situations where changing narratives and conflicting messages had eroded trust.

“[The community says], ‘We don’t want government anywhere near us. We would rather have these mountainous piles of asbestos in our backyards than have you here.’ I’ve gone there a number of times. We’ve held meetings, we’ve met with town officials... the answer hasn’t changed in 10 years.” (Interviewee)

Factors that negatively affect *interpersonal* trust in cleanup practitioners are: staff turnover, disconnects between statements and behaviors, unfamiliarity with an agency, limited information sharing, scientific jargon, perceived lack of technical competence, and delays between collecting data and sharing results (Capek, 1993; Danielson et al., 2008; Kaminstein, 1996; Mabon and Kawabe, 2018; Metcalf et al., 2015). In one Superfund cleanup, a resident wryly pointed out the discrepancy between agencies insisting the site was safe, yet contractors came out to do sampling dressed in “moon suits” (Capek, 1993: 15). *Information sharing* in a way that builds trust is more than getting the facts right; it depends on the quantity of information shared, in a timely way, at the right level of technical detail—too high and too low are both problematic for community members (Capek, 1993; Foley et al., 2017; Folk, 1991; Kaminstein, 1996). Having so many factors affect trust in the process, outcome, and person, means that must employ a variety of strategies to build trust. EPA practitioners recognize that trust is fragile and can easily be broken (see box on right). Once broken, it is difficult to regain.

“Because trust was broken, the science didn’t matter.” (Interviewee)
 “People really didn’t trust the narrative that the government was telling them. It didn’t matter if it was the city, the state, or the federal government because the story had changed so many times.” (Interviewee)

5.2.3 How do you know when you’ve built trust?

A novel finding from the team’s research is how practitioners perceive successful trust building. EPA practitioners gauge that they have successfully built trust when they have open and transparent communication with locals (20.4%), receive feedback from locals (19.8%), and get few complaints or questions (10.2%) (Table 7). Interestingly, “community participation” and “lack of community interest” are both signs of trust. This apparent dichotomy can be explained by how increases in locals’ trust in the *outcome* can actually lead to decreases in public interest, as people come to trust that a cleanup remedy will help resolve environmental and health problems; conversely, increases in community member trust in the *process* can lead to increased engagement, because people feel as though the mechanisms for including their opinions really do work.

Table 7. Top Ways Practitioners Gauge Trust with Community Members, Unweighted

How you can tell you’ve built trust	Percentage, Unweighted
Open/transparent communication	20.4%
Feedback from locals	19.8%
Few complaints/questions	10.2%
Community participation	9.3%
Community's questions are answered	5.6%
Access permission/assistance from locals	4.2%
Shift in tone	4.0%
Lack of community interest	3.6%
Respect	2.9%
Contact about different projects	2.7%
Embraced by community	2.7%
Community believes what you tell them	2.0%
Lack of negative media coverage	2.0%
Development of local relationships	1.6%

Interviewees mentioned that a sign of having built trust is when community members ask them for help with issues beyond a single site. Interview and survey results show that building trust involves a two-way process, an engagement, talking with community members and responding to their needs. This suggests that trust building relies upon strong relationships between agency practitioners and community members (see Section 6).

5.3 Practical takeaways

1. Trust among multiple parties (agency, community, PRP, CAG) is essential to cleanups.
2. Three dimensions of trust are included in cleanup work: in the process, the outcome, and the person.
3. Practices for building trust can be categorized as: showing up, communicating, listening, learning, sharing, and respecting.
4. Trust building is time intensive.
5. Trust waxes and wanes over the course of a cleanup.
6. Practitioners can look for signs of how well they've built trust in the process, outcome, and person.

Table 8. Actions for Building Trust

<i>When You Encounter</i>	Actions to Build Trust
<i>General mistrust</i>	Acknowledge past traumas and show you care.
	Take steps to build interpersonal trust.
	Hold listening sessions and address concerns that raised.
<i>Unclear messaging/competing information</i>	Get feedback on how your messages are landing from culture brokers (e.g., what is too much or too little scientific jargon).
	Coordinate with other agencies on communications.
<i>Distrust in your agency</i>	Be transparent about where your data is coming from and what your decisions are based upon.
	Acknowledge uncertainty & knowledge gaps. It's okay to say, "I don't know, but I will try to get that answer for you," as long as you follow through.
<i>Unfamiliarity with an agency</i>	Make yourself visible in the community.
	Explain your agency's mission, responsibilities, and limitations.

