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SAVING THE LOST SHEEP: BRINGING ENVIRONMENTAL VALUES BACK INTO THE FOLD WITH A NEW EPA DECISIONMAKING PARADIGM

Victor B. Flatt*

Abstract: Currently, the Environmental Protection Agency (EPA) uses benefit-cost analysis in making many of its regulatory and enforcement decisions. This Article argues that, although required in some instances, the EPA’s benefit-cost analysis procedure is incomplete, deeply flawed, and may even violate statutes in some respects. Much of the controversy surrounding environmental regulation can be attributed to this flawed benefit-cost analysis. This Article proposes a new paradigm for EPA regulatory decisionmaking. The proposed paradigm is a four-step decisionmaking process that enhances the outcome of the EPA’s decisions by highlighting values that are often ignored or outside the traditional benefit-cost analysis but are necessary to comply with many of our environmental laws and for effective environmental regulation.

INTRODUCTION

There are times in one’s life that are singular, when one sees clearly an issue that has bedeviled and eluded one before. Such a time in my life occurred on May 20, 1994, at the Environmental Protection Agency’s (EPA) Region X management retreat in Kirkland, Washington. At that time, I was teaching environmental law and policy at the University of Washington’s Graduate School of Public Affairs. As a local “expert” on environmental policy, I was asked to present to the management retreat my views on current EPA decisionmaking issues and problems.

I was very excited by the invitation, and indeed, I was eager to address this issue with them. I had already been formulating a theory that the EPA’s decisions were often guided by incomplete information—specifically, that the people who worked for the EPA did not address all of the values Congress intended in the enabling acts of various

* Associate Professor, Georgia State University College of Law. The author would like to thank his research assistant, Amy Major, for her excellent skills and insight into this piece. The author would also like to thank the 1994 and 1995 classes in environmental policy at the University of Washington’s Graduate School of Public Affairs for their patience with a working version of this idea. Special thanks to Professor Carol Rose, Clark Gaulding and the EPA Region X office, and my excellent editor Beth Bryant. A very special thank you to Dr. Jeffrey Wainstein, whose patience made the generation of this idea possible.
environmental laws. I therefore decided that I was going to encourage
those policymakers at the EPA’s Region X to try to get back to the
legislative roots, to try to address again those “squishy” values like
ecological integrity and purity, with which we as rational beings are not
often comfortable.

My texts were the laws themselves: the Clean Water, Clean Air, and
Endangered Species Acts. As its goal, the Clean Water Act does not
propose that we determine how much of a pollutant put into water is
cost-beneficial, but instead proposes that we “restore and maintain the
chemical, physical, and biological integrity of the Nation’s waters.”2 The
Clean Air Act does not have as its goal a level of air pollution that is
cost-beneficial, but a control of air pollution that will “protect the public
health”3 and “preserve, protect, and enhance the air quality in national
parks, national wilderness areas, national monuments, national seashores,
and other areas.”4 The Endangered Species Act does not protect
endangered species of animals and plants just because they have a
market value, but because they have “esthetic, ecological, educational,
historical, recreational, and scientific value to the Nation.”5

Before I began, I wondered whether these EPA managers would even
understand what I was trying to say—whether they had any appreciation
for the “squishy” environmental values I believed Congress intended for
them to consider. I need not have worried. For with that speech I struck a
deep chord.

After reminding them of their childhood love of nature and why they
originally wanted to work with the environment, I began to see heads
nodding in understanding. The reaction was more than a polite
acknowledgement of yet another intellectual’s quaint ideas. I felt
communion where I thought there was only solitude. That was the
singular moment. At that time I realized that my own concerns and
disquiet were not unique. Those EPA managers and I shared a common
concern for our environment that we knew was not being addressed in
spite of our best efforts. The emperor, if not naked, was certainly scantily

Treating Environmental Philosophy and Environmental Risk Allocation as Environmental Values
clad, and now we could all say it out loud. We could criticize our current methods of environmental decisionmaking without fear of being called irrational or stupid.

