

The Union RAP: Industry-Wide Research-Action Projects to Win Health and Safety Improvements

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Unions are ripe to engage in community-based participatory research (CBPR). We briefly profile 3 United Steelworker CBPR projects aimed at uncovering often-undocumented, industry-wide health and safety conditions in which US industrial workers toil. The results are to be used to advocate improvements at workplace, industry, and national policy levels. We offer details of our CBPR approach (Research-Action Project [RAP]) that engages workers and others in all research stages. Elements of RAPs include strategically constructed teams with knowledge of the industry and health and safety and with skills in research, participatory facilitation, and training; reciprocal training on these knowledge and skill areas; iterative processes of large and small group work; use of technology; and facilitator-developed tools and intermediate products. (*Am J Public Health*. 2009;99: S490–S494. doi:10.2105/AJPH.2008.148544)

UNIONS, AS UNITS OF identity and collective action, are ideally suited for engagement in community-based participatory research (CBPR).^{1–4} The United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Service Workers International Union (USW) is such a community, representing more than 850 000 members in more than 3000 industrial workplaces across the United States, Canada, and the Caribbean.

Many of these workplaces harbor substantial, ongoing threats to worker and community health and safety. For example, large volume chemical sites are at significant risk for chemical

emergencies and terrorist attacks.⁵ Oil refineries have failed to apply lessons from previous catastrophes.^{6,7} And paper mills pose an unusually high risk for amputations⁸ and potentially devastating chemical releases.⁹

Many of these threats remain largely undocumented—particularly beyond factory walls. Therefore, knowledge of shared conditions across similar

workplaces and geographic boundaries is limited. Thus, workers, their unions, and others committed to worker health and safety need action-oriented data to help them strategically target industry- and issue-specific initiatives. Community-based participatory research can help build a base of collective knowledge, a focus for action, and the capacity of the union in these areas.

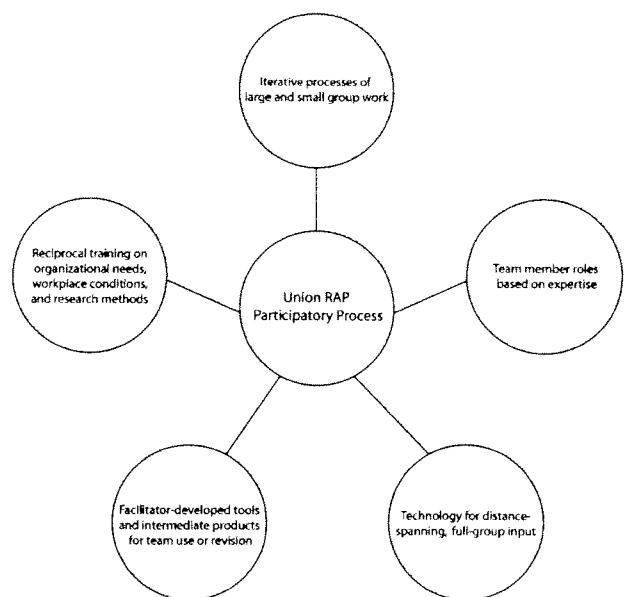


FIGURE 1—Select components of the union research-action project (RAP) participatory process.

KEY FINDINGS

- Workers and their unions, fueled by community-based participatory research (CBPR):
 - Can play a key role in revealing and documenting industry-wide workplace health and safety issues of national significance.
 - Are uniquely positioned to provide data-driven, action-oriented recommendations to leverage change at plant, industry, and national policy levels.
- During each phase of the research process, United Steelworker worker- and staff-researchers play critical roles in (1) improving CBPR products and processes and (2) building and sustaining the union's CBPR capacities.
- The United Steelworkers-New Perspectives approach to CBPR (called Union Research-Action Projects or "RAPs") requires substantial expertise and resources in research methods, planning, training, and participatory facilitation to ensure high-quality participation and research. Other replication considerations include resource availability, timeline needs, and the credibility of this approach for intended results-users.