6 Building relationships in cleanup work

In this section you will learn about:

- How relationship building benefits cleanups
- Practices for building relationships
- Obstacles to building relationships

This section discusses the theory and practice of building relationships with community members, local government, state or federal agencies, business, and other organizations. It uses research findings to help construct theory about how building relationships affects cleanup processes and outcomes. It teases out specifics of how practices overlap with building trust and carrying out engagement.

6.1 Building theory about building relationships

The literature on community engagement in environmental work describes it as "relationships among partners" and a "process of building relationships" (MacNamara, 2019; McCloskey et al., 2011; Waste Programs Sub-workgroup for Community Engagement, 2017). It says less about how to go about building relationships in cleanups, and with whom. The team's research investigates practices for building relationships with social actors inside and outside the community, including representatives of

business, government agencies, and organizations (e.g., non-profit, contractor, county health department, state environmental agency, PRP). As such, it contributes to theory building on this topic. EPA practitioners associated building relationships with benefits for the cleanup process and outcomes (Table 9). The top reason cited was that it facilitates greater trust (21.9%), demonstrating the intrinsic connection between relationships and trust. Other reasons included how it benefits the cleanup process by keeping it on budget and on schedule (11%) and preventing problems (4.4%).

Table 9. Top Ten Reported Benefits of Building Relationships, Unweighted

Relationship-Building Benefits	Percentage, Unweighted
Facilitates greater community trust/support	21.9
Keeps budget/schedule on target	11.0
Essential for success	10.0
Facilitates a collaborative effort	8.5
Incorporates community needs/perspectives	6.0
Provides local information	5.4
Facilitates spread of information	5.2
Helps prevent problems	4.4
Opens communication	3.8
Eases access issues	3.3

Interviewees described interactions with other organizations in interpersonal terms that express the importance of relationships (e.g., sister agency, our state partners, my counterparts, our contractors, my guys). They also explained how building relationships benefits cleanups (see box below). One way is by putting a *face to the agency* to create interpersonal and, subsequently, institutional trust. On a practical level, EPA personnel need to *make connections with other experts*, topical specialists who can address local concerns outside of the Agency’s purview and expertise (e.g., property values, health, preserving trees during yard remediation). Along with making connections, they also need to *build trust among cleanup workers* (e.g., contractors, state counterparts).

Relationships benefit cleanup work in different ways, from interviewees

Put a face to the agency: “I would always be around as we started work on each home to basically answer questions... they have a face instead of just saying “EPA.” There is a, I don’t want to say they trust me necessarily, but there is a general trust, and they know me. I think that’s really important because a lot of times when it goes south it’s because they just have an agency to blame instead of a person. They always have contact with me, even if it’s just to ask a simple question.”

Make connections with other experts: “If they’re concerned about property values because they have this plume of contamination now in their neighborhood, then maybe working with a local official who can talk to them or realtor who can talk to them about the factors that go into determining their property values or their tax assessments and those kinds of issues.”

Build trust among cleanup workers: “We have a team [of contractors]. These are guys I’ve worked with for a really long time. I trust these guys a lot to be out in the residential area... [they] know the community very well... I know these guys... know what they’re doing. We just check in every day.”

Interviewees articulated two *long term ripple effects* of relationship building (see box next page). One is when EPA serves as a convener of social actors and organizations for a specific cleanup (e.g., a task force, roundtable). This action serves as a *catalyst for enduring relationships* that allow members to

work together on other environmental problems. Another is when building relationships during one cleanup leads to *word of mouth referrals* that spark action at other sites.

Long term ripple effects of relationship building, from interviewees

EPA as convener and catalyst: “by having all these different stakeholders at the table, those relationships can be fostered... we will be talking about [the site] when we’re meeting... However, if there are issues you’re concerned about like green space in your neighborhood or.. it being a food desert... talk about that with [the other organizations present] ... Hopefully you are developing a good relationship with these other entities, you can have a conversation about that outside of [this activity].”

