

**New York State
Comparative Risk Project:
Multi-Media Pollution Prevention Strategic Planning**

**Phase 1 Final Report:
Risk Characterization Summary and
Development of a Pollution Prevention
Strategy**

Steering Committee
New York State Department of Environmental Conservation
Comparative Risk Project

April 2001

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Phase 1 Final Report: Risk Characterization Summary and Development of a Pollution Prevention Strategy

Purpose of This Document

This document has been prepared by the Comparative Risk Project Steering Committee to consolidate the risk characterization work completed during the first phase of this Project and to establish a framework for using this risk information to develop a pollution prevention strategy for New York State. This document contains an overview of the Project; summarizes the risk characterizations done by the work groups; describes the public comments received; and provides guidance for the Risk Reduction Strategies Work Group to develop a pollution prevention strategy. The risk information in this document is based largely on the final reports of the three work groups (Human Health, Ecosystems, and Quality of Life) that evaluated risks during Phase 1 of the Project.

The Project's *Ground Rules for Steering Committee*, which was adopted by the Steering Committee on August 30, 1996 and revised February 27, 1998, states:

“The Human Health, Ecosystems, and Quality of Life Work Groups will each evaluate, characterize, and compare risks to their respective areas and will issue a report to the Steering Committee that includes their findings and supporting documentation. ... The Steering Committee will use the ... reports noted above to produce an integrated risk characterization and comparison.”

This document will take the place of the integrated risk characterization and comparison and marks the completion of the risk characterization phase of the Project. No additional ranking will be attempted by the Steering Committee.

Description of The Comparative Risk Project

The Comparative Risk Project seeks to identify those environmental problems that pose the highest risks to the citizens and the environment of New York State in order to develop a strategy that will reduce risk through various pollution prevention management options. As much as possible, the Project will base decisions on available scientific information and current technology, seek to reflect public opinions and values, and strive to achieve consensus from a broad range of viewpoints.

The comparison of environmental problems in this Project is based on risks associated with substances that are released into the environment. These substances are chemicals or particles that may be released into the air, water, or land. Fourteen groups of these substances, called stressors, have been developed based on similarities in their physical or chemical characteristics. The fourteen groups of stressors that were evaluated in this Project and their definitions are included in Appendix A.

This Project is being conducted in two phases. Phase 1 is the risk characterization phase, which identifies the most significant risks to human health, ecosystems, and quality of life that result from releases of stressors to the environment. Risk characterization, as used in the context of this comparative risk project, is a qualitative description of what is known about the nature and the magnitude of risk, and includes a description of the uncertainty of that knowledge. These evaluations use available scientific data, professional judgement, and group consensus decision-making to characterize and compare each stressor group. Final reports for each of these areas are available to the public.

Although the Steering Committee originally envisioned that the risk characterization phase would include consideration of the availability of pollution prevention measures, their decision to evaluate stressors rather than sources of risk made it difficult to incorporate pollution prevention information into the risk analysis because relationships between sources and stressors are not uniquely defined. The work groups were given some leeway to complete their risk analyses in the manner that they felt would be most practical and useful to the Project, and they chose to conduct their risk evaluations without considering the applicability of pollution prevention measures. Instead, the Risk Reduction Strategies Work Group will evaluate how pollution prevention measures can be applied to reduce risks during the second phase of the Project. Some early Project documents, including the Ground Rules and Charge to Work Groups, reflect the earlier focus. These and all other Project documents can be viewed on the Project's website.

Phase 2 of the Project will build on the information gathered during the risk characterization phase. The Risk Reduction Strategies Work Group will evaluate and prioritize various pollution prevention measures for implementation. The recommended strategy may incorporate a wide variety of possible pollution prevention methods, policies, and programs. The Steering Committee's charge to this work group is given later in this document.

The ultimate goal of the Project is a strategy that the DEC can apply effectively to reduce risk through pollution prevention. DEC looks forward to incorporating risk information into its pollution prevention planning decisions.

This Project has been initiated and coordinated by the Pollution Prevention Unit of the New York State Department of Environmental Conservation. The United States Environmental Protection Agency played an important role by providing funding and oversight. The Project is overseen by a Steering Committee composed of 16 individuals from State and local government, environmental groups, industry, and academia. The Steering Committee has two primary responsibilities: to integrate the work group risk reports and to recommend a pollution prevention strategy to the DEC Commissioner.