But, as a tent revival something was incomplete. The damnation was there, but the redemption was not. Yes, we were all troubled, but where was our salvation? There can be no mass conversion if there is nothing to convert to, and so that day, although important, was ultimately disappointing. For although we knew we were “sinning,” we did not know how to get to the “promised land.”

I now hope this shortcoming can be remedied. Although it may not be perfect, I believe I can offer one method for decisionmakers at the EPA to consider all the environmental values relevant to their decisionmaking under the various environmental laws. This new method is rational and fully recognizes the requirements of environmental decisionmaking the environmental laws set out; but, the method also accepts the inescapable need for some analysis that may be called “subjective” because it is not reducible to a standard mathematical model.

Although it is anathema to some decision choice theorists, I am convinced that the implementation of environmental laws cannot be done correctly without a recognition of certain “squishy” values that have not been historically quantifiable by the traditional benefit-cost analysis. Although this does make the process susceptible to a certain subjectivity, it does so no more than ignoring these values altogether in an attempt to claim rational decisionmaking. And, by this method decisionmakers can at least be aware of, and acknowledge limitations caused by, this subjectivity. Ultimately, this will force those who are required to choose among subjective policy choices (our Congress and state legislatures) to make choices in an open manner with full input and not escape the hard choice by claiming that an environmental agency need only apply a technical formula to determine the right answer.

However, before we reach the “heaven” of correct environmental implementation, we must first review why the current method of decisionmaking does not get us there. There is no reason to go on the “straight and narrow” if the “broad and wide” leads to the same place. Therefore, Part I of this Article reviews the current, predominant EPA decisionmaking paradigm—benefit-cost analysis, discusses the problems with that paradigm, and explores why it ignores certain important environmental values recognized in legislation. Part II analyzes requirements and alternatives for a new paradigm. Part III proposes a new paradigm that would be a superior alternative to the current model for the purpose of making better informed environmental decisions.
consistent with legislative goals and requirements, and examines the workings of the new paradigm in context. Part IV concludes by applying the new paradigm to a recent EPA policy decision.

I. FOR THE CURRENT PATH IS BROAD AND WIDE: THE PROBLEMS WITH BENEFIT-COST ANALYSIS

A. The Problem of Environmental Decisionmaking

Various federal environmental laws charge the EPA with the power of implementing the laws and turning them into concrete requirements. The Clean Air Act requires the EPA to promulgate national ambient air quality standards that are "requisite to protect the public health." 6 The Clean Water Act allows the EPA to permit discharges of pollution to water if the discharges do not violate ambient standards for pollutants in that water. 7 The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) allows the EPA to charge a private party the cost of cleaning up a site that is contaminated with hazardous wastes if that site "may present an imminent and substantial danger to the public health or welfare." 8 A whole host of laws require the EPA to set standards, translate those standards into individual requirements, and determine when those requirements have been violated. 9

Due to the nature and complexity of environmental problems, however, the implementation of such directives is not easy. This is particularly true of the first step: setting standards. What is the level of ozone at which the "public health" will be protected? 10 At what concentration does a "hazardous substance" become an "imminent and substantial danger to the public health"? 11

Many environmental laws have general proscriptions against "harmful" pollutants, but the term itself is usually not defined. Although such a term may seem superficially clear, most environmental pollutants are not inherently harmful, but are only harmful in certain quantities

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and/or certain unwanted locations. Indeed, most so-called pollutants are either useful in some way or consist of the byproducts of otherwise desirable outcomes. Moreover, although many substances have been identified as potentially harmful to human or ecosystem health, a definitive harm is often difficult to prove, particularly in specific cases. Far from being certain, a general proscription against "harmful" pollutants, or a requirement to protect public health, requires the EPA as the administering agency to answer a whole host of questions.