Word of mouth referrals: “some of our referrals have come from local municipalities where we had a spill in the area. Talking with the responders and emergency management agency coordinators or a township trustee about “what do you guys do [at EPA]?” Maybe a year down the road, they say, “Hey, I remember meeting you. We have this [other] site here.” It’s word of mouth, too.”

6.2 Building relationships in practice

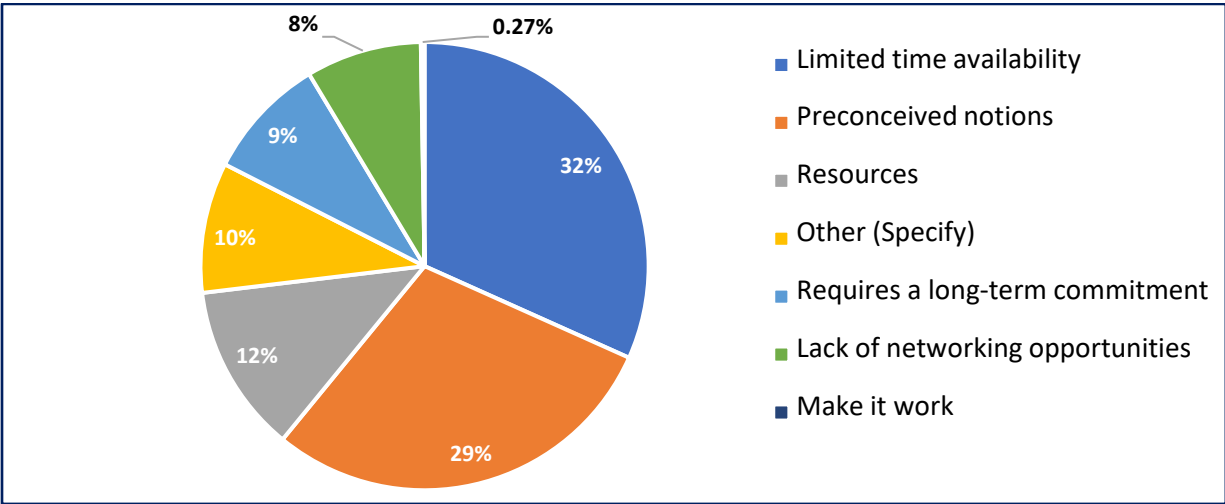
Cleanup workers need to be able to *work with all types* of organizations and personalities (see box on right). Doing *real time relationship building* during emergencies or time-critical removals, puts additional pressure on practitioners at a time decisions need to be made and trust needs to be built quickly. While building relationships is largely

positive, it is not without challenges. The top obstacle identified by survey respondents was limited time (32%), which relates to it requiring a long-term commitment (9%) (Figure 7). Preconceived notions (29%) created the need for people to overcome misconceptions about one another. Resources (12%) were financial and non-financial. “Other” responses included limited travel to sites. “Make it work” was when respondents said that you just make it happen, even if it means going “above and beyond.”

What building relationships takes, from interviewees

Work with all types: “It’s always a different mixture... of folks. They’re always incredibly unique and have their own character.”

Real time relationship building: “[In emergency response,] we never have dealt with any of the personality types... we’ve probably never met any of these people... we’re trying to build relationships in quick time, so we can all achieve that goal.”



Note: The ‘Make it work’ category makes up less than 1 percent of all responses.

Figure 7. Biggest obstacles to building relationships, weighted.

EPA cleanup workers use a number of practices to build relationships with businesses, other agencies, and organizations (Table 10). The top strategies survey respondents listed were listening to social actor needs (10.1%), communicating regularly and openly (9.8%), and starting communication early in the cleanup process (9%). Other recommendations for how to build relationships at the local scale are spending time in the community, hiring locals, supporting community events, offering volunteer opportunities, and having consistent and strong facilitation at meetings and gatherings (Christopher et al., 2008; Davenport et al., 2007; Foley et al., 2017). Meeting facilitation is included as a relationship building strategy because it helps rein in emotional outbursts and personal attacks (Foley et al., 2017).

