Use of community-based participatory communication to identify community values at a Superfund site

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Abstract

This paper describes the role of Community-Based Participatory Communication in a multi-phase research project that will incorporate community values into a publicly approved Future State Vision Report for the Paducah Gaseous Diffusion Plant (PGDP) National Priority List Superfund site and surrounding areas. The project, funded by the U.S. Department of Energy (US DOE) and implemented by the Kentucky Research Consortium for Energy and the Environment (KRCEE) at the University of Kentucky, is charged with developing and executing a methodology that ensures that local communities are adequately involved in decisions that affect how the Superfund site will be remediated, utilized, and monitored following cessation of uranium enrichment activities at the plant. Specifically, this project is expected to ensure that future use goals for the site help advance local needs and values.
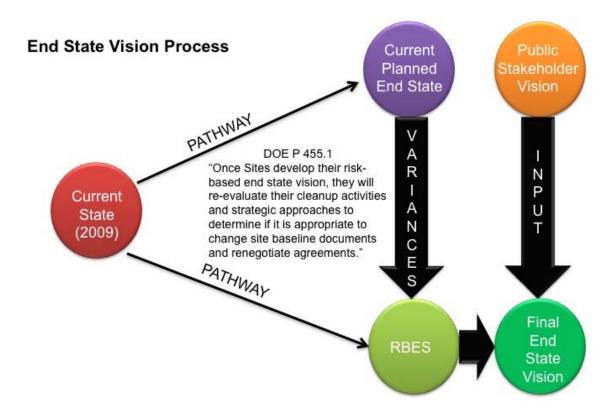
Background

The significance of US DOE's commission to develop a community-based future state vision for the PGDP is underscored largely by two reports that mandate the involvement of all parties in determining optimal cleanup levels and future use scenarios. The two government reports, "Draft Risk-Based End State Vision and Variance Report for the PGDP" (DOE, 2004) and "The Politics of Cleanup" (ECA, 2007), identify federal and local governments, community members, state and federal agencies, and Congress among the many important parties with stakes in the outcomes of future use decisions about the PGDP.

The "Risk-Based End State (RBES) Vision and Variance Report for the PGDP" (DOE, 2004) identifies nine hazard areas at the plant and its surrounding areas. The report introduces maps and other referential information intended 1) to present and allow comparisons between current and future land uses; 2) to depict hazards and risks for affected or potentially affected populations; 3) to serve as a planning tool for site management; 4) to facilitate communication of risks during discussions with stakeholders; 5) to allow tracking of expected and actual cleanup results; and 6) to serve as a communication tool for public meetings related to cleanup activities, current PGDP missions and requirements, and future land use.

The PGDP end state vision report developed by US DOE is not pre-decisional but is meant to introduce examples of actions that may be completed to reach the RBES. The selection of specific actions will be made in accordance with applicable laws and agreements only after stakeholders, particularly community members, have had an opportunity to provide input to the draft report.

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End State Vision Process

The second guiding document, "The Politics of Cleanup: Lessons Learned from Complex Federal Environmental Cleanup", is a report prepared in 2007 by Energy Communities Alliance (ECA) with funding from US DOE. This report recognizes that remediation efforts at Superfund sites similar to the PGDP are more than purely technical activities; they are also political processes (ECA, 2007). "The Politics of Cleanup" notes that interaction among federal, state, and local parties plays a significant role in the ultimate success of complex environmental cleanup projects. According to the report, members of Superfund communities must work effectively with federal and state regulators and contractors to meet the goal of cleaning up sites in a way and to a degree that allows the sites to remain or once again become assets.

The ECA affirms that two-way communication that engages the community through consultation, coordination, and ongoing dialogue is essential for developing appropriate cleanup goals and for identifying future uses for Superfund sites like the PGDP. Therefore. "The Politics of Cleanup" calls for all parties, including community members and government agencies, to collaborate in the development of cleanup goals and future use visions for the sites.

