

---

**THE MASSACHUSETTS  
TOXICS USE REDUCTION INSTITUTE**

---

**MODELS FOR  
INDUSTRY/GOVERNMENT  
COLLABORATION  
ON POLLUTION PREVENTION**

Methods/Policy Report No. 3

**1993**

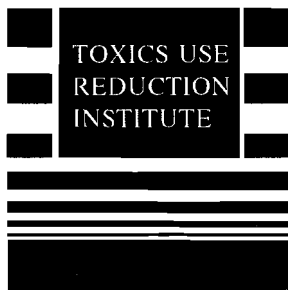
University of Massachusetts Lowell

# **MODELS FOR INDUSTRY/GOVERNMENT COLLABORATION ON POLLUTION PREVENTION**

Carol Rougvie and Ken Geiser

February 1993

The Toxics Use Reduction Institute  
University of Massachusetts Lowell



All rights to this report belong to the Toxics Use Reduction Institute. The material may be duplicated with permission by contacting the Institute.

The Toxics Use Reduction Institute is a multi-disciplinary research, education, and policy center established by the Massachusetts Toxics Use Reduction Act of 1989. The Institute sponsors and conducts research, organizes education and training programs, and provides technical support to governments to promote the reduction in the use of toxic chemicals or the generation of toxic chemical byproducts in industry and commerce. Further information can be obtained by writing the Toxics Use Reduction Institute, University of Massachusetts Lowell, One University Avenue, Lowell, Massachusetts 01854.

©Toxics Use Reduction Institute, University of Massachusetts Lowell

## TABLE OF CONTENTS

1.0	MODELS FOR INDUSTRY/GOVERNMENT COLLABORATION . . . . .	1
2.0	ROUNDTABLES AND ADVISORY PANELS . . . . .	1
2.1	Pacific Northwest Pollution Prevention Research Center . . . . .	1
2.2	TransAlta Utilities . . . . .	2
2.3	University Corporation for Atmospheric Research . . . . .	2
3.0	DEMONSTRATION PROJECTS . . . . .	2
3.1	Landskrona Project (Sweden) and PRISMA (Netherlands) . . . . .	3
3.2	Yorktown Project: Amoco and EPA Office of Policy, Planning & Evaluation . . . . .	3
3.3	Northern Telecom - ICOLP - Government of Mexico - EPA . . . . .	3
3.4	National Center for Manufacturing Sciences . . . . .	4
3.5	Michigan Office of Waste Reduction Services and Wayne State University . . . . .	4
3.6	Automotive Manufacturing Pollution Prevention Project . . . . .	4
3.7	Southern California Rapid Transit District - U.S. Department of Transportation - Ontario Ministry of Transportation . . . . .	5
3.7	EPA Green Programs Advisory Committee . . . . .	5
3.8	San Diego Gas & Electric Company and other public utilities . . . . .	5
3.9	Triangle Limited and Government of Zimbabwe . . . . .	6
4.0	INFORMATION DISSEMINATION . . . . .	6
4.1	California Manufacturer's Association - Southern California Edison - California South Coast Air Quality Management District . . . . .	6
5.0	A PARTNERSHIP DEVELOPMENT PROJECT . . . . .	7
6.0	LESSONS . . . . .	7
	END NOTES . . . . .	8

## 1.0 MODELS FOR INDUSTRY/GOVERNMENT COLLABORATION

Pollution prevention is often described as a collaborative or cooperative process, linking industry and government in a common search for environmentally sound production. While the concept is often lauded, there is no single or simple model for effecting such collaboration. Instead, a wide array of new models are emerging.

This review briefly describes several of these new industry/government collaborative models now emerging in the United States, Canada, and Europe.

These models can be divided into three types of possible frameworks for collaboration:

1. **Roundtables, networking, and advisory panels.** These formats serve mainly to establish dialogue and exploration of interests among different parties, but they can foster the subsequent development of partnerships or collaboration around a specific project.
2. **Demonstration projects/partnerships.** Demonstration projects and partnerships may be initiated to determine the feasibility of a particular collaborative approach or to explore solutions to a specific problem. They can take many forms, and the extent of each party's participation varies depending on the project.
3. **Information dissemination.** Government collaboration with industry and private information providers in the development and dissemination of information enhances the accessibility of valuable information and experience in pollution prevention as well as the amount and quality of the information.