Table 10. Top Ten Categories of Advice for New Colleagues on Building Relationships, Unweighted

Advice Category	Percentage, Unweighted
Listen to needs/concerns/goals	10.1
Communicate regularly and openly	9.8
Start early	9.0
Be honest, open, and transparent	7.9
Keep the community informed	5.9
Set clear and realistic expectations/goals/boundaries	5.9
Seek cooperation and collaboration	5.3
Make contact personal (face-to-face or phone)	5.1
Build relationships	4.5
Show interest in the community	4.2

Cleanup practitioner advice on building relationships uses similar language to that of engagement and trust, i.e., “listening to needs/concerns/goals,” “start early,” and “be honest, open, and transparent.” This overlap in terms is indicative of how these techniques feed off one another and are not wholly distinct in practice. Creating relationships with a person makes it possible to build interpersonal trust. Making connections with other experts ties into trust building strategies of bringing other experts to the table and being clear about what EPA can and cannot do. This similarity of language and advice is also indicative of how community engagement, building relationships, and trust are themselves interrelated.

6.3 Practical takeaways

1. Practitioners take active measures to cultivate relationships with federal, state, and local government agencies, businesses, and organizations as part of cleanup work.
2. Building relationships leads to short and long term benefits for remediation, removal, and redevelopment work.
3. The primary challenges are lack of time, resources, and preconceived notions that social actors and organizations have about one another.
4. Building relationships is part of emergency response, but under additional time pressure.

Table 11. Building Relationships in Cleanups

Take Action	By Doing This
<i>Be present</i>	Carry out informal check-ins
	“Pick up the phone”
<i>Positive associations</i>	Strong, neutral meeting facilitation
	Support community events
<i>Real time relationship building</i>	Help staff be able to work with “all types”

7 Discussion

The following discussion presents some final thoughts on how engagement is connected with relationships and trust. It addresses lingering questions the reader may have regarding how community engagement intersects with community empowerment, and discusses caveats about the concept of best practices. The discussion concludes with thoughts on future research possibilities.

7.1 Interconnections among relationships, trust, engagement

This report unpacks the social, psychological, cultural, behavioral, and institutional dynamics of what it means to engage communities, build trust, and build relationships as part of cleanup work. Community engagement has cognitive, affective, and behavioral dimensions, meaning that the ways people think, feel, and act all play a role in how it unfolds and the effects it has on cleanup processes and outcomes. Researchers and practitioners articulate a number of benefits that these activities can provide if done well. Using these practices to carry out culturally informed cleanups is essential to advancing environmental justice and equity in land remediation and community revitalization.

Through ethnographic research with environmental agency personnel, this research synthesizes techniques used for community engagement and building trust and relationships in environmental cleanup work. It analyzes these practices using social science theory and illustrates the practical ways in which theoretical observations can be operationalized. It contributes to theory building through its attention to how community engagement, trust, and relationships are interrelated throughout the course of cleanups that take place in distinct social and environmental contexts (Figure 8).

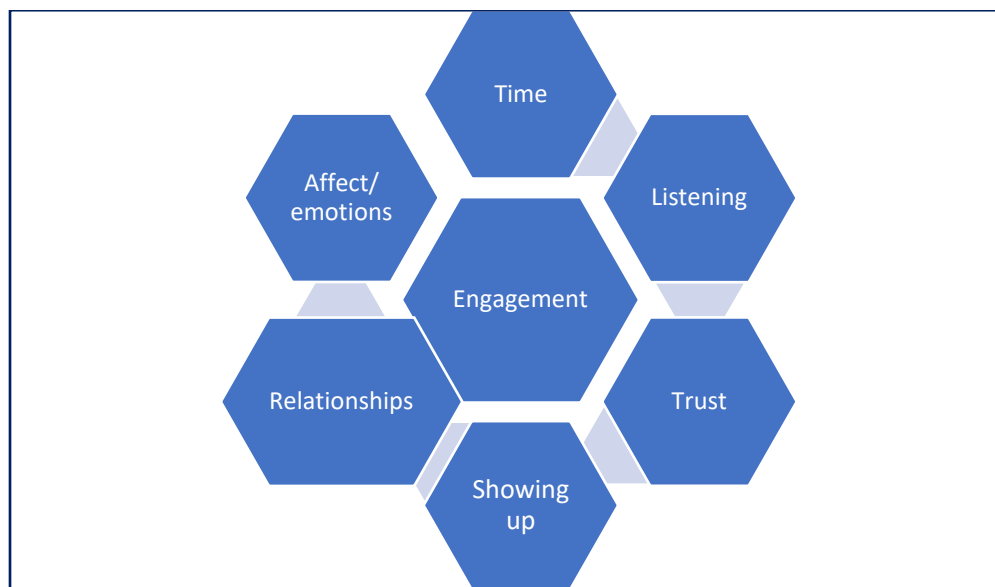


Figure 8. Community engagement, relationships, and trust have interrelated social processes.

