

COMPARATIVE RISK: WHAT MAKES A SUCCESSFUL PROJECT?

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ABSTRACT

The comparative risk process brings together diverse stakeholders to reach a consensus on which environmental problems pose the most risk to human health, ecosystem health and quality of life. In addition, comparative risk seeks to develop a consensus on an action plan to reduce those risks. Over the last ten years, almost forty states, tribes, and localities have initiated or completed a comparative risk project. What have we learned from these experiences, and are there some general characteristics of projects that can help to ensure success?

I. INTRODUCTION

At a recent meeting, Mike DiBartolomeis, the project director for the California comparative risk project, remarked that many have pointed to air legislation in the State of Washington as an example of the success of comparative risk projects.¹ He also observed, however, that he had not seen a report documenting similar results from more recent projects.² As the number of completed and ongoing projects now totals thirty-nine, his statements struck a chord. Certainly the successes are numerous. It simply could not be the case that these enormous expenditures of money, time, and energy were continuously amounting to nothing ... *could it?*

Outside of the comparative risk practitioners' circles, the accomplishments of the comparative risk process have gone relatively unheralded. While this might be interpreted as a failure, a more careful examination suggests otherwise. First, comparative risk loses its distinct identity and becomes part of a locally or state driven effort. This is evidenced by the actual titles of the projects where comparative risk and/or EPA are rarely acknowledged ("Environment 1991: Risks to Vermont and Vermonters"; "Washington Environ-

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1. See Washington Clean Air Act, Wash. Rev. Code Ann. §70.94 (West 1991).

2. See Green Mountain Institute for Environmental Democracy, *The Resource Guide to Comparative Risk* (3rd ed., 1997) <<http://www.gmied.org>>.

ment 2010"; "Regional Environmental Priorities Project - Cleveland, Ohio"; "Priorities 95 - Columbus, Ohio"; "The Elizabeth River Project - Norfolk, VA;" "LEAP to 2000: The Louisiana Environmental Action Plan").³ We applaud, even encourage, this "ownership" of the process.

Furthermore, many of the risk management strategies being considered and implemented are not actually conducted by the public advisory committee that was involved with the comparative risk project, but rather by one of the stakeholder groups in the process, or by a completely different task force that received at least some momentum and consensus from the comparative risk process. Being able to track activities back to a process that does not have much public identification in the first place is a fairly meaningless measure of success.

Finally, as change generally transpires slowly and at the margins, progress and success are difficult to track. Large-scale sudden shifts in priorities and spending patterns do not represent the typical results of comparative risk projects. Instead, it has become apparent that the most profound and meaningful product which the projects yield is the creation of true partnerships within and across bureaucracies, academia, industry and the community at large. Such intangible results, usually described as "bridge building" or "networking," are simply not newsworthy and rarely reported.

Despite the lack of public recognition, genuine progress is being made toward improved environmental decision-making. The purpose of this paper is to share our experiences to date with comparative risk projects, determine the practical merits of the comparative risk process, and articulate some of the lessons we have learned along the way.

II. WHY COMPARATIVE RISK?

In 1993, eighteen percent of EPA's proposed total budget was devoted to higher risk areas and approximately thirty percent of the proposed 1994 budget was devoted to higher risk areas.⁴ These num-

3. *See id.*

4. "Higher-risk areas" include the following: indoor air; radon; worker exposure; global climate change; stratospheric ozone; pesticides; wetlands and habitat alteration; drinking water; nonpoint sources; criteria air pollutants; estuaries, coasts and oceans; and air toxics. *See* Debra H. Gutenson & Susan L. Santos, Risk Communication and Public Involvement Methods in Comparative Projects, Presented at the Society for Risk Analysis 2 (Dec. 7, 1993) (copy on file with the author).

bers raise some important questions. For example, who or what drives these decisions on how our budget is allocated? Is it the EPA Administrator, Congress, environmental activists, industry lobbyists, or the current crisis of the week? Also, how are these decisions made? On what basis or criteria did we decide what percentage of our total Agency budget should be devoted to higher risk environmental problems?

In reality, there has been no overriding decision-making process for the setting of priorities or, for that matter, any agreement on who should make such decisions. In fact, my former boss liked to compare EPA's budgeting process to rowing a boat. We are always looking backward, where we have already been. Each budget cycle, we take last year's budget, and fiddle with it to see what would happen if we have five percent more or less this year. Comparative risk represents an effort to look toward an agreed upon goal in the future, a point along the horizon.