Five work groups were organized to gather information and prepare reports for the Steering Committee. Each work group is made up of individuals representing State government, business, environmental groups, and other organizations. The work groups are the Human Health Work Group, Ecosystems Work Group, Quality of Life Work Group, Public Participation Work Group, and Risk Reduction Strategies Work Group.

Additional details about the Comparative Risk Project, including copies of the Project ground rules, reports, and other documents, can be obtained through the Project's website at <http://www.dec.state.ny.us/website/ppu/p2crp.html>.

Work Group Risk Characterizations

Each of the three work groups that characterized risk in Phase 1 of this Project wrote a report that included rankings for each group of stressors, but more importantly, also included an analysis of available scientific data, a description of the degree of uncertainty of those rankings, and detailed information about the individual stressors that make up each group. While the rankings provide some information about the risks posed by the stressor groups, they do not tell the whole story. Readers of this document are encouraged to review the work group reports to obtain a more broad and complete picture of the risks posed by the stressors.

Along with the risk characterizations and rankings, the work group reports make a number of recommendations, which should be of particular interest to the members of the Risk Reduction Strategies Work Group. The risk rankings as determined by the work groups are summarized below:

STRESSOR GROUP	HUMAN HEALTH	ECOSYSTEMS	QUALITY OF LIFE
Acidic and alkaline substances	B	C	C
Atmospheric gases (NO _x , SO ₂ , CO, CO ₂ , and CH ₄)	B	A	A
Halogens	B	C	C
Metals and cyanide	A/B	B	A
Non-volatile halogenated organic compounds	A	A	A
Non-volatile and semi-volatile organic compounds	B	B	C
Nutrients	C	A	B
Particulates	A/B	C	B
Pesticides	B	B	B
Petroleum products	A/B	B	B
Polynuclear aromatic hydrocarbons (PAHs)	B/C	B	B
Radionuclides	C	C	C
Suspended and settleable solids	C	A	B
Volatile organic compounds (VOCs)	B	C	B

Note: "A" represents the highest level of risk; "C" represents the lowest level of risk.

Public Comments

Public comments on the three draft work group reports were accepted from June 30, 2000 through October 2, 2000. Eleven sets of comments were received.

Date Received	Commenter	Primary Topic(s) of Concern	Number of Pages
8/23/00	DEC Division of Water	pathogens	1
9/28/00	American Zinc Association	zinc	6
10/2/00	Eastman Kodak Company	various	13
10/2/00	USEPA Region 2	various	3
10/2/00	American Chemistry Council	phthalate esters	2 + 80
10/2/00	Lead Industries Association	lead	8
10/2/00	Chlorine Chemistry Council	various / NVHOCs	4
10/4/00	DEC Division of Solid & Hazardous Matls	various / minority report	3
10/6/00	Robert Sweet, Cornell Univ.	pesticides	2
10/10/00	DEC Division of Air Resources	TRI	1
10/18/00	Empire State Potato Growers	agricultural pesticides	1

Copies of these public comments are available on request. In addition, several Steering Committee members had concerns about the content of the draft work group reports. Three Steering Committee members put their concerns in writing and these were published and distributed with the draft work group reports. Two Steering Committee member comments were included in the document entitled, *Summary and Steering Committee Findings* (3 pages each). A third was published as a separate volume entitled, *Using Comparative Risk to Set Pollution Prevention Priorities in New York State: A Formula for Inaction* (93 pages). The latter document has been updated for re-release with this Phase 1 Final Report. These documents are available for download with other Project reports at www.dec.state.ny.us/website/ppu/p2crp.html. The Steering Committee and public comments were considered by the work groups before they finalized their reports.

Steering Committee Phase 1 Findings

Most other state comparative risk projects have undergone an integration process at this stage. These integrations normally combine the results of the three work group analyses with the public comments and the experiences of the Steering Committee to arrive at an overall ranking for each environmental problem. The original intent of this Project was to include such an

integration process. However, this Project differs from those of most other states in its focus on individual chemical stressors rather than broadly defined environmental problems and in the development of a pollution prevention strategy to reduce risk. This narrow focus makes an integrated ranking more difficult and, perhaps, less useful. Therefore, the Steering Committee has agreed that this document, which gives the rankings as stand alone items, would be the most useful way to complete Phase 1.