## 2.0 ROUNDTABLES AND ADVISORY PANELS

Roundtables and advisory panels are mechanisms for initially bringing together public and private stakeholders around a specific topic or need. If carefully planned to provide a nonthreatening atmosphere and allow for equal representation and voice by all key stakeholders, they can bring about productive dialogue and foster the development of partnerships for further collaboration.

### 2.1 Pacific Northwest Pollution Prevention Research Center

The roundtable approach is used by the Pacific Northwest Pollution Prevention Research Center (PPRC) to foster collaboration and exchange of ideas and information on pollution prevention. PPRC is a public nonprofit foundation that sponsors research, analyzes technology, disseminates information, and links public and private groups. Roundtables include industry, government, citizens, and nonprofits focusing on specific issues of priority

to the region. Funding is provided by industry, nonprofit foundations, civic organizations, EPA, and the region's local and state governments, including British Columbia.

Pamela Worner, PPRC Communications Officer, recommends that roundtable sponsorship by an objective outside party (an independent nonprofit such as PPRC) ensure positive results by creating a nonthreatening atmosphere. Other important elements are a neutral site; ground rules; advisors, reviewers, and points of information dissemination; and government's participation as a *consultant*. PPRC's experience indicates that businesses considering pollution prevention need from government more assistance with long term planning for large capital investments in pollution prevention, and less focus on fine tuning and nitpicking.<sup>1</sup>

## **2.2 TransAlta Utilities**

Canadian businesses are also using roundtables and advisory panels to promote exchange with various public interests. In 1989, TransAlta Utilities established a 13-member advisory panel to assist the development of the company's environmental mission and policy statements. The panel represented "a cross-section of interests including education, health care, environment, industry, farming, fish and game, law, and consumers."<sup>2</sup>

## **2.3 University Corporation for Atmospheric Research**

The University Corporation for Atmospheric Research's Office for Interdisciplinary Earth Studies held a beginning workshop that brought together industry, science, government, and environmentalists to discuss industrial ecology. According to a report in *Chemical and Engineering News*, a major goal of the meeting was to "think about ways of reconfiguring industrial activity to reduce harm to the human and natural environment at the global level." The report made some observations about the sources of agreement and of conflict, which were not as might have been expected. Conflicts arose not between environmental scientists and industry representatives, but between those who "try to solve problems in the current industrial system" and those who want "first to decide on a vision for an ideal future environmentally sustainable society and then to reconfigure industrial activities to reach that goal." Industry representatives and environmentalists actually shared a "sense of urgency about finding practical, workable, action-oriented means of preventing environmental degradation."<sup>3</sup> A complete report is expected in spring 1993.

## **3.0 DEMONSTRATION PROJECTS**

Many projects both in and outside the United States have provided models for collaboration between industry and government. These voluntary demonstration projects vary from special one time undertakings with a single narrow goal or focus to broad efforts to establish a supportive framework for multiple projects involving different companies and

government agencies. The extent of government collaboration in such projects has a broad range, including a more limited funding role, agency experts functioning as consultants to industry, and involvement with industry and state or private educational institutions.

### **3.1 Landskrona Project (Sweden) and PRISMA (Netherlands)**

In a project begun in the late 1980s, seven small and medium-size firms in Landskrona, Sweden, were assisted by researchers at the University of Lund in identifying pollution prevention and waste minimization opportunities, evaluating options from economic, ecological, and technical perspectives, and using their experience to educate other firms in Sweden. Advanced students were involved in working in these industrial settings, and funding was sought from the Swedish Environmental Protection Agency. Positive results from this project spurred similar efforts in Norway, Denmark, and the Netherlands. Using the Landskrona model of collaboration, the PRISMA project was launched by the Netherlands Organization of Technology Assessment (NOTA), and several other government agencies were involved in various aspects of the project, such as policy studies, project management, implementation, and financing. Key aspects of PRISMA were (1) the use of university personnel as external consultants and researchers, functioning as a well equipped prevention team and providing intensive guidance to overcome conceptual obstacles and time restraints, (2) the dissemination of information about pollution prevention technologies and tailoring of this information to the specific company, (3) university researchers working with company employees as equals, and (4) encouraging interaction between university and company participants in *joint* research and investigation, rather than unilateral prescriptions by university researchers.