Over the past decade, the USW and its Tony Mazzocchi Center for Health, Safety and Environmental Education have conducted CBPR in conjunction with New Perspectives Consulting Group Inc. The USW—more specifically, its premerger unions—was a founding member of a major, 7-year occupational health CBPR initiative that trained union staff and workers in research and evaluation.^{10,11} The USW calls its CBPR projects "Union Research-Action Projects" (RAPs). A major focus of this work is assessing worker training needs to guide the development of targeted and appropriate health and safety education programs. We highlight here 3 industry-wide RAPs examining health and safety conditions in chemical plants, oil refineries, and paper mills (Table 1).

UNION RAP APPROACH

Union RAP processes have evolved over the course of our 3 studies, furthering worker participation in each study. Now, USW staff and workers are involved in all RAP phases including project design, instrument development, data collection and analysis, report development (including recommendations for action), and planning the use of results.

Each study was designed to document and examine the root causes of health and safety issues and to use these results to engage local employers, entire industries, and policymakers. Instead of constructing traditional research questions, our process has evolved to develop research aims and purposes—what union leadership, workers, and other team members seek to find out and the intended uses of the

results. We engaged the whole team in instrument development and a subset in data collection.

Community members' full and meaningful participation in data analysis and interpretation has been shown to strengthen community capacity and facilitate unique and intimate insights of all those involved.¹⁴ In RAP studies, for example, it was workers on the oil study team who, in interpreting data on systems of safety where responses were on a "very effective" to "very ineffective" scale, guided the conclusion that anything less than "very effective" was not sufficient to protect workers and neighboring communities from catastrophic explosions and toxic releases. The full teams, thus far, have been less involved in formal report-writing and planning results use—2 areas in need of strengthening.

Key components of the RAP process are highlighted in Figure 1 and described here.

Team Roles Based on Expertise

Each research team (comprised of approximately 15 members from across the country) was thoughtfully constructed to include local union workers, international union staff (who were typically former industrial workers), and consultants. Collectively, teams had expertise in the targeted industry, health and safety, and CBPR. Consultants and select staff invested significant additional time planning, facilitating, and driving the research.

Reciprocal Training

To augment participation and further build capacity, teams were trained in key research areas with lay-oriented,

participatory education materials we developed. Workers provided informal ongoing training and workplace condition reality checks to other team members. Workers and staff highlighted international and local organizational needs.

Iterative Processes of Large and Small Group Work

Teams typically worked as a large group for orientation and training and then worked in small groups (approximately 4 members) to develop a draft product (e.g., a series of survey questions). Then, the full group reconvened to provide product feedback. This grouping strategy facilitated greater participation and critical thinking and advanced multiple tasks simultaneously.

Technology

During in-person meetings, small groups often designated a laptop scribe and presented their draft products to the full group via an LCD projector for feedback. The team also used conference calls, interactive Web meetings, and e-mail.

Facilitator-Developed Tools and Intermediate Products

Staff and consultants often provided the team with tools and partially prepared products from which to start, which included survey question banks, refined data reports, and final report drafts.

DISCUSSION AND EVALUATION

Each subsequent study has been initiated with a greater sense of the intended uses of the findings. To date, RAPs have generated data that have been used in a