The Steering Committee recognizes the enormous undertaking that the work group risk characterizations and comparisons represent. A large amount of valuable information is contained within the work group reports, and the public may find them to be very useful. The Steering Committee made the following findings about the reports:

- The Steering Committee recommends that anyone who uses the risk information in these reports should review the data and discussions contained in the reports and not rely solely on the rankings that have been developed.
- Certain stressor groups have received higher rankings from all three work groups. However, it is important to look at the content of the reports to see which chemicals or substances in particular are responsible for the highest risk.
- Some stressors that received high risk rankings, including many in the non-volatile halogenated organic compounds stressor group, may no longer be manufactured and it may be difficult to identify a pollution prevention measure to reduce those risks.
- Some stressor groups that have somewhat lower risk rankings may have individual chemicals in that group that pose a higher risk and should be considered individually.
- Uncertainty is inherent in any risk characterization. Our knowledge of the risks associated with chemical stressors is far from complete. Significant data gaps exist in our understanding of the potential toxic effects of chemicals, the potential risks they pose to children, and how they move through the environment. Data used in the reports are several years old. New studies may have been completed and new issues of concern emerged that were not considered by the work groups.
- The risk rankings are product of group consensus, and are based on a number of assumptions and judgements. Other groups may have reached different yet reasonable conclusions. These reports should not be taken as a definitive work and should be used in conjunction with other sources of information.

Development of a Pollution Prevention Strategy

The Risk Reduction Strategies Work Group (RRSWG) will have the responsibility of evaluating potential pollution prevention measures for inclusion in the final pollution prevention strategy. Their role has been defined by the *Charge to Work Groups*, adopted by the Steering

Committee on January 31, 1997 and revised September 12, 1997. Several sections of this document are relevant to this work group:

“The Risk Reduction Strategies Work Group will issue a report to the Steering Committee that details all sources of stressors and pollution prevention-based risk reduction methods considered, including the results of research and supporting documentation for each, and recommendations to the Steering Committee on the implementation of such measures. This report will include a summary of how the pollution prevention methods are characterized for each of the criteria selected by the work group.”

and

“The Risk Reduction Strategies Work Group will evaluate the sources associated with the stressors that are characterized by the other work groups, and will develop a comprehensive list of pollution prevention policies, programs, and strategies that can be taken to reduce the risks identified by the other work groups and the Steering Committee. These strategies may include a variety of specific measures for reducing risk at the generator, local, or State level. Each proposed strategy will be evaluated by a set of criteria developed by the work group.”

The Risk Reduction Strategies Work Group will also be guided by the Project’s *Ground Rules for Steering Committee*, which was adopted August 30, 1996 and revised February 27, 1998. This document states:

“The purpose of this Project is to evaluate, characterize, and compare the risks associated with releases to the environment of substances that have the potential to harm human health or the environment in New York State, taking into account both scientific data and public values; and to recommend a strategy for reducing those risks through the multimedia pollution prevention (M2P2) program of the New York State Department of Environmental Conservation (NYSDEC). This strategy will be based on the priorities identified by a characterization and comparison of risks and will consider public values and, for each risk reduction method identified, its expected cost-effectiveness, practicality, and equity. The Project will be evaluated as a potential model for other priority setting and strategic planning efforts carried out by the NYSDEC.”

and

“The scope of this Project will be limited to risks caused by releases to the environment of substances that have the potential to harm human health or the environment, and will focus on pollution prevention as the primary method of reducing the risks caused by these releases.”

The RRSWG is asked to review the Phase 1 reports issued by the Human Health, Ecosystems, and Quality of Life Work Groups to identify those stressors which merit particular consideration because of the high risks that they pose. However, the work group is not to limit their discussions only to those stressors that earned an “A” ranking. They should look at the reduction possibilities of each stressor and work to achieve the greatest level of risk reduction for the available resources.

The work group should look carefully at the sources of the stressors that have been evaluated in order to determine which pollution prevention measures might be most effective in reducing risk. The potential of the method to reduce risk and the ability of the DEC to apply the method will be important considerations.