### **3.2 Yorktown Project: Amoco and EPA Office of Policy, Planning & Evaluation**

The Amoco Corporation in Yorktown, Virginia, approached the federal Environmental Protection Agency (EPA) to work with them on a two-year pollution prevention study of their operations. One observer noted that although Amoco and EPA working together agreed on important pollution prevention measures, it is believed that separate efforts would not have produced such agreement. A complete report of the project results is expected.<sup>4</sup>

### **3.3 Northern Telecom - ICOLP - Government of Mexico - EPA**

Canada-based Northern Telecom and an association of electronics manufacturers in the United States entered into an international partnership with EPA and SEDUE (the Mexican environmental agency) to eliminate ozone-depleting solvents from Mexican industry. The Industry Cooperative for Ozone Layer Protection (ICOLP), an association of electronics manufacturers sharing information about ozone layer protection, first held workshops in Mexico to introduce alternative technologies. In the second part of the project, EPA and Northern Telecom are working with SEDUE in establishing processes and technologies, coordinating input of expertise from other companies, and facilitating investment in modern

technologies. Northern Telecom and ICOLP provided technical assistance and project management at no charge, and the Mexican government has provided financing for other aspects of the project, including technology demonstrations and implementation.<sup>5</sup>

### **3.4 National Center for Manufacturing Sciences**

The purpose of this nonprofit corporation of U.S. and Canadian business is industry collaboration in research, development, and technology transfer for globally competitive manufacturing. The center has established a collaborative framework to involve government, academia, public interest groups, large and small industry, and foundations in projects addressing manufacturing issues. EPA is already participating in their **Environmentally Conscious Manufacturing Program** to help conceive approaches to overcoming barriers to pollution prevention. The Department of Energy has offered labs for testing. Management of the projects is funded by philanthropic organizations and manufacturers are providing research funding and expertise in supervising and evaluating projects. Of the more than 70 projects identified, at least 14 are underway and others are awaiting project management funding.<sup>6</sup>

### **3.5 Michigan Office of Waste Reduction Services and Wayne State University**

Through its Academic Intern Program, the Michigan state environmental agency works with Wayne State University to provide graduate and senior level students for technical assistance to industry. In exploring waste reduction options, source reduction strategies are given the highest priority. The program, supported by EPA, is an example of federal support of state programs and offers a promising model for exploring pollution prevention options.<sup>7</sup>

### **3.6 Automotive Manufacturing Pollution Prevention Project**

The Canadian Automotive Manufacturers' Association and the big three automakers in Canada (Chrysler, Ford, and General Motors) are working with the Canadian government and Ontario's provincial government to voluntarily reduce the use, generation, and release of toxic substances, targeting priority chemicals such as chlorinated solvents, CFCs, PCBs, metals, and volatile organic compounds. Programs developed will be plant-specific. The group has cleared a major hurdle in coming to agreement on the target list of chemicals, and development of plant-specific programs has begun with chemical inventories by the manufacturers. A similar collaboration is underway in the United States that involves the Michigan Department of Natural Resources, the Motor Vehicle Manufacturer's Association, and EPA.<sup>8</sup>

### **3.7 Southern California Rapid Transit District - U.S. Department of Transportation - Ontario Ministry of Transportation**

This international task force, sponsored by the Department of Transportation and Ontario's Ministry of Transportation, is consulting with aerospace companies to develop a "clean" bus. The Southern California Rapid Transit District (RTD) has requested funding from the Federal Transit Administration for the first phase. The project was initiated by an RTD employee and a friend in Ontario's transit ministry, who assembled a committee and approached the aerospace companies. This effort is an example of government collaboration to foster conversion of the defense industry for environmental benefit.<sup>9</sup>

### **3.7 EPA Green Programs Advisory Committee**

The EPA Green Programs Project, modeled after the Green Lights program, is planned to oversee voluntary corporate initiatives to conserve energy. A similar example is the spinoff "Golden Carrot Program," which established a consortium of utilities and power authorities to award \$30 million to the company that designs an energy-efficient CFC-free refrigerator.<sup>10</sup> At the time of this report, there was no information available on success or problems with this model, but it seems promising for other industry pollution prevention projects.