The ECA report specifically points out that successful collaboration requires all parties to understand community values and to work toward incorporating these values into the planning process. According to the report, successful environmental cleanups go beyond risk reduction and the minimization of federal government liability. Success also is predicated on substantively incorporating the local community's values into the cleanup and visioning processes. In certain

cases, according to the report, the incorporation of these values has led to cleanup efforts that extend beyond that which would be anticipated for a strictly risk-based cleanup. The sole way to ensure that sites can become assets for affected communities is to engage local stakeholders in determining how both the cleanup and the future use goals support or advance local needs. "The Politics of Cleanup" predicts that cleanup or future use decisions that are made unilaterally by government agencies without input from community members run the risk of being fundamentally inconsistent with local needs, as well as with the core values held by local governments and others in the affected community.

According to the report, two-way communication means that all parties must educate each other on technical and policy issues that underlie cleanup decisions, committing staff and other resources toward mutual engagement. Discussions need to take place throughout the process and must include issues related both to technical risk and to perceptions of risk, recognizing that the two do not always align (Sandman, 1993). Not only must the community be educated about technical risk by federal and state agencies and contractors, but federal and state agencies and contractors must be educated by the community about its history, goals, and needs.

Regarding risk communication at Superfund sites, the ECA strongly recommends that federal agencies enter into dialogue with local governments and community members to better understand community perceptions of risk – perceptions that often vary from community to community and even within communities. Such dialogues present the greatest opportunity for various parties to reconcile differing perspectives about risk, thus facilitating agreement on difficult cleanup decisions. Such decisions, even technical ones, often are not solely technically based.

Thus in 2009, in recognition of the need for community involvement in determining future use scenarios and subsequent cleanup practices for the PGDP, US DOE requested that KRCEE develop and implement a methodology that would solicit and report the values, risk perceptions, and opinions of various PGDP stakeholders (Ormsbee & Hoover, 2010; Grossardt, Ripy & Bailey, 2010).

After due consideration of the issues raised in the reports discussed above, the KRCEE concluded that community engagement is critical at all steps in the process of identifying acceptable future uses for the PGDP. In 2009, KCREE convened a project team that subsequently identified two related methods as the most promising strategies for achieving project goals (Ormsbee & Hoover, 2010). Structured Public Involvement (SPI), a democratic process that uses anonymous Audience Response Systems (ARS) or similar feedback methods in large-scale public meetings (Grossardt, Ripy & Bailey, 2010), and Community-Based Participatory Communication (CBPC) thus became the methods of choice for the project.

CBPC uses interviews, focus groups, and projective techniques to identify and interact with various community groups with the goal of discovering value systems, risk perceptions, preferences for various facets of the future vision question, and perspectives about cleanup issues. Results from these interactions are then used under SPI to create a broad-based forum interface with the community that can measure preferences for future outcomes as thoroughly and accurately as possible (Grossardt, Ripy & Bailey, 2010).

The Nature of Community-Based Participatory Communication (CBPC)

In this section, we discuss CBPC within the broader context of Participatory Communication, Community-Based Participatory Research (CBPR), Participatory Rural Communication Appraisal (PRCA), and other participatory approaches. Viewed as a participatory process, communication is NOT an instrument of transmission or persuasion but instead is a dialogic process for exchanging views and involving community members in the discussion of issues that affect their lives. CBPC uses both traditional and modern forms of communication and organization. It protects tradition and cultural values, while facilitating the integration of new elements. It creates an environment that empowers individuals and groups, giving them the freedom to voice their perceptions of reality and to act on these realities (Dagron, 2001; Carey, 1989).

CBPC is not simply a community outreach strategy, and it is less focused on widespread generalizability and diffusion. Rather, it emphasizes the building of trust and rapport among all parties, along with the empowerment of individuals and communities, toward truly collaborative decision-making processes that achieve outcomes that resonate with community values, culture and perspectives about the future. CBPC thus favors decentralization and democracy, public involvement and dialogue, interpretative, horizontal, and bottom-up perspectives. It posits an alternative and,to some, a complementary conceptualization of communication that does not model the process as a linear, one-way, top-down transmission of information and persuasive messages (Anyaegbunam, Mefalopulos, & Moetsabi, 1999; Wallerstein & Duran, 2006).