B. The Use of Benefit-Cost Analysis

Because of the difficulty of environmental problem solving, the EPA has particularly resorted to one paradigm to assist in this endeavor: benefit-cost analysis. In benefit-cost analysis, the agency tries to determine whether an action should be taken by weighing the costs of taking that action versus the benefits of taking that action. The option with the highest benefit-cost ratio is optimal. Typically, in the United States the calculation uses dollars as a common currency of costs and benefits. This presumably allows a mathematical weighing of choices to select the one with the greatest net positive benefit.

The EPA must use benefit-cost analysis in certain circumstances. By executive order, all federal agencies have been required for almost twenty years to prepare benefit-cost analyses on all federal regulations and generally to use these analyses in making decisions absent a specific

12. See Peter S. Menell & Richard B. Stewart, Environmental Law and Policy 260-61 (1994). For instance, the criteria air pollutants are so ubiquitous because they are primarily by-products of oxidation from energy production (cars, power plants, etc.), and the Clean Air Act assumes that there is some safe level of these by-product pollutants. See 42 U.S.C. § 7409 (1994).

13. See Menell & Stewart, supra note 12, at 189. For example, all of the current criteria air pollutants are by-products of fossil fuel combustion, which is the backbone of our society's energy and transportation.


15. Although one often sees the term expressed as "cost-benefit," "benefit-cost" is the term most often used in today's literature.


17. See id. at 41-45.

18. See id. at 51-54.

19. See id. at 8.
requirement to the contrary. Moreover, the Unfunded Mandates Reform Act of 1995 codifies the analysis requirement for regulations that will have an annual economic impact of over $100 million, although it does not require that decisions be based on this analysis. But, environmental laws represent some of the few examples wherein consideration of regulatory costs in making regulatory decisions is explicitly prohibited. This exceptional requirement is very important in the environmental arena, and it was put there because the dominant benefit-cost paradigm does not always work well in the environmental context. As stated in an earlier article examining the use of the benefit-cost paradigm in environmental regulation:

The history of the environmental movement and environmental regulations indicate that federal agencies did not understand or consider environmental values in the traditional cost-benefit analysis paradigm employed in the postwar period. Therefore, to protect the environment from practices and decisions which continued to abuse it, Congress prohibited a seemingly logical paradigm—cost-benefit analysis—in certain environmental laws.

Thus, Congress itself has realized that the EPA should not use benefit-cost analysis alone in making many of its environmental policy determinations, and this also loosely indicates that despite practice to the contrary, there is no real legal impediment to using another system to inform regulatory decisions.

Nevertheless, despite its prohibition in these important cases, the EPA uses benefit-cost analysis for its decisionmaking paradigm across the board. It does so even in the face of court decisions holding that using such analysis in that way violates the law. Although the courts have


23. Flatt, supra note 22, at 603 (footnote omitted).

24. See Mark K. Landy et al., The Environmental Protection Agency: Asking the Wrong Questions 65–70 (1990); see also Lead Indus. Ass’n v. EPA, 647 F.2d 1130, 1148 (D.C. Cir. 1980)
clearly recognized Congress’s prohibition of benefit-cost analysis in certain environmental circumstances,25 many of the EPA’s policy decisions are effectively insulated from such scrutiny. Given the scientific uncertainty involved in most environmental decisions, the EPA can use benefit-cost analysis to pick and choose among certain scientific studies, choosing a low cost regulatory setting over a more expensive but possibly safer one for instance, without having to acknowledge its use.26 In the book The Environmental Protection Agency: Asking the Wrong Questions, the authors describe how benefit-cost analysis considerations were factored into the EPA’s decision in the 1970s to set the ozone standard at .12 parts per million (ppm) instead of .08 ppm, in direct contravention of the legal requirement.27 This type of analysis is so common that it is openly advocated in spite of its illegality. For instance, in the EPA’s recent attempt to ratchet down the ozone and particulate standard to better protect human health, critics in Congress of the proposed new standard, oblivious or antipathetic to the overriding “protection of human health” requirement in the law itself, based their criticism primarily on the high cost.28