### **3.8 San Diego Gas & Electric Company and other public utilities**

Public utilities in California are developing collaborative programs with business to reduce pollution from energy production. For example, San Diego Gas & Electric Company works with industry customers as an "energy teammate" on demand side management. Agency staff act as consultants by exploring possibilities and assessing the costs and benefits of retrofit. The utility contributes financial incentives and also handles the bidding and payment process for outside contractors and provides warranties and a maintenance and care package.

Other California utilities have established collaborative consulting and financing partnerships with industry customers. These U.S. examples of consultative arrangements in some ways resemble the PRISMA project and could be applied to pollution prevention in other industries.

Utility commissions are also "attempting to account for environmental externalities in electric utility resource planning." For example, the Nevada Public Utilities Commission has calculated dollar values for externalities such as carbon dioxide, methane, and sulfur dioxide.<sup>11</sup>



### **3.9 Triangle Limited and Government of Zimbabwe**

Although this project dealt with sustainable resource use in Zimbabwe, aspects of the model of industry/government cooperation are worth consideration for pollution prevention. To ensure a secure market for locally produced ethanol, the government agreed to purchase and resell the entire output of the privately owned Triangle Limited production facility to domestic oil companies for blending and redistribution, thus creating and ensuring market stability for the product and allowing import and use of a less expensive and lead free gasoline. An important ingredient is the efficiency and cost-effectiveness of the new, no-waste plant built for this purpose. As noted in the case study, this type of industry/government cooperation "can generate public policy results and private profits."<sup>12</sup>

## **4.0 INFORMATION DISSEMINATION**

The effective sharing of vast and continuously increasing amounts of information about pollution prevention strategies and technology is a significant challenge. Issues to be resolved include accessibility, classification, quality control, protection of trade secrets and competitiveness, fragmentation, credibility, and methods of dissemination. Collaboration between government, business, universities, associations, and private information providers strengthens the ability to meet these challenges. In current efforts to address its role in the diffusion of environmental technology, EPA, through the Technology Innovation and Economics Committee of the National Advisory Council for Environmental Policy and Technology, convened a group of federal, state, and local regulators, technology developers and users, the financial community, environmental groups, and academicians. Their report includes recommendations for strengthening EPA's partnership with technology diffusion providers and users, and for emphasizing technology diffusion to accomplish pollution prevention.<sup>13</sup> Many of the partnerships described elsewhere in this report, including the Pacific Northwest Pollution Prevention Research Center and the Landskrona and PRISMA projects, include collaborative information dissemination as a component.

### **4.1 California Manufacturer's Association - Southern California Edison - California South Coast Air Quality Management District**

After a successful collaborative effort with Hughes Aircraft, California's South Coast Air Quality Management District (SCAQMD) initiated efforts to develop a more extensive partnership with the California Manufacturers' Association (CMA), Southern California Edison, and aerospace companies in the area. The partnership will develop and provide clean air technologies to Southern California businesses at no cost. Research is funded equally by industry and the state agency, and Southern California Edison will fund technology transfer through a computerized data base that will be available to the public with the assistance of CMA and Edison.<sup>14</sup>

## **5.0 A PARTNERSHIP DEVELOPMENT PROJECT**

### **Management Institute for Environment and Business and President's Commission on Environmental Quality, Natural Resources Committee**

This alliance formed in 1992 has so far resulted in a partnerships data base, case studies of partnerships, and development of a framework for assisting partnership formation. Although the partnerships have involved preservation of natural resources, the ingredients for successful government/industry/community partnerships can be used for pollution prevention projects as well. The approach is to try to establish a progressive continuum from conflict to success. Process management is the key to success of the project, whether the goal is pollution prevention, waste reduction, or cleanup.<sup>15</sup>