Comparative risk is a collection of methodologies or tools that are used to determine the relative risks to human health, ecosystem health and quality of life across a wide array of environmental problem areas within a specific geographic location. Comparative risk projects are usually conducted in two phases. Phase one is the risk analysis phase, which results in risk ranking across all problem areas. Yet, while we need to improve our scientific understanding of the nature and magnitude of the risks, more and better data will never be able to tell us how to spend limited dollars. As such, we still need some way to rationally decide how to allocate our budget among diverse and uncertain risks. Phase two, therefore, is the risk management step; once the relative risks are known, given political, legal and cultural constraints, a plan is formulated to bring about the greatest risk reduction. The Agency has risk assessment guidelines that help to characterize and make sense of epidemiology data, animal studies and ancillary data for individual chemicals.⁵ This is not without controversy, judgment or criticism.⁶ However, until there is a preferable alternative, risk assessment is a scientific process of organizing the information we have in order to make some decisions. And so it is with

5. See COMMITTEE ON INSTITUTIONAL MEANS FOR ASSESSMENT OF RISKS TO PUBLIC HEALTH, NATIONAL RESEARCH COUNCIL, *RISK ASSESSMENT IN THE FEDERAL GOVERNMENT: MANAGING THE PROCESS* (1983).

6. See, e.g., John Kadvang, *From Comparative risk to Decision Analysis*, Presented to the Society for Risk Analysis (Dec. 1994); *WORST THINGS FIRST? THE DEBATE OVER RISK-BASED NATIONAL ENVIRONMENTAL PRIORITIES* (Adam M. Finkel & Dominic Golding, eds., 1994).

comparative risk: it is a process (reproducible and documentable) of organizing the information we have in order to make *better* decisions. Not perfect decisions, but better decisions.

III. EPA'S COMPARATIVE RISK EVOLUTIONARY HISTORY

Today's EPA-supported comparative risk projects bridge science and public values by involving diverse stakeholders in a decision-making process at the level of state and local governments. Comparative risk, however, did not always reach this level of proactive planning. What follows is a brief review of the most significant events in the evolution of the comparative risk process.

During the 1980's, the forerunner of the Regional and State Planning Division at EPA ("RSPD") sponsored Integrated Environmental Management Projects ("IEMPs"), community based environmental protection projects in Santa Clara, CA; Philadelphia, PA; Baltimore, MD; Denver, CO; and the Kanawha Valley, WV.⁷ The goal of the IEMPs was to develop ways of using risk and cost information to improve local environmental decision-making capabilities.⁸ The projects proposed using quantitative risk analysis as a logical common denominator for establishing risk reduction priorities across media, tracking unintended pollution transfers resulting from regulation, and measuring environmental progress.⁹ In reality, the projects were quite expensive at over one million dollars each, and extremely time consuming.¹⁰ They relied on primary data collection, actual monitoring and modeling, focused only on cancer-related health effects and had no on-going local planning or management institutions.¹¹ Furthermore, the IEMPs were conducted at a time when the Agency was still completely in the point source, command and control regulatory mode. The following fundamentals were gleaned from these trial projects:

- Environmental planning and management did not occur naturally at the local level, particularly when dealing with industrial sources of specific pollutants associated with cancer-related health

7. See Memorandum on Integrated Environmental Management Projects and Comparative Risk Projects, Regulatory Integration Division of the Office of Policy Analysis (OPPE) (1988) (copy on file with author) [hereinafter OPPE Memo].

8. See Environmental Protection Agency, Office of Policy, Planning and Evaluation, *Geographic Integration Projects* (1987).

9. See OPPE Memo, *supra* note 7.

10. See *id.*

11. See *id.*

effects.¹² Instead, the IEMPs had to create local planning and management institutions (advisory committees) which usually disbanded after the projects were completed.¹³ Lasting improvements in the local planning and management decision-making processes, therefore, were not achieved.¹⁴

- Broad community participation led to public understanding and acceptance of results and decisions.¹⁵ Local officials were thus involved in virtually every step of the project, particularly in the risk management phase.¹⁶

- In spite of large resources devoted to primary data collection, the IEMPs often lacked the scientific credibility needed for making decisions on specific environmental pollutants.¹⁷ The analysis was, however, always credible enough to set management priorities *among* problems.¹⁸

In 1986, the Agency responded to a request from Administrator Lee Thomas to examine relative risks to human health and the environment which are posed by various environmental problems.¹⁹ The resulting work, "Unfinished Business: A Comparative Assessment of Environmental Problems"²⁰ ("Unfinished Business"), is a landmark study in that it established the framework and methodology for the comparative risk process. The task force, comprised of seventy-five Agency professionals, reached a consensus about the relative risks which the Administrator described as a "credible first step toward a promising method of analyzing, developing, and implementing environmental policy."²¹