The overall goal of the pollution prevention strategy is to reduce risk as much as possible within the limits of what can reasonably be accomplished by the DEC. It is expected that most resources will be spent to reduce those risks that have been determined by the work groups to be of high or potentially high risk. However, there may be many methods that produce a large reduction of a stressor that ranked as low risk, or had an unknown level of risk, with a lesser expenditure of resources. These methods should not be overlooked. The final pollution prevention strategy should recommend a balanced series of measures that will reduce overall risk.

The Phase 1 work group reports should be taken as a baseline, and the RRSWG work group should give additional consideration to stressors that have an unknown level of risk. Since these chemicals might have harmful effects that have not yet been identified, it is worthwhile to apply pollution prevention to reduce the releases of these chemicals. In addition, it is noted that the data in the work group reports are several years old, and new studies may have been completed that were not considered by the work groups. The work group should use any additional studies or other information that it has to supplement the risk information provided by the work groups. Currently emerging issues are to be considered as well.

The Risk Reduction Strategies Work Group will prepare a report to the Steering Committee which recommends a pollution prevention strategy that is consistent with the goals and instructions stated in this document. This report will be made available to the public as a draft for comment. Once finalized by the work group, the Steering Committee will then prepare a Comparative Risk Project Final Report that will be based on the work group's recommended strategy. However, the Steering Committee may choose to make changes to the strategy, based on public comment or their own judgement, before including it in the Final Report. It is the Steering Committee's Final Report that will be presented to the Commissioner of the DEC for the Department's consideration.

APPENDIX A

ENVIRONMENTAL PROBLEM LIST

Stressors that are released into the environment, grouped into chemical categories (listed alphabetically)

1. **Acidic and alkaline substances**

This category includes substances that have a pH less than 2 or greater than 12.5. It does not include substances that react once in the environment to form acids or bases or to cause acid rain. The Human Health Work Group included some weaker acids and bases because they are produced, used, or released in New York in significant quantities.

2. **Atmospheric gases (NO_x, SO₂, CO, CO₂, and CH₄)**

This category includes nitrogen oxides and sulphur dioxide, which are common by-products of combustion and which contribute to acid rain. They are also precursors to ambient ozone, which is considered in this category. Greenhouse gases, except for CFCs, are also included in this category. CO and CO₂ are combustion by-products and CH₄ is emitted from various sources, including landfills.

3. **Halogens**

This category includes elemental halogens, such as chlorine and bromine. Drinking water chlorination by-products and waste water disinfection by-products, such as trihalomethanes, are included in this category.

4. **Metals and cyanide**

This category includes elemental, ionic, and organic forms of metals. Lead, mercury, and cadmium are the three that are most often cited as posing environmental risk. Other metals, such as silver, nickel, chromium, and manganese, are also included. In addition, cyanide is considered here. These substances enter the environment through a wide variety of sources, including combustion, wastewater discharges, and manufacturing facilities.

5. **Non-volatile halogenated organic compounds**

This category includes dioxin, certain pesticides, PCB's, and a variety of other compounds that contain at least one halogen atom.

6. **Non-volatile and semi-volatile organic compounds**

This category includes phthalates, alkylphenols, and glycol ethers, among other compounds. This category includes all non- and semi-volatile organic compounds that are not halogenated.

7. **Nutrients**

This category includes substances containing various elements, such as phosphorous, potassium, and nitrogen, that act to promote the growth of certain unwanted aquatic species, often to the detriment of other beneficial species. These primarily reach the environment through non-point sources, including agricultural activities.

8. **Particulates**

This category includes dust, soot, and other small particles (PM-10) that become suspended in the air. Asbestos is also included here. Combustion is the primary source of particulates. Substances that are associated with particulates, such as benzo(a)pyrene, are not included here.

9. **Pesticides**

This category includes all pesticides, including insecticides, herbicides, fungicides, and others, that are not included in other categories on this list. Certain pesticides are found in the non-volatile halogenated organic compounds and heavy metals categories. This category includes carbamates and organophosphates.

10. **Petroleum products**

This category includes petroleum product mixtures such as oil, gasoline, and diesel fuel. It does not include the substances that are released when these products are burned or the individual components such as benzene, toluene, and xylene which are considered in the VOC category.

11. **Polynuclear aromatic hydrocarbons (PAHs)**

This category includes aromatic compounds that contain three or more closed rings. A typical example is benzo(a)pyrene. The primary source of these compounds in the environment is combustion.