7.2 Engagement and empowerment

Social scientists conceptualize community engagement as inclusive of community empowerment. A comprehensive analysis of public participation in decision-making for remediation, removals, and redevelopment is beyond the scope of this report. This research does illuminate tensions that can complicate attempts to make engagement truly meaningful and empowering at the local level. In one analysis of community engagement in the environmental health sector, the author quotes an informant as

saying: “We come in, we take their power away, and then we give it back to them and then go, ‘Oh look, we empowered you’” (Little, 2009: 103). Public participation guidance positions government agencies as having the power to establish what level of participation is desired (EPA, 2019c). The National Environmental Justice Advisory Council (NEJAC), an advisory body to the EPA, has published model guidance for doing public participation in ways that address such disparities (NEJAC, 2013).

Engagement and trust building practices are affected by power asymmetries within and among the organizations and social groups involved. These asymmetries affect inclusion—who comes to the table and who has a voice at the table. They are tied to ‘whose knowledge counts,’ that is, how readily distinct forms of knowledge (e.g., scientific data, local experiences) are legible in risk assessments, remedy selection, and redevelopment plans. Deliberate attention to addressing these asymmetries in power and knowledge, and to fostering inclusion, are part of carrying out engagement and trust building in ways that advance justice, equity, and other normative values. Doing so is especially needed in places that have been overburdened by pollution/toxicity, and experienced long histories of marginalization, exclusion, and breaking of trust. Government agencies might be hampered by logistical and policy constraints in taking steps to remedy asymmetries. Environmental justice organizations, for example, advocate for providing food and childcare at meetings and paying locals for their time and expertise. These steps can remove burdens on participation often felt by community members. Federal and state agencies, however, might not have the authorization to spend funds in this manner.

7.3 What is best?

Readers might have noticed that this report does not use the term “best practices.” That choice is deliberate. First, it is difficult to generalize best practices in community engagement across the board because they are so situational (Cruz, 2019). This research shows how practices are specific to the cleanup type, stage, site, and cultural context. Second, what constitutes “best practices” is in the eye of the beholder. As the literature shows, there can be cross-cultural communication or right method/wrong time or place mismatches with even the most well-intended engagement. This project examines environmental agency perspectives on engagement, trust, and relationships. Additional research is needed to investigate how communities and affected populations perceive specific actions and approaches. As an example, the authors of this report conducted a training session on the intersection of culture and brownfields redevelopment at the 2019 National Brownfields Training Conference. The author’s ran a brownfields feud game, where the top eight answers to each question were based on the interview results. Participants came from state and local agencies and non-profits. In answer to the question “How do you build trust with locals?” one of the top EPA answers was to make sure you do “sound science.” None of the game players selected this answer, however, indicating a potential cultural disconnect regarding the role of science in building trust.

Another reason the report does not use the term “best practices” is that, as readers have seen, it depends on *how* one carries out a specific action. For example, public meetings are a common practice across cleanup types and stages. However, they are not always conducive to advancing the conversation, developing consensus, or building relationships and trust (Carr and Halvorsen, 2001; Chess and Purcell, 1999; Jenkins et al., 2012; Rowe and Frewer, 2000). Interviewees also noted that public meetings can be particularly contentious encounters, more so than one-on-one or small group meetings. The team heard about the many steps practitioners take before and after a meeting to ensure it goes well, with meaningful dialogue and building connections. Appendix 10.2 lists EPA resources that have more detailed information on carrying out these steps for public meetings and other forms of engagement.