TABLE 1—Highlights of United Steelworkers Industry-Wide Research-Action Projects

Study	Purpose	Respondents	Key Findings	Recommendations for Action
Chemical plants ¹²	To assess vulnerabilities of US chemical plants to possible catastrophic terrorist attacks and unintentional incidents.	133 US facilities in 37 states with very large quantities of highly hazardous chemicals. Response rate: 70%.	Too few companies are: using inherently safer technologies to achieve security (17%); taking preventative actions judged to be more than "slightly effective" (18%); involving key stakeholders; and acting to meet worker training needs. There are widespread deficiencies in emergency preparedness.	Require more rigorous chemical site assessments, inherently safer processes, stakeholder involvement, and worker training.
Oil refineries ¹³	To examine the prevalence of highly hazardous conditions similar to those that led to the Texas City disaster, recent related incidents or near-misses, and refinery remedial actions. To assess the state of emergency preparedness, process safety systems, and related worker training.	51 US oil refineries representing 49% of US refining capacity. Response rate: 72%.	Following the 2005 BP Texas City disaster where 15 people were killed and more than 180 injured, 90% of sites reported conditions like those at BP, and 61% of those had at least 1 related incident or near miss in the past 3 years. There are widespread deficiencies in process safety including emergency preparedness and training.	Eliminate key hazardous conditions and require improvements in hazard analysis, staffing, emergency preparedness, and union and worker involvement.
Paper mills	To examine the prevalence of hazardous conditions including large quantities of highly hazardous chemicals. To identify serious incidents and near-misses. To assess issues related to the organization of health and safety and union members' roles within it.	218 US paper mills.	Pending	Pending

long-term, ongoing effort to build union capacity to improve health and safety and conduct this type of research and to change local and national policies and practices.

Use of Findings

We have disseminated findings through reports, worksite posters, USW magazine articles, training materials, presentations at USW and professional meetings, a professional journal article, and newspaper articles appearing across the United States. The chemical plant and oil refinery RAPs have influenced worker education program development. On a national policy level, the USW highlighted the chemical study findings in testimony

before the US Senate Homeland Security and Governmental Affairs Committee on Chemical Security advocating legislation to reduce the use and storage of highly hazardous chemicals at chemical plants. The USW also presented its report to the Department of Homeland Security.

Oil study recommendations have influenced upcoming national union–oil company bargaining, in which decisions will be made that determine how US oil workers and oil companies operate. The USW membership from local unions representing more than 30 000 workers approved the bargaining proposals, including, for example, study recommendations regarding union roles in process safety

management leadership and the removal from refineries of atmospheric vents that can release potentially dangerous chemicals.

In addition, the union's paper industry conference of local unions plans to use the upcoming paper study results to advance program and policy initiatives. By conducting studies that are national in scope and by taking on policy issues—particularly within a challenging political, economic, and labor relations climate within both industry and government—we recognize the long-term nature of the broader changes toward which we are working.

Capacity Building

Equally important to the use of the findings is the development

of the USW's capacity to conduct its own health and safety research. Over the past decade, we have been building a cadre of RAP worker-researchers and staff-researchers with skills and commitment to support these efforts. Moreover, RAPs have increasingly engaged top-level international union leaders and cultivated their enthusiasm for the RAP approach. In our 2 most recent studies, international union vice presidents and their staff have participated directly.

CHALLENGES AND NEXT STEPS

Deepening this RAP work entails further rooting it within the USW, strengthening a core group

SELECT CONSIDERATIONS FOR REPLICABILITY OF UNION RESEARCH-ACTION PROJECTS**Overall Design Considerations**

Valuing of the community-based participatory research (CBPR) approach: Must establish a belief among key parties—often over time—that a CBPR approach is valuable in terms of: (1) building capacity, (2) strengthening the research process, and (3) yielding credible and useful results.

Methods: Focus is primarily on accessible research methods and statistical tools.

Team Member Resource Considerations

Community members: To bring fresh perspectives, community insights, and context; to offer reality checks to processes and products.

Select key characteristics:

- Invested (know the issue at hand, committed to learning more about it and sharing this knowledge or using it toward a common end)
- Accessible (have the time and have access to any technology needed—e.g., a computer and e-mail)
- Representative (reflect the diversity of the community)
- Leading (exhibit leadership capacities that they can share and co-cultivate)

Formal organizational leaders: To look through the lens of broader organizational aims; to rally others on behalf of the team.