12. **Radionuclides**

This category includes radiation released by human activities, but not radon or other naturally occurring radiation. The Human Health Work Group included radon (but ranked it apart from other radionuclides).

13. **Suspended and settleable solids**

This category includes non-toxic solid particles, such as silt, that have the ability to cause physical or mechanical damage to surface waters.

14. **Volatile organic compounds (VOCs)**

This category includes many low molecular weight solvents used in a variety of commercial processes, such as dry cleaning, degreasing, manufacturing, painting, and printing. Common solvents include perchloroethylene, TCE, and benzene.

APPENDIX B

Using Comparative Risk to Set Pollution Prevention Priorities in New York State: A Formula for Inaction

A Critical Analysis of the New York State Department of Environmental Conservation Comparative Risk Project

April, 2001

*Prepared by the
New York State Assembly Legislative Commission on Toxic Substances and Hazardous Waste*

Assemblyman Steve Englebright, Chair
Elizabeth Meer, Project Steering Committee Member*

Executive Summary

The New York State Department of Environmental Conservation (DEC) Comparative Risk Project was initiated in 1996 with the goal of setting priorities for the Department's pollution prevention program. The purpose of the Project is to evaluate, characterize, and compare the risks associated with toxic chemicals in New York State and develop a strategy to reduce the highest risks.

The Project groups chemicals into fourteen "stressor" groups based on physical and chemical characteristics. The groups include atmospheric gases, metals, halogens, non-volatile and volatile organic compounds, particulates, pesticides, and petroleum products.

The Project's Human Health, Ecosystems, and Quality of Life Work Groups completed their Reports evaluating risks to human health and the environment in December 2000. Each Report provides a ranked list of stressor groups based on risk. The Steering Committee recently presented those rankings in its Phase 1 Final Report. That Report also charges the Risk Reduction Strategies Work Group with carrying out Phase 2 of the Project, which will build on the information gathered in Phase 1 to develop a pollution prevention strategy for the State.

The Legislative Commission on Toxic Substances and Hazardous Waste has participated in the New York Project from its inception in 1996, with staff serving on the Steering Committee and as non-voting members of the Human Health Work Group. This experience has revealed that comparing the health and environmental impacts of toxins across a wide variety of chemicals and exposures is a difficult task.

All comparative risk assessment projects suffer from inherent limitations and are prone to substantial biases. Unfortunately, the New York Project exhibits all of these limitations and biases, plus a few

* Assemblyman Englebright was Chair of the Commission from January 1995 to December 2000, which spanned the majority of Phase 1 of the Project.

uniquely its own. The most important of these is the Project's adoption of a very limited standard of acceptable evidence for human health risks, which has led, among other things, to the exclusion of qualitative information regarding noncancer health risks. This limited standard of evidence is especially inappropriate when used to set priorities for pollution prevention, an area of government action particularly suited to addressing the hazards posed by emerging toxic chemicals of concern.

The Scientific Authority of Comparative Risk Assessment is Limited

The most fundamental limitation of comparative risk projects is lack of information. The toxic effects of the majority of chemicals used in commerce are unknown, and significant data gaps exist in every aspect of our understanding of risk, including noncancer risk, risks to children, ecological risk, variations in human sensitivity, additivity and synergy, fate and transport, and exposure in general.

These data gaps necessitate the making of value judgments in order to assess and compare risk. Most fundamentally, risk assessors must choose whether it is better, in the face of uncertainty, to err on the side of overestimating risk (which may result in unnecessary economic costs), or to err on the side of underestimating risk (which may result in under protecting human health and the environment). In comparative risk projects, this decision centers on whether to take less certain evidence into account, and how much weight to give such evidence in the ranking process.

Resource constraints also limit the depth and breadth of most projects' analyses. In the case of the New York Project, only 220 chemicals were evaluated out of over 1,300 chemicals listed as hazardous by DEC and 70,000 used in commerce.

Taken together, lack of knowledge, the need to make value judgments, and resource constraints limit the scientific authority of comparative risk projects. As a result, only modest claims are appropriate regarding the authority of such projects, and they should not be used to second-guess traditional priority setting through legislation and more traditional means of public participation in agency decision making.