7.4 Remaining research gaps

This research took place near the beginning of the COVID-19 pandemic. As it sought to develop a baseline of EPA practices, it did not specifically examine how engagement has changed as a result of changing health and safety protocols. Research gaps include: has the pandemic altered agency actions? Which emergent practices are adaptable to post-pandemic cleanups? How has the pandemic affected civic participation, risk perception, social networks, and trust on the part of communities and populations living near contaminated sites? What is the emotional toll of this type of work on cleanup practitioners, particularly in the wake of the COVID-19 pandemic? How can policies and processes address practitioner burnout?

A comprehensive treatment of how to evaluate community engagement is also beyond the scope of this report. Appendix 10.3 contains resources on evaluation criteria and methods. Along with formal evaluation, ongoing reflective practice supports culturally informed community engagement, trust building, and relationship building (Christopher et al., 2008; Maxwell and Kiessling, 2021). However, future research could address developing and testing holistic frameworks for evaluation that incorporate culturally informed perspectives. Additionally, case study research could test community engagement methods in specific contexts (e.g., rural or tribal communities) and compare outcomes.

8 Conclusion

This report bridges theory and practice, providing a social scientific basis for the how's and why's of community engagement, building trust, and building relationships as part of environmental cleanup work. It showcases practices used at EPA, detailing how they differ across cleanup stages and situations. The team identified six main takeaways.

Community engagement, building trust, and building relationships are central to environmental cleanup processes and outcomes. The scientific literature and EPA practitioners are in agreement that these actions support clean up progress and positive social and environmental outcomes. Interviewees and survey respondents expressed both instrumental and normative benefits of engagement, that it “pays dividends” to build trust, and that relationship building has positive impacts in the short and long term. These practices are part of carrying out culturally-informed cleanups.

All types of cleanup practitioners undertake the above in their work, to varying extents. CICs often undertake the lead on preparing community involvement plans and leading engagement. This research shows that cleanup practitioners across the board all spend time and energy on community engagement. They work to build institutional trust in cleanup processes and outcomes, as well as interpersonal trust. They build relationships with individuals and organizations at federal, state, tribal, and local levels.

A (social) science is behind the how and why of community engagement, trust, and relationship building. The social scientific literature illuminates what community engagement is and how it unfolds as a social phenomenon. It helps unpack the psychological underpinnings of what it means to build trust in government agencies, and what actions contribute to gaining or losing trust. It illustrates how the seemingly intangible act of building relationships has material impacts. It provides insights into why there could be uneven participation at the local level.

Social, cultural, institutional, and power dynamics affect how it plays out on the ground. A number of challenges can derail community engagement. Some challenges stem from agency constraints, such as staff turnover, others from community dynamics and capacity, more still from the interactions among social actors and institutions, and external factors. Building trust and relationships, especially when beginning from a situation of mistrust or distrust, takes time and requires attention to social, cultural, historical, political, and environmental circumstances.

It takes time, effort, resources, skills, and commitment to do it well. The many challenges to engagement mean that it takes an investment of time, resources, and skills to do well. This investment is needed to prepare fact sheets or plan public meetings in ways that are appropriate to the situation, address asymmetries in power and ‘whose knowledge counts,’ and bridge cultural differences. Empathetic listening is a skill to be cultivated. Building trust and relationships take time, and trust can easily be broken with a misstep. Management and leadership support are essential to sustain this commitment.

EPA cleanup practitioners use a number of strategies in different cleanup types, stages, and cultural contexts. They often go “above and beyond” community involvement requirements, employing strategies that correspond with techniques from the literature. Many similarities were identified between practices discussed in the literature and practices detailed by interview and survey respondents. “Early and often” was a common refrain, along with “door-to-door” and “listening.” The dovetailing of theory and practice is encouraging that community engagement can be done in a way that is meaningful to locals and empowers public participation, enabling cleanups to advance environmental justice and equity along with achieving environmental goals.

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10 Appendices

10.1 Glossary

Affected population is the portion of community(ies) that is impacted in some way (e.g., health, property, emotions, society) by a contaminated site and/or its cleanup.

Building relationships is the process of creating positive social and affective connections between individuals and/or groups of people.

Building trust is the process of fostering confidence in a person's reliability, honesty, and/or ability, and/or confidence in an organization's management processes and outcomes, within a given context.