In CBPC, as in CBPR and PRCA, research is defined as a collaborative partnership that equitably involves in every aspect of the research process all parties affected by the issue being studied, including community members, organizational representatives, and researchers (Israel et al., 2001). Done properly, such research benefits both community participants and government agencies by creating bridges that allow all parties to gain knowledge and experience. This collaboration assists in developing culturally appropriate decisions and policies, thus making projects more effective and efficient. Finally, participatory methods have the capacity to establish a level of trust that enhances both the quantity and the quality of information generated (Anyaegbunam & Kamlongera, 2002; Viswanathan et al., 2004; Cornwall & Jewkes, 1995; Wallerstein, 2000; Fisher & Ball, 2005).

CBPC uses elements from various participatory approaches to involve community members, organizational and government representatives, and researchers in all aspects of communication research to enhance understanding of a given phenomenon integrating the knowledge gained with policies and action to improve the well being of community members. All partners contribute their expertise and share ownership of the research findings and decisions for action. The process uses visualizations, interviews, and group-work to facilitate dialogue among community members and between them and the researchers, enabling all parties to reach mutual understandings and to create action plans that are acceptable to the community (Anyaegbunam, Mefalopulos, & Moetsabi, 2004).

CBPC is built on the definition of communication as an interactive process characterized by the exchange of ideas, information, points of view, and experiences among persons and groups. In

CBPC, communication is a two-way process in which all the people are seen as important sources of information with ideas worthy of being heard. Passiveness is, therefore, non-existent in this process because it requires active mental cooperation of all the people involved until a common awareness and understanding is reached. It is a process in which all participants decide on a course of action together. This view of communication presupposes that all actors are equal. The convergence model of communication developed by Rogers and Kincaid (1981) best captures this framework.

The Roots of CBPC

The roots of CBPC can be traced to the work of Lewin, who, in the 1940s used the term "action research" to describe an approach that stressed cycles of action and reflection involving researchers and research participants. After several mutations, Lewin's work found expression in various participatory methods that started to emerge in the 1970s. During this period, many researchers, especially those working in the developing world, were becoming more and more disillusioned with the progress and achievement of development activities, especially in rural areas. The limitations of many traditional communication research methods were becoming apparent. By this time, the assumption that lack of education was a primary impediment to development began giving way to the realization that the wealth of collective indigenous knowledge among rural people could effectively help raise living standards. It also was realized that when rural people are involved in the identification of their own problems and needs, they are more likely to support the necessary actions to address their situations (Anyaegbunam, Mefalopulos, & Moetsabi, 2004).

As such recognition emerged, researchers in the development field began abandoning questionnaire methods, which tended to be too long to administer, very rigid in their formats, lacking in recognition of local realities (as the instruments were usually designed by researchers sitting in urban offices), and complex to process and analyze. Seeking more effective methods of data gathering, development researchers realized that most illiterate or semi-literate people could communicate effectively any issues that impact them with the help of visual representations.

All of these factors gave birth to Rapid Rural Appraisal (RRA), a great improvement from questionnaire methods. Data were gathered more quickly, and the resulting reports were prepared faster. RRA also better addressed the needs of indigenous people. However, after collecting data in the villages, researchers continued to take the information away from the people to analyze it in their own offices with their own sets of assumptions. Thus, RRA is primarily an extractive approach in which outsiders go into rural areas, obtain information from rural people, and then take that information away to process and analyze it, thereby controlling the process (Brown et al, 2002).