In addition, comparative risk projects often fail to disclose the degree of uncertainty and the value judgments associated with their results. As a result, the scientific authority of such projects is often overstated, the value judgments embedded in them are not made consciously or disclosed to the public, and public deliberation about the values and considerations that ought to guide priority setting is impoverished.

Comparative Risk Projects Often Discount Uncertain Risks

Comparative risk projects are also frequently biased toward the underestimation of uncertain risks. This is due in part to the tendency of risk assessors to adopt the traditional response of scientific inquiry to uncertainty, which is to postpone judgment.

This response is appropriate, and indeed constitutes an important norm of good inquiry when adopted in the context of pure scientific research. When adopted in the context of risk assessment, however (which is an applied science used to inform public policy), it constitutes a policy choice in favor of erring on the side of underestimating uncertain risks and deferring government action to address them. In other words, the issue of what standard of proof is adequate to support government action is a policy question, different in nature from the more academic question of what standard of proof is adequate to support a determination of scientific certainty.

In the context of a comparative risk project, a tendency to defer judgment can lead to the discounting of uncertain evidence and a focus on only well-documented risks. As a result, a project may overlook the

potential for adverse impacts posed by the large number of unstudied chemicals and unmeasured exposure pathways. Cancer risk may be emphasized over noncancer risk. Low dose, chronic, and additive and synergistic effects may be overlooked, as well as the risks faced by uniquely susceptible populations, such as children and the elderly. In sum, the tendency of comparative risk projects to focus on well-known risks has the potential to impede government action to reduce uncertain risks.

Moreover, the choice to defer judgment is often not recognized or disclosed as a policy choice, but viewed as a neutral dedication to “good science.” This misinterpretation contributes to the frequent failure of comparative risk projects to directly address and debate the issue of what standard of proof is appropriate to support government action. It also takes a basic value choice out of the hands of the public and gives the choice of delay an undeserved degree of status and authority that is difficult, if not impossible, to successfully challenge.

The New York Project Fails to Disclose Uncertainty and Value Judgments

While the scientific limitations of comparative risk projects cannot be overcome, they can be disclosed. Such disclosure also serves to guard against the mischaracterization of value judgments and the unexamined discounting of uncertain risks.

Many scholars agree that the quality and transparency of a comparative risk project are dependent on the full acknowledgment of uncertainty, recognition and disclosure of the value choices that must be made in the face of limited knowledge, and inclusion of qualitative considerations that go beyond traditional views of risk. In addition, many scholars recommend a high level of public participation to help ensure that the policy choices embedded in the assessment are fully debated and reflect public values. The most important goal of a comparative risk project should not be risk ranking, but the thorough and accurate reporting of what is known and not known about environmental threats.

Unfortunately, the New York Project largely fails to achieve that goal. Instead, it exhibits all of the limitations and biases to which comparative risk projects are prone. For the most part, the Work Group Reports fail to fully acknowledge the uncertainty associated with their analyses, and to recognize and disclose the value judgments made in the face of uncertainty. These failures compromise the quality and transparency of the Project’s results.

The New York Project Underestimates Risks to Human Health

In addition, and perhaps most importantly, the Project’s Human Health Work Group (HHWG) exacerbated the tendency of comparative risk projects to underestimate risk by making a number of policy choices that led to the Group’s systematic underestimation of both uncertain and more certain risks. Specifically, they chose not to directly address important areas of uncertain knowledge, such as risks to children; they relied almost exclusively on data readily available from government databases for their analyses; they excluded qualitative evidence of noncancer human health risk from their analyses; and they failed to consider known areas of significant risk, such as risks to workers. Moreover, the majority of these choices were made implicitly, without discussion of their implications or substantive merit, especially in light of their use to set priorities for pollution prevention.

As a result, the Group’s work suffers from a largely hidden and wholly inappropriate bias toward the underestimation of risk. It is not proactive or “cutting edge.” It does not seek to identify emerging environmental health problems. Instead, it systematically underestimates risks for which little

quantitative data is available, such as the risks posed to children by pesticides and other chemicals;** the risks of many mutagens, teratogens, reproductive and developmental toxins; and the risks of PAHs.