Cleanup practitioners refer to EPA personnel who work in remediation, removal, and redevelopment projects, such as on-scene coordinators (OSC) for time-critical or non-time critical removals; site assessors or remedial project managers (RPMs) for Superfund sites; Resource Conservation and Recovery Act (RCRA) corrective action, underground storage tank (UST)/leaking underground storage tank (LUST), polychlorinated biphenyls (PCB), or Toxic Substances Control Act (TSCA) site managers; brownfield managers; as well as community involvement coordinators (CIC) or public affairs specialists.

Community is a group of people that live in the same vicinity (e.g., county, city, neighborhood) or share a common defining characteristic (e.g., online gaming).

Community engagement is “the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people” (McCloskey et al., 2011).

Community involvement is “the process of engaging with communities affected by Superfund sites” (EPA, 2020).

Community involvement plan is a site-specific strategy to enable meaningful community involvement throughout the Superfund cleanup process (EPA, 2020).

Culture is “the entire pattern of belief and behavior that is learned and shared by people as members of a social group” (Kiefer, 2007).

Culturally informed cleanups are where cleanup practitioners understand and acknowledge cultural differences between themselves and other social actors and institutions and make deliberate attempts to bridge those differences (see Maxwell and Kiessling, 2021).

Distrust is when a trustor believes that a trustee (a specific person, institution, or organization) cannot be relied upon to tell the truth or follow through with promises. It might be based on history of interactions with the trustee or information relayed to the trustor about the trustee.

Environmental cleanups encompass site assessment or characterization, remediation or removal actions, and redevelopment or reuse of a variety of types of contaminated sites, including Superfund, brownfields, UST, RCRA corrective action sites, and environmental emergencies (see Maxwell and Kiessling, 2021).

Environmental justice is the “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (EPA EJ website). In the social science literature, it has several dimensions (adapted from Eisenhauer et al., 2021; Schlosberg, 2007):

Procedural Justice - Fair and equitable institutional processes of governance, including public participation

Distributional Justice - Equal access to goods, liberties, and opportunities; and fair processes for allocating burdens

Recognitional Justice - Acknowledgement and addressing differences between social and cultural groups in their practices, values, and needs

Capabilities Justice - Provision of support to people and groups, based on social context, for participation in governance, agency for self-determination, and quality of life

Equity is “the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other people of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality” (Executive Order 13985).

Mistrust is a general feeling of suspicion or lack of confidence on the part of the trustor, not directly connected to a specific trustee. In cleanups, it could be a lack of confidence in “the government” or “science” writ large.

Public involvement is used by EPA to refer to the “full range of actions and processes that EPA uses to engage the public in the Agency’s work” (EPA, 2003c).

Social actor includes anyone who might be affected by or has the capacity to affect cleanups. The term social actor is preferred in anthropology over stakeholder because there are power dynamics of who gets to determine who has a stake in the outcome; also, stakes might differ (e.g., indigenous rights holders have more than a ‘stake’ in remediation on tribal lands).

Stakeholder is used by EPA to refer to “representatives from organizations or interest groups who have a strong interest in the Agency's work and policies” (EPA, 2003c).

Trust is “a psychological state in which one actor (the trustor) accepts some form of vulnerability based upon positive expectations of the intentions or behavior of another (the trustee), despite inherent uncertainties” (Stern and Coleman, 2015: 118-19).

10.2 EPA resources for engagement

SALT framework (2021)

Link: <https://www.epa.gov/risk-communication/salt-framework>

Description: The SALT framework is a process of Strategy, Action, and Learning supported by Tools. It provides a research-based approach and best practices for risk communication.

Superfund Community Involvement Handbook (2020)

Link: <https://www.epa.gov/superfund/superfund-community-involvement-tools-and-resources#general>

Description: It provides guidance to EPA staff on how EPA typically plans and implements community involvement activities at Superfund sites. It is intended to help promote consistent implementation of community involvement regulations, policies, and practices.

Community Involvement Plans Tool

Link: <https://semspub.epa.gov/work/HQ/100002210.pdf>

Description: This tool is part of the Community Involvement Toolkit. It explains why community involvement plans are important, and how to develop and implement a plan.

Community Involvement Toolkit

Link: <https://www.epa.gov/superfund/superfund-community-involvement-tools-and-resources#general>

Description: The Toolkit is a collection of resources that aid in the development and practice of community involvement activities. Each tool describes an activity or resource that a Superfund site team may use to involve and inform the community. The Public Meetings Tool explains why public meetings are important and how to plan and implement them. The Community Interview Tool is a helpful guide for how to conduct interviews with community members.