As RRA was applied in more situations, the emphasis on participation grew almost naturally. It became clear that communities needed to be involved not only in data collection but also in the prioritization and analysis of their problems and needs. Out of this process emerged Participatory Rural Appraisal (PRA) and later Participatory Learning and Action (PLA). PRA and PLA recognized that there were many things that researchers and subject matter specialists did not know and that the only way to learn them was by listening to the rural people. Similarly, rural

people lacked some of the technical knowledge necessary to solve some of their problems. Thus, knowledge sharing became an essential component of PRA. PRA has been used extensively in agriculture, forestry, and a number of other areas; however, it has never been used specifically in the communication field, although most of its techniques and tools derive from communication. This disjuncture led to the creation of Participatory Rural Communication Appraisal (PRCA) in 1995 and later to the development of CBPC. CBPC, therefore, belongs to the same family as RRA, PRA, PLA, CBPR, PRCA, and other participatory methods.

CBPC Process, Methods and Materials in the PGDP Project

In adherence to the tenets of participatory communication, KCREE kicked off the PGDP project with a listening tour that took the project team to various local, state and federal government offices in Frankfort, Paducah and other locations in Kentucky. During this period, the team discussed the proposed methodology with several stakeholders, including elected officials. In each of the meetings, the KCREE project team explained the community involvement process and solicited suggestions from the stakeholders. Using a snowball sampling technique, the project team also asked interviewees to examine a list of identified stakeholders and to recommend any additional individual stakeholders or groups who should be added to the list.

During the listening tour, the team met with the Paducah Gaseous Diffusion Plant Citizens Advisory Board (CAB), a stakeholders' board that provides advice and recommendations to US DOE regarding environmental remediation, waste management, and related issues at the plant. The CAB is composed of members chosen to reflect the diversity of gender, race, occupation, views, and interests of persons affected by PGDP decisions. The CAB is committed to reflecting the concerns of communities impacted by environmental management of the plant site. The KRCEE project team also consulted with several activist groups in Paducah.

These meetings assisted the project team with identifying various population segments affected by PGDP operations and related issues. The stakeholder interviews themselves informed the development a discussion guide and projective materials for interacting with community members during the second phase of the project. Amidst the information gathered, stakeholder interviews revealed that, according to government and elected officials, any decisions about the PGDP future state must seriously consider safety and health as primary issues. The team also learned that economic development is a major consideration for any future vision for the site.

After the listening tour, the project team analyzed the information gained from stakeholders to identify 16 distinct interaction groups in the Paducah community and surrounding counties. The project team also formed a process advisory board comprised of representatives from each of the 16 groups. The advisory board functions to pre-test individual steps of the process prior to community-wide implementation and, where warranted, to recommend modifications to the process or its associated components. Advisory panel representatives were selected based in part on their status within their respective stakeholder groups, as well as on their potential to bring members of their constituencies into the planning process (Ormsbee & Hoover, 2010).

The Focus Group Discussion Protocol for the PGDP Future Use Vision Project

Information collected during the listening tour was used to develop a draft discussion guide for the next phase of the project. The guide was designed to identify the following:
- Both preferred and unacceptable future use scenarios/combinations of scenarios for the PGDP and its environs among various community groups.
- How the various groups in the community name and frame the following issues related to future use scenarios/combinations of scenarios for the PGDP and its environs:
  - opportunities,
  - strengths,
  - challenges,
  - weaknesses,
  - threats,
  - fears,
  - risks,
  - concerns, and
  - solutions.

- The overall quality of life goals and values of the community and, more specifically, the priority quality of life goals and values that influence the decisions of various groups regarding future use scenarios for the PGDP and its environs.
  - What is valuable to the community?

- Any additional information that various community groups need to make the best decisions about the future use scenarios for the PGDP and its environs.
  - The most accessible and trusted channels for receiving such information.

During the focus groups, the facilitators will explain the project and why the meeting was convened. The facilitators also will reiterate the voluntary nature of participation and allow any participants who do not want to continue the study to leave. The project expects to conduct about six focus groups with about 10 – 15 participants in each.