A more expansive and detailed focus on any one area of risk, chemical, or exposure pathway is likely to uncover more, and more up-to-date, information than that relied upon by the Project's Human Health Work Group. It is also likely to result in the identification of more toxic hazards as being worthy of immediate action. As it is, it is more likely than not that the Project has failed to prioritize risks that are causing serious adverse impacts on human health.

The New York Project Fails to Address Important Qualitative Issues and Issues that Transcend "Risk"

The Human Health and Quality of Life Work Group Reports also fail to adequately consider qualitative issues and the characteristics of environmental problems that transcend simple measurement of the degree of risk. Risk comparison and priority setting clearly call into issue the qualitative differences between risks, such as what type of effect a toxin causes (eg. cancer, liver damage, or developmental disability), the size of the population exposed, or whether a chemical is more risky to certain subgroups, such as the elderly or children. They also call into issue considerations so foreign to quantitative risk assessment as it was originally conceived that they can essentially be said to transcend it. These include environmental justice, whether a risk is voluntarily or involuntarily imposed, the ease of risk reduction measures, and the value to society of the pollution causing the risk.

To adequately address these qualitative differences and issues, more narrative and holistic ways of evaluating priorities are needed than strictly quantitative analysis. Unfortunately, instead of directly addressing the qualitative differences between risks, the Human Health Work Group chose to base their analyses almost exclusively on quantitative data. This attempt to make qualitative differences a non-issue was not able to make them go away. Instead, it only served to distort and weaken the usefulness of the Group's analyses.

Ironically, the Quality of Life Work Group, whose work was clearly the most qualitative in nature, also failed to provide rich descriptions of the criteria and rationale upon which their rankings were based. Their most glaring failure, however, is their failure to even mention more than one of the issues identified in the literature as transcending the paradigm of "risk." The voluntary or involuntary nature of risk, whether it is wrongfully imposed, or poses a potential for catastrophic harm, along with many other important issues, are not even mentioned in the Group's Report.

A whole set of additional issues, such as ease of implementation, are slated to be addressed by a fourth group, the Risk Reduction Strategies Work Group, that has not yet begun to meet regularly. The artificial separation of these issues from the main work of ranking risks as carried out by the Human Health and Ecosystems Work Groups unnecessarily distorts the Project's work and weakens its usefulness.

** With the exception of lead, which was addressed by the Group.

The Use of Comparative Risk Assessment to Set Priorities Unnecessarily Limits Pollution Prevention

The New York Project also suffered from some entirely unique weaknesses. First among these is the inappropriate use of comparative risk assessment to determine priorities for pollution prevention. In the face of uncertain knowledge, traditional command-and-control regulation requires regulators to choose between two evils--failing to adequately protect the public health, or imposing unnecessary economic costs. Pollution prevention programs are able to cut through this dilemma because they are not strictly regulatory in nature and because they involve taking only those actions that make good economic sense for the company involved. In doing so, they can also overcome the tendency for uncertainty to paralyze government action.

While it is not wrong for some pollution prevention activities to be focused on well-known risks, it makes sense for pollution prevention to also focus on less well-documented risks, an area of risk which traditional command-and-control regulation is not well equipped to address. A sound priority setting process for pollution prevention would use all available scientific information and considerations that transcend risk (such as ease of implementation), to target both well-documented risks and less certain risks for which the slim evidence available indicates a possibility of widespread, damaging, or long-term effects (such as the category of chemicals identified as potential hormone disruptors). Unfortunately, however, the latter are not the types of risks highlighted by the New York State Project.

As it is, the Project took too much time away from more direct efforts to achieve pollution prevention. It has taken up a disproportionate amount of the Pollution Prevention Unit's time. And its limited recommendations are not likely to facilitate, and may even hinder, the proactive application of pollution prevention to emerging environmental problems in New York State.

The New York Project Failed to Achieve Adequate Citizen Participation

A second unique shortcoming of the New York Project is its failure to achieve a high level of public involvement. First, the Work Groups and Steering Committee were notably lacking in participation by environmental organizations and citizen groups, who generally lack the resources to participate in such lengthy and time consuming processes. While DEC made an effort to recruit such representatives, the final makeup of the Steering Committee included only one member who represented an environmental organization, and no citizen group representative. The Human Health Work Group had no environmental or citizen group member. In contrast, industry was well represented by two or more members on both the Committee and HHWG.