Public Involvement Policy of the U.S. Environmental Protection Agency (2003)

Link: <https://archive.epa.gov/publicinvolvement/web/html/index-6.html>

Description: It describes the statutory provisions of EPA's policy for public involvement. It defines public involvement and includes seven steps for effective public involvement.

Technical Assistance Needs Assessments (TANAs)

Link: <https://www.epa.gov/superfund/superfund-technical-assistance-communities>

Description: A site-specific process that identifies whether a community requires additional support from EPA to understand technical information and to enable meaningful community involvement in the Superfund decision-making process.

10.3 Engagement resources in the literature

Stakeholder assessment

1. See examples and steps in Reed, M.S., et al. 2009. Who's in and why? A typology of stakeholder analysis methods for natural resource management *Journal of Environmental Management* 90(5): 1933-49.
2. ATSDR Communication Toolkit, <https://www.atsdr.cdc.gov/communications-toolkit/c7.html>, includes a community concerns assessment tool, community data worksheet, stakeholder interview guides, stakeholder/ partner outreach tool
3. Methods to understand values, concerns, worldviews, beliefs: Delphi technique, nominal group technique, Q methodology, choice experiments
4. Methods to investigate relationships and power dynamics: Interest-influence metrics, actor-linkage matrices, social network mapping
5. Methods to understand relationship with site: transect walks, problem ranking

Social impacts assessment of remediation, removals, or redevelopment

1. Social sustainability evaluation matrix, in Harclerode, M., et al. 2015. Integrating the social dimension in remediation decision-making: state of the practice and way forward *Remediation* 26(1): 11-42.
2. Health impact assessments, see <https://www.epa.gov/healthresearch/health-impact-assessments>

Participatory/community science

1. EPA. 2022. *Using Participatory Science at EPA: Vision and Principles*. Washington, D.C.: EPA Office of Research and Development.

Listening

1. The seven canons of listening. MacNamara, J. 2019. The missing half of communication and engagement. in K. Johnston and M. Taylor (eds.), *The Handbook of Communication Engagement* (John Wiley & Sons: Hoboken, NJ).

Decision-making/conflict resolution

1. Multi-criteria decision analysis, in Havranek, T.J. 2019. Multi-criteria decision analysis for environmental remediation: Benefits, challenges, and recommended practices *Remediation Journal* 29(2): 93-108.
2. Two stage decision framework for conflict resolution, in Han, Q.Y., et al. A two-stage decision framework for resolving brownfield conflicts. *International Journal of Environmental Research and Public Health* 16(6): 1-19.
3. Dialogic engagement, see MIT Dialogue project toolboxes, <https://www.thedialogueproject.com/home.html>

Public meetings

1. How to improve public meetings and hearings, see <https://archive.epa.gov/publicinvolvement/web/pdf/improvement.pdf>

Public participation

1. NEJAC. 2013. Model Guidelines for Public Participation: An Update to the 1996 NEJAC Model Plan for Public Participation. Washington, D.C.: National Environmental Justice Advisory Council.

Self-reflection, cross-cultural awareness

1. What/So What/Now what reflection model, see <https://forumea.org/wp-content/uploads/2018/04/ST-Reflection-Toolkit.pdf>
2. Cultural learning plan in Maxwell, K., and B. Kiessling. 2021. *How to Get to Know Communities and Cultures: Methods for Remediation, Removal, and Redevelopment Projects*. Washington, D.C. : U.S Environmental Protection Agency EPA/600/R-21/291.
3. Cultural competence in hazards and disasters training module, register for free at <https://converge-training.colorado.edu/register/>
4. Chess, C., and K. Purcell. 1999. Public participation and the environment: do we know what works? *Environmental Science & Technology* 33(16): 2685-92.

Evaluating community engagement

1. Evaluating Public Involvement Activities, see <https://archive.epa.gov/publicinvolvement/web/pdf/evaluate.pdf>
2. Program evaluation and evaluating community engagement, in McCloskey, D.J., et al. 2011. *Principles of Community Engagement*. Bethesda, MD: National Institutes of Health, Ch. 7.



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