Select key characteristics:

- Community-minded (value community input)
- Strategic (articulate organizational aims and recognize the value of CBPR processes and data to further these aims)
- Influential (have the power and the will to use CBPR results to drive the change process)

Facilitators/trainers: To make the process accessible and maintain momentum; to establish a common base of knowledge, skills, and confidence related to research and the like to ensure everyone can contribute meaningfully (in terms of formal training).

Select key characteristics:

- Committed (believe in, know how to facilitate full-team participation)
- Discerning (distinguish when full-team work vs subteam work is needed)
- Traction-oriented (break down tasks to manageable size, keep the work progressing)
- User-focused (employ accessible, relevant methods to build team member capacity)

Researchers: To maintain the research rigor and to undertake key research tasks such as managing data and leading initial analysis.

Select key characteristics:

- Appreciative (see the research value in engaging nonresearcher team members)
- Access-oriented (include the lens of accessibility or “graspability” when considering overall research design, data analysis, etc.; translate research concepts into lay terms)

Other Resource Considerations

Time: To get everyone on the same page and to facilitate meaningful teamwork at a pace that acknowledges the learning curve, etc.

Funding: To cover paid trainers or facilitators and researchers; occasionally paid community members; travel expenses to convene team for multiday instrument development, data analysis, and report-writing at working meetings.

Technology: To facilitate input and momentum (e.g., laptop computers, LCD projectors, conference calls, Web meeting interface).

Resource materials: To launch development of key “products” (e.g., survey question-and-response category banks, how-to materials for various research phases, sample report section formats).

of worker-researchers to serve over time as peer mentors, and ensuring worker-researcher diversity (e.g., more people of color and women and continued industry and geographic diversity). Increasing worker participation is an ongoing challenge and opportunity—whether this relates to workers' formal research skills or ability to participate because of shift work or time-off constraints.

Regarding replication, we anticipate that this type of nationally focused workplace CBPR could be carried out in various industries. Because our primary data source is local unions, where there is infrastructure to promote participation and where legal issues around worker organizing and bargaining are not a constraint, unionized workplaces may hold out greater promise than nonunionized workplaces for this approach.

For those considering an RAP-type approach, factors to weigh, as outlined in the box on the previous page, include the credibility of a CBPR approach for intended users; the ability to assemble a capable, diverse team; and the time-intensity of this approach. More specifically, a number of all-too-rare support structures facilitate RAPs. The Worker Education and Training Program (National Institute of Environmental Health Sciences) has, to date, provided strong support and funding for RAPs as part of the USW Tony Mazzocchi Center for Health, Safety and Environmental Education's training needs assessments. Other supports include compensation of workers for wages lost while missing work; more than a decade of worker, staff, and consultant experience in facilitating CBPR; and the buy-in of the union.

In summary, we will continue to build on what we learned from our earlier studies to enhance the reach and quality of our RAPs to improve worker health and safety and to build the USW's capacity to conduct meaningful research by using the vast expertise of the union's community of workers and staff. ■

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At the time of the study, Kristin Bradley-Bull and Tobi Mae Lippin were with New Perspectives Consulting Group Inc, in Durham, NC. Thomas H. McQuiston and James Frederick were with the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Service Workers International Union's (USW's) Tony Mazzocchi Center for Safety, Health and Environmental Education, Pittsburgh, PA. J. Frederick and Leeann G. Anderson were with the USW in Pittsburgh. M. Josie Beach was with USW Local Union 12-369, Kennewick, WA. Thomas A. Seymour was with USW Local Union 5, Martinez, CA.

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K. Bradley-Bull, T. H. McQuiston, and T. M. Lippin originated the article. K. Bradley-Bull and T. H. McQuiston drafted the article. All authors helped crystallize ideas and reviewed drafts of the article.

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Human Participant Protection

Institutional review board approval was not obtained for these studies. Human subjects were not the focus of any research conducted. The unit of analysis was the worksite rather than the individual. No personal identifiers or personal information were collected. There was no substantial risk for individuals in these studies.

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