## **6.0 LESSONS**

This quick review offers several brief lessons. These include:

- o Local government/industry efforts seem to work best -- i.e., federal government working through local government, especially state agencies.
- o Strongly recommended are models that provide for increased government involvement in funding and conducting collaborative research, and making good use of resources in universities. Government involvement need not be limited to EPA, DOE, and DOD.
- o Models should provide assistance to small businesses, which lack the financial and human resources and access to information. The PRISMA project and the projects by the Michigan Office of Waste Reduction Services, the California South Coast Air Quality Management District, and San Diego Gas & Electric are among those that begin to address this problem. Other collaboration projects could include government agencies assisting access to venture capital and providing grants for the acquisition and assessment of information. Government might also develop incentives for local subsidiaries of large multinationals to provide information and technical assistance.<sup>16</sup>
- o Collaboration can promote more government responsiveness to business. When such collaboration is coupled with government cost sharing, particularly for research, business may be more candid about what it needs and why. Important ingredients for collaborative projects are specific, measurable goals, time lines, funding, and thorough analysis.<sup>17</sup>
- o Where appropriate and feasible, collaborative projects should seek to involve communities and workers as well.

## END NOTES

1. Pacific Northwest Pollution Prevention Research Center, Progress Report, Summer 1991, and conversation with Pamela Worner, PPRC, January 20, 1993.
2. Stephan Schmidheiny, *Changing Course: A Global Business Perspective on Development and the Environment*, Cambridge, MA: MIT Press, 1992, p. 88.
3. Bette Hileman, "Industrial Ecology Route to Slow Global Change Proposed," *Chemical & Engineering News*, Vol. 70, August 24, 1992, pp. 7-14.
4. Pacific Northwest Pollution Prevention Research Center, Progress Report, Summer 1992, and conversation with Jennifer Nash, MIT Working Group on Business and the Environment, January 28, 1993.
5. Stephan Schmidheiny, *Changing Course: A Global Business Perspective on Development and the Environment*, Cambridge, MA: MIT Press, 1992, pp. 229-233.
6. National Center for Manufacturing Sciences, *Focus*, April 1992.
7. National Center for Manufacturing Sciences, *Focus*, April 1992.
8. "Canadian Government and Automakers Sign Pollution Prevention Agreement," *Business and the Environment*, July 1992, p. 7, and conversation with Mark Nantais, Motor Vehicle Manufacturers' Association, Canada, January 29, 1993.
9. "Defense Technology May Provide Environmental Benefits for Public Transit," *Business and the Environment*, September 1992, p. 13.
10. "Hotline," *Business and the Environment*, July 1992, p. 16.
11. Jennifer J. Whalen, "Responsive Energy Technology," *Public Utilities Fortnightly*, July 15, 1992, pp. 14-16.
12. Stephan Schmidheiny, *Changing Course: A Global Business Perspective on Development and the Environment*, Cambridge, MA: MIT Press, 1992, pp. 319-322.
13. David R. Berg, Ronald Vaughn, Morris Altschuler, and Camille Richardson, "Improving Technology Diffusion for Environmental Protection," Report and Recommendations of the Technology Innovation Committee, EPA 130-R-92-001, Washington, DC: EPA, October 1992.
14. "Public-Private Partnership Launches Clean Air Technology Transfer Project in

California," *Business and the Environment*, September 1992, p. 10, and conversation with Karen Lindh, California Manufacturers' Association, January 26, 1993.

15. President's Commission on Environmental Quality, *Report of the Natural Resources Partnership Task Force*, Washington, DC: Management Institute for Environment and Business, November 1992, and conversation with Larry Molinaro, MEB, January 18, 1993.

16. Stephan Schmidheiny, *Changing Course: A Global Business Perspective on Development and the Environment*, Cambridge, MA: MIT Press, 1992, pp. 128-130.

17. Conversation with Karen Lindh, California Manufacturers' Association, January 26, 1993.