Finally, in 1987, the forerunner to RSPD began a five-year plan of developing, demonstrating and institutionalizing risk-based planning in EPA regions and states. Regional and state comparative risk projects were initiated as pilots in EPA Regions 1, 3, 10, and in Vermont, Washington, and Colorado. Furthermore, Deputy Administrator Hank Habicht, upon seeing the results of the three regional proj-

12. *See id.*

13. *See id.*

14. *See id.*

15. *See id.*

16. *See id.*

17. *See id.*

18. *See id.*

19. *See* ENVIRONMENTAL PROTECTION AGENCY, UNFINISHED BUSINESS: A COMPARATIVE ASSESSMENT OF ENVIRONMENTAL PROBLEMS (1987).

20. *Id.*

21. *Id* at ii.

ects, asked that the remaining seven regions also complete comparative risk projects by the next annual planning meeting. The regional projects were smaller versions of Unfinished Business. Focusing on EPA-related activities, they were conducted in-house and had little, if any, public involvement.

The early state pilots in Vermont, Washington and Colorado, on the other hand, took the comparative risk process to the next level. These projects combined the lessons learned from the IEMP studies with the basic methodology for assessing and comparing risks from Unfinished Business; that is, using existing data for the purposes of guiding environmental priority-setting decisions rather than for regulatory standard setting purposes. Through community participation, these projects achieved institutionalized priority-setting²² among such environmental issues as cancer risks, non-cancer health effects, ecological risks, and a hybrid category of effects usually referred to as quality of life impacts (economic, social and cultural effects). Interestingly, although we now feel that the second and third generations of comparative risk projects have improved in many respects, we continue to point to the specific tangible results achieved during this first generation. (The complete listing of comparative risk projects to date is included in the Appendix at the end of this paper.)

Recent comparative risk projects have continued to expand on the initial set of principles and feature a strengthened emphasis on meaningful public participation, action and implementation.²³ Efforts to tie the priority-setting process to a process for monitoring respective results have led projects to develop visions, goals and futures scenarios, coordinate with broader environmental planning efforts, and develop indicator systems for tracking progress.

22. See OPPE Memo, *supra* note 7.

23. In order to receive cooperative agreement funds from EPA to conduct a comparative risk project, the applicant must convince the Agency of a commitment to the following:

- participation of key governmental and non-governmental stakeholders
- extensive public participation
- analysis of human health, ecosystem health and quality of life risks
- ranking of environmental risks
- development of risk management strategies

Beyond an agreement to perform these core activities, the process may be customized to meet individual project needs. While EPA offers guidance, training and suggestions on such matters as specific committee structure and membership, timing and sequencing of events, the actual analysis and ranking, and building and maintaining community support and interest, the actual decisions are client driven—the project participants, not EPA, make the decisions.

IV. RESULTS

The results of comparative risk projects vary widely, in part due to the diversity of specific goals that each project strives to attain. This partial listing of accomplishments highlights the array of outcomes on both the state and local level.

- Washington - Several pieces of legislation including the Washington Clean Air Act of 1991 were enacted as a result of the creation of priorities and consensus-building among the state and local agencies.²⁴

- Vermont - The Department of Health initiated a new indoor air program.²⁵

- Colorado - The program office came to the table with substantive issues, and thus were able to find the needed flexibility within the existing system to address proposed risk management strategies.²⁶

- Louisiana - A consensus-building approach brought together diverse groups (e.g., multiple agencies, NGOs, industry, citizens, etc.) for the first time to work toward common goals.²⁷

- Ohio - Governor Voinovich allocated \$500,000 for environmental education activities that focus on work assembled through the Ohio Comparative Risk project.²⁸

- Norfolk, Virginia - Community consensus on the Elizabeth River clean-up activities has attracted almost one million dollars of investments to support such activities as inventorying and monitoring the toxic impacts on rivers by the Virginia Department of Environmental Quality, the removal of abandoned vessels, the restoration of an area of degraded tidal wetlands, the production of a detailed study by the Army Corps of Engineers examining ways to restore water

24. See RICHARD MINARD & KENNETH JONES, THE NORTHEAST CTR. FOR COMPARATIVE RISK, STATE COMPARATIVE RISK PROJECTS: A FORCE FOR CHANGE 19 (1993) [hereinafter FORCE FOR CHANGE]; JOANNE DEA & SUE THOMAS, BUILDING A FOUNDATION FOR CHANGE: OPPORTUNITIES AND CHALLENGES IN STATE COMPARATIVE RISK PROJECTS 4 (Apr. 1997) (copy on file with author) [hereinafter BUILDING A FOUNDATION FOR CHANGE].