The focus groups will use computer-generated visualizations of sample scenarios to elicit various community groups' preferred and unacceptable future use scenarios/combinations of scenarios for the PGDP and its environs. During this activity, seeing and discussing trigger visualizations can help community members think about various possible future use scenarios for the PGDP, share their knowledge and experiences about additional possible scenarios, and evaluate and appreciate myriad issues related to various future use scenarios. To fully involve all participants in this activity, they will work in small groups, examining and discussing the specific visualization that their group receives. After each small group examines its visualization, group members will explain to the whole group what they think the visualization represents, as well as such issues related to the visualization as opportunities, strengths, challenges, weaknesses, threats, fears, risks, concerns, and solutions. The group presentations will help to engage participants in dialogues about various scenarios and their possible effects on their community.

During the plenary session, focus group facilitators will further engage all participants in a discussion using the following probes:

- What do these scenarios mean for the community?
- How do these scenarios relate to your lives? Your families? Your communities?
- What are the most important issues related to these scenarios: opportunities, strengths, challenges, weaknesses, threats, fears, risks, concerns, and solutions?
- What are the barriers to implementing these scenarios?
- In what ways can these barriers be overcome?
- What other scenarios/combinations of scenarios can we consider for the plant site and why?

After the visualization exercise, facilitators will elicit community values by asking each participant to describe factors that would contribute to an ideal city of residence. These factors will be transcribed onto flipcharts. After listening to the individual descriptions, facilitators will ask the following questions to generate discussions:

- How does Paducah measure to these ideal cities we've heard about today?
- Which of the ideal city characteristics are the most important to you and why?
- Which of the scenarios discussed today would bring Paducah closer to the ideal cities described by participants? Why?

The next activity is designed to help the team understand participants' information-seeking behavior and information use, both of which are crucial to effectively meet their information needs. It is hoped that this activity will lead to the discovery of novel information behavior and user profiles that can be used to enhance existing information models or even to develop new ones. Questions and probes developed for use in this activity will help to identify participants' information needs and sources of credible information about both general and PGDP-related issues. The questions and probes include:

- What types of information do you usually seek about the PGDP and its operations?
- What sources do you consult for this type of information? Do you ask friends, neighbors, go to the library, watch television, read it in magazines, go on the Internet?
- Why do you use these sources? What problems have you had getting information that you want (examples: hard to find, too technical, didn't relate to my situation, confusing navigation online etc.)?
- Which is the most credible source of information about PGDP?
- Which sources of information about PGDP are the easiest to understand and most helpful to you?
- Which sources of information about PGDP are the hardest to understand and least helpful to you?
- What information do you think is most important to the community about PGDP and its activities?
- What are the best ways of delivering information about issues related to PGDP to your community? Printed materials like brochures? Video? Extension officers? Etc.

- If we could develop a web site where you could obtain information about the PGDP, what type of information would you like to have? How would you like to see the information presented?

As a wrap-up of each focus group session, participants will be introduced to the Audience Response Systems (ARS) that will be used during the Structured Public Involvement phase of the project. The ARS will be used to poll participants' assessments of past and ideal levels of community involvement in government planning issues, their scenario preferences, and their evaluations of the focus group process.

This protocol was pre-tested with three focus groups attended by members of the project's process advisory board. Among other recommendations, the pre-test groups advised the team to simplify the introductory presentation, reducing the amount of information, maps, technical process information, etc. The team also was advised to present a roadmap slide outlining the meeting agenda at the beginning of each discussion.