Second, outreach to the broader public during the first four years of the Project has been minimal. The small efforts that have been made have been passive and focused on getting information *out* to the public as compared to actively soliciting public comment on substantive or controversial issues. The end result is a highly technical set of Work Group Reports that emphasize expert analysis over public deliberation.

The New York Project's emphasis on quantitative analysis, coupled with its failure to adequately disclose value judgments and include the broader public in its deliberations, has inhibited public discourse regarding what policies should guide pollution prevention priority setting. These failures call into question the substantive and political authority of the Project's conclusions.

Despite Weaknesses, the Project's Findings are of Value

This does not mean that the work performed by the Project's Work Groups has no value. The Ecosystems Work Group adopted a much more protective standard for the consideration of evidence than did the HHWG. They also developed an informative and accessible system for comparing the qualitative differences between risks. These qualities make its analyses more proactive, holistic, and useful than the HHWG's.

The Quality of Life Work Group Report includes a valuable study of environmental justice. The study's finding that pollution is disproportionately concentrated in low income communities is important.

Finally, the Human Health Work Group's recommendations targeting specific toxic chemicals and pollution sources for action are also of value. Unlike the General Electric Company (which has also commented negatively on the Project), the Commission believes that the Group's limited set of recommendations for action should be taken seriously indeed. Given the Group's overly hesitant approach to identifying risk, the problems it does identify clearly warrant immediate action.

Conclusion: The Project's Results Should Not be Relied Upon Exclusively to Set Priorities for Pollution Prevention

In the end, however, it is highly questionable whether the results of the Project are worth the time and resources expended on them. Taken as a whole, the Work Group Reports fail to provide a comprehensive, transparent or accessible presentation of what is known and not known about toxic risks. Even more importantly, the Project inappropriately applies comparative risk assessment to the setting of priorities for pollution prevention, and adopts a much too limited standard of acceptable evidence for human health risks, especially in light of that application.

Given these weaknesses, the Project inappropriately drew scarce resources away from more direct efforts to promote and enhance pollution prevention. Unlike GE, the Commission's concern is not that the problems identified by the Work Groups do not merit attention. Rather it is that an exclusive focus on them will serve to inappropriately limit the scope of risk reduction activities.

The New York Project must be viewed as exactly what it is, and nothing more. It is one (imperfectly representative) group's attempt to survey available information about the threats posed by chemical stressors to the environment and public health. It is limited by data gaps and uncertainty, resource constraints, a failure to consider important evidence, a tendency to highlight the best-known risks, a narrow focus on "risk," and a failure to achieve meaningful public outreach. It is not the last word on any of the toxic chemical threats faced by New Yorkers.

It remains unclear whether the benefits of the New York Project will outweigh the danger of its potential misuse. Much depends on how its results are viewed by the public and used by the Department.

Readers of the Work Group Reports should be aware of the uncertainty and value judgments inherent in risk comparison, and take a healthfully skeptical view of the Project's risk rankings. Most importantly, the risk rankings and the Work Group Reports should not be relied upon exclusively to set priorities for pollution prevention.

The Steering Committee's Phase 1 Final Report offers some reassurance in this regard. The Report encourages readers not to rely on the risk rankings in isolation, but to review all the data and information contained in the Work Group Reports. In addition, it describes a number of the Reports' limitations, and

emphasizes that the Reports should not be taken as a definitive work, but used in conjunction with other sources of information.

Most importantly, it directs the Risk Reduction Strategies Work Group to look beyond those stressors that earned an “A” rank. Instead, the Group is directed to take ease of implementation into account, and not to overlook methods that efficiently reduce stressors that ranked as low risks, or pose an unknown level of risk. Indeed, the Group is charged with giving special consideration to chemicals with an unknown level of risk, and to consider new information and emerging environmental health threats.

These caveats and guidelines help to alleviate our strong concerns about the potential for misuse of the Project. Taken together, it is our hope that the Steering Committee’s Final Report and this Commission’s Analysis will continue to mitigate the danger of misuse by helping to ensure that the weaknesses of the Project are understood, and that it is not relied upon exclusively to set priorities for pollution prevention.

Readers with a greater interest in these issues are urged to read the full text of our Analysis, which is available on DEC’s Pollution Prevention Unit website and by direct request from the Commission or DEC.