25. See FORCE FOR CHANGE, *supra* note 24, at 7, 75.

26. See The Northeast Ctr. for Comparative Risk, 5 THE COMPARATIVE RISK BULLETIN 4 (July/Aug. 1995) <<http://www.gmied.org>>.

27. See The Northeast Ctr. for Comparative Risk, 2 THE COMPARATIVE RISK BULLETIN 3-4 (Apr. 1992) <<http://www.gmied.org>>.

28. See *Education at the Heart of It All in Ohio*, 1 SYNERGY 7 (Nov./Dec. 1996); BUILDING A FOUNDATION FOR CHANGE, *supra* note 24, at 3.

quality, and the initiation of environmental education programs on a passenger schooner.²⁹

- Cleveland, Ohio - A focus on urban sprawl and energy consumption helped spur mayors of three inner ring suburbs to begin developing a common agenda to solve urban environmental problems.³⁰

- Utah - Risk ranking brought to light the comprehensiveness of the water resource issues and prompted an unprecedented dialogue and partnership between the state and local governments on environmental planning issues that went beyond traditional state-local public health oriented partnerships. It also resulted in the Utah Department of Environmental Quality taking a community-based approach to comparative risk management by focusing on developing growth strategies that protect water quality and enhance and develop water resources and adequate wastewater treatment systems in a five county, high growth area in southwest Utah.³¹

- Kentucky - Kentucky is the home of the first project to explicitly attempt to incorporate future scenarios into the comparative risk framework.³²

- Hawaii - An indoor air program was established for the first time as a result of the high risk ranking of indoor air pollution. In addition, Hawaii instituted a state-wide testing program to find and treat children with elevated blood-lead levels and set up a water testing program in selected communities as a result of identifying populations at risk to lead who use catchment basins to collect drinking water.³³

- Columbus, Ohio - Local efforts helped formulate a comprehensive environmental policy.³⁴

- Clinton County, Ohio - As a result of comparative risk assessment, environmental issues are more openly discussed and the organizations participating in projects gained enhanced credibility within the community. Local involvement consists of active efforts by the Regional Planning Commission members and the Board of

29. See EDWARD DELHAGEN & JOANNE DEA, WESTERN CTR. FOR ENVIRONMENTAL DECISION-MAKING, *COMPARATIVE RISK AT THE LOCAL LEVEL: LESSONS FROM THE ROAD* i, 7 (1996) [hereinafter *LESSONS FROM THE ROAD*]; Northeast Ctr. for Comparative Risk, *supra* note 26, at 4.

30. See *LESSONS FROM THE ROAD*, *supra* note 29, at i.

31. See BUILDING A FOUNDATION FOR CHANGE, *supra* note 24, at 4.

32. See Northeast Ctr. for Comparative Risk, 5 *THE COMPARATIVE RISK BULLETIN* 7 (May/June 1995). <<http://www.gmed.org>>.

33. See BUILDING A FOUNDATION FOR CHANGE, *supra* note 24, at 3.

34. See *id.* at 3.

County Commissioners who makes recommendations many of which have already been incorporated into the county's permit and approval process.³⁵

- Seattle, Washington - Seattle has the longest running local comparative risk project. The project started in November 1990 and continuously updates the action plan as the implementation continues today.³⁶

- Charlottesville, Virginia - Local agencies are incorporating comparative risk into a broader sustainability project designed to "describe a future where our economic, human, social, and environmental health are assured. Currently, developing benchmarks or targets for 159 indicators have been identified to measure progress toward a sustainable future."³⁷

V. LESSONS LEARNED

Obviously there is no way to ensure that a comparative risk project will produce such substantial tangible and intangible results as those listed above. Nevertheless, it is possible to identify certain common methods which have consistently proven to be vital to the process. I have, therefore, compiled a list of bullet point suggestions for future project participants and sponsors:

- Get people to the table and talking—building trust is a slow, time consuming process. Allow it to happen.

- Get the support of major stakeholders—if there is someone you need involved in the process to ensure success, or someone who has the potential to keep you from succeeding, get that person or a representative involved from the very beginning.

- Build and maintain continuing community involvement—projects that are tied to a specific location that can "inspire" the public or are focused on a specific agenda seem to have better success.

- Perform a risk analysis and rank the risks - it is hard and messy and frustrating, but it is the only way to ensure that we are getting to better informed decisions.