Summary

As of February 2010, the project team had interviewed approximately 60 stakeholders selected from various state, federal and municipal governments, business organizations, and activist groups that have an interest in the Superfund site. Information collected from these stakeholders has been used in the design of sample scenario visualizations that will be presented as discussion triggers for participants in multiple focus groups. During the focus groups, the project team will elicit various community groups' preferred and unacceptable future use scenarios and combinations of scenarios for the PGDP. The team also will learn how various groups in the community name and frame the opportunities, challenges, threats, fears, risks, and concerns related to the site's future. In addition, the team will ascertain overall quality of life goals and values of the community and, specifically, the priority quality of life goals and values that influence the decisions of various groups regarding future use scenarios for the site. Finally, this process will help identify any additional information that various community groups need to make the best decisions about the future use of the site, as well as the most accessible and trusted channels for receiving such information. These phases of the project will be followed by a series of structured public meetings in which community members will use Audience Response Systems to individually evaluate preferences for various future vision scenarios generated by the community and other stakeholders for the Superfund site.

Acknowledgments

References

Anyaegbunam, C. & Kamlongera, C. (2002). Writing with the people: An empowering Communication approach to sustainable rural development. *Journal of Development*

Communication, 13, 1-14.

Anyaegbunam, C., Mefalopulos, P., & Moetsabi, T. (1999). Facilitating Grassroots Participation in Development: New training models and techniques. In White Shirley (ed.). *The art of facilitating participation: Releasing the power of grassroots communication*. Cornell University and Sage: New Delhi.

Anyaegbunam, C., Mefalopulos, P., & Moetsabi, T. (2004). *Participatory Rural Communication Appraisal: A handbook for rural development practitioners*. 2nd edition. FAO Rome, Italy.

Brown, D., Howes, M., Hussein, K., Longley, C., & Swindell, K. (2002). *Participatory methodologies and participatory practices: Assessing PRA use in the Gambia*. (Network paper No. 124), July, 2002.

Carey, J. (1989). *Communication as Culture: Essays on media and society*. NY: Unwin Hyman, Inc.

Cornwall A, Jewkes R. (1995). What is participatory research? *Soc Sci Med*, 41(12):1667-76.

Dagron, A. G., 2001. *Making Waves: Stories of Participatory Communication for Social Change*, The Rockefeller foundation.

DOE, (2004). DRAFT – *Risk-Based End State Vision and Variance Report for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky,* DOE/OR/07-2119&D0/D2.

Energy Communities Alliance, 2007. *The Politics of Cleanup – Lessons Learned from Complex Federal Environmental Cleanups*, Energy Communities Alliance, Inc.

Fisher, P. A., & Ball, T. J. (2005). Balancing empiricism and local cultural knowledge in the design of prevention research. Journal of Urban Health, 82(2 Suppl. 3), iii44-iii55.

Grossardt, T., Ripy, J. and Bailey, K. 2010. Use Of Structured Public Involvement For Identifying Community Preferences For A Superfund Site End State Vision. *Proceedings of the World Environmental and Water Resources Congress 2010*.

Ormsbee, L. and Hoover, A. 2010. "End State Vision Process for the Paducah Gaseous Diffusion Plant." Proceedings of *World Environmental and Water Resources Congress 2010*. Providence, R.I. May 16-20.

Rogers, Everett, and Kincaid D. Lawrence. (1981) *Communication Networks*. New York, NY: Free Press.

Sandman, P. M. (1993). *Responding to community outrage: Strategies for effective risk communication.* Fairfax, VA: American Industrial Hygiene Association.

Viswanathan M, Ammerman A, Eng E, Gartlehner G, Lohr KN, Griffith D, Rhodes S, Samuel-Hodge C, Maty S, Lux, L, Webb L, Sutton SF, Swinson T, Jackman A, Whitener L. (2004). Community-Based Participatory Research: Assessing the Evidence. Evidence Report/Technology Assessment No. 99 (Prepared by RTI–University of North Carolina Evidence-based Practice Center under Contract No. 290-02-0016). AHRQ Publication 04-E022-2. Rockville, MD: Agency for Healthcare Research and Quality. July 2004.

Wallerstein N. A. (2000). Participatory evaluation model for Healthier Communities: developing indicators for New Mexico. Public Health Rep., 115(2-3):199-204.

Wallerstein N. B, & Duran B. (2006) Using community-based participatory research to address health disparities. Health Promot Pract 2006;7:312–23.