- Integrate comparative risk into city/local/state planning—in order to influence environmental decisions and raise awareness of environmental issues, it must be a part of a larger process that is or can be

35. *See id.* at 4, 7.

36. *See id.* at 11, 40.

37. *See id.* at 4-5, 52.

institutionalized. Goal setting and indicators are critical components of the larger process.

- Focus on implementing actions—the risk ranking is only a step along the way, not the final step.

- Focus on just a few things to accomplish – it is easy to get lost and lose momentum in a laundry list of proposals for action.

- Include a diverse group of stakeholders, and do not overlook typically disenfranchised groups. Go beyond traditional blue-ribbon panel members. Go directly to community leaders and ask them who should be involved and in what way.

Potential stakeholders of a comparative risk project team include:

- Governor/Mayor's office
- Legislators
- Academics
- Major business interests
- Environmental advocates
- Reporters/media
- Chamber of Commerce
- Minorities
- Farmers/dairymen/ranchers
- Tribes
- States Agencies
- Department of Environmental Protection/Quality
- Health Department
- Natural Resources Department
- Fish and Wildlife
- Energy Department
- Education Department
- Agriculture

VI. CONCLUSION

Comparative risk is by no means the only environmental planning tool available to states, tribes and localities. We encourage planners to use whatever tool or collection of tools will best suit their needs and goals. Communities that have participated in the comparative risk process have realized many unexpected benefits in addition to accomplishing their intended goals. As such, we are very excited that comparative risk has evolved to the point of playing an

instrumental role in the national effort to improve environmental management.

APPENDIX: STATUS OF RSPD PROJECTS AND STAFF CONTACTS
(APRIL 1997)

	States	Tribes	Territories	Localities	Total
Completed	9	1	1	5	16
On Going	16	4	-	6	26
Planning	1	-	-	3	4

Completed Projects

Alabama – <i>Steve Keach</i>	California – <i>Jim Cole</i>
Colorado – <i>Deb Gutenson</i>	Florida – <i>Steve Keach</i>
Louisiana – <i>Deb Gutenson</i>	Michigan -- <i>Deb Gutenson</i>
Vermont – <i>Deb Gutenson</i>	North Dakota – <i>Rodges Ankrah</i>
Wisconsin Tribes – <i>Rodges Ankrah</i>	Washington – <i>Deb Gutenson</i>
Atlanta – <i>Steve Keach</i>	Guam – <i>Deb Martin</i>
Columbus – <i>Rebecca Dils</i>	Cleveland – <i>Rebecca Dils</i>
Seattle, WA – <i>Steve Keach</i>	Elizabeth River, VA – <i>Rodges Ankrah</i>

On-Going Projects

Alaska – <i>Jim Cole</i>	Texas – <i>Jim Cole</i>
Arizona – <i>Rodges Ankrah</i>	Utah – <i>Jim Cole</i>
Hawaii – <i>Otto Gutenson</i>	Allegheny Co., PA – <i>Joanne Dea/DL</i>
Iowa – <i>Rodges Ankrah</i>	Athens Co., OH – <i>Rebecca Dils</i>
Kentucky – <i>Steve Keach</i>	Charlottesville, VA – <i>Steve Keach</i>
Maine – <i>Marilyn Katz</i>	Hamilton Co. (Cincinnati) OH – <i>Gabriella Lombardi</i>
Maryland – <i>Joanne Dea/DG</i>	Houston, TX – <i>Rodges Ankrah</i>
Minnesota – <i>Rebecca Dils</i>	Jackson, MS – <i>Joanne Dea/SK</i>
Mississippi – <i>Joanne Dea/SK</i>	Region 8 Tribes – <i>Rodges Ankrah</i>
New Hampshire – <i>Rebecca Dils</i>	Pine Ridge Oglala Sioux, SD
New Jersey – <i>Joanne Dea/OG</i>	S. Ute, Durango, CO
New York – <i>Joanne Dea/JC</i>	Swinomish Tribe – <i>G. Lombardi</i>
Ohio – <i>Rebecca Dils</i>	Coer D'Alene Tribe – <i>G. Lombardi</i>
Tennessee – <i>Steve Keach</i>	

Projects in Planning

Cahaba, AL - *Jim Cole*

Dallas, TX - *G. Lombardi*

Delaware - *Otto Gutenson*

E. Boston, MA - *Nancy Prolman*

**Small Grants for Indicators
Projects**

Colorado

Connecticut

Kentucky

Minnesota

Montana - *Otto Gutenson*

New Hampshire

New Jersey

Sustainable Seattle - *Steve Keach*

Vermont

Washington