C. Why the EPA Uses Benefit-Cost Analysis

Even though it is legally prohibited from doing so in certain cases, the EPA’s default use of this type of analysis is understandable, because of both the difficulty in analyzing values outside this context and the difficulty in justifying a decision based on such an alternative analysis. From a policy perspective, in the abstract at least it is hard to criticize the logic of using benefit-cost analysis in making regulatory decisions, even in the face of explicit congressional disapproval. Who does not want more benefit than they pay for? Is this not always better for the public? Although the use of a benefit-cost paradigm is logical in the abstract, it is not always the best way for making decisions. Individual decisions based on benefit-cost analysis are almost always likely to be accurate ex ante because individuals (usually) have access to perfect information

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26. See Flatt, supra note 22, at 602.
27. See Landy et al., supra note 24, at 65–70.
about their wants and desires. However, when these desires must be subject to rational calculation or justified to another person in order to make a group decision, the situation becomes much more difficult. In those cases, benefit-cost analysis must necessarily be reduced to a consideration of those benefits and costs that can easily be discussed and weighed by everyone involved in a decision. Decisions open to discussion must be justified on an explainable benefit-cost basis even though the action was almost certainly taken based on that individual’s personal benefit-cost assumptions, which by definition makes it the best choice from that individual’s perspective.

Many a struggling environmentalist has had to try to justify why recycling certain goods is an appropriate personal decision in the face of “objective” studies showing that recycling certain kinds of materials is not cost-effective. Imagine how much more difficult it is to explain why, in order to protect wildlife diversity, an isolated wetland should not be filled in one case but can be filled in another. It is no wonder that the EPA moves in the direction of justifying decisions based on rational, reproducible values. Unfortunately, this is not the benefit-cost paradigm that could dictate the perfect decision, but one that is hollow and one-sided (biased toward the more easily “explainable” decision). For that reason, it may lead to a decision that is as or more arbitrary than a decision that is not explicitly justified by “rational” calculations.

Of course, there may be other advantages in requiring agencies such as the EPA to justify their actions in terms of explicit, logical reasons. We certainly want our agencies to have good reasons behind their decisions. It would be difficult to analyze an agency decision saying: “We made the decision that way because we wanted to!” Federal agencies are subject to certain expectations of rationality and subject to the Due Process Clause of the U.S. Constitution. These agencies must present some rational, clear way for making decisions. Rules and standard setting must be conceived and implemented fairly. Because it is historically the only paradigm for this kind of rational decisionmaking, benefit-cost analysis becomes the irresistible paradigm for agency decisions, particularly those that involve rulemaking. Many decisions


have to be justified to various interest groups; it is always easier to point to some numeric reason for a decision, rather than a non-numeric one, as if the agency were merely plugging inputs into a formula that would give anyone the same answer.

D. Why Benefit-Cost Analysis Fails in the Environmental Context

The major problem with the use of benefit-cost analysis to make decisions in the environmental context is that we do not have a common way to express or discuss all the “goods” and the “bads” or reduce them to numeric values. Thus, many types of “goods” and “bads” that would influence our individual environmental decisions are simply ignored. This leaves benefit-cost analysis a poor vehicle for selecting our preferences. According to Louis Uchitelle, one prominent economist has noted that pushing the correct lever to make the economy grow “is not the same thing as achieving the life we want to live or constructing the society we want to inhabit.”

In the environmental context, this problem is particularly acute. The degree of benefits and risks from controlling pollution is uncertain, due to uncertainties in scientific understanding of the impacts of pollution on human health and the environment. Most environmental testing is done through animal studies at extremely high doses and questionable extrapolation and through uncontrolled past history epidemiological studies. This leaves the level of harm for amounts of a pollutant uncertain and makes it difficult to compare harm to benefits. Thus, benefit-cost analysis tends to focus on costs and benefits that can be more easily quantified in dollar terms. Harm to ecosystems is often calculated by using market value for natural resources, even though most environmental amenities are not sold on the open market and are not completely valued if they are. Quantification of harms in benefit-cost analysis is usually attempted in the area of human health, but although this can put the decision in sharper focus, it still requires an answer to the

33. See id. at 293–96.
34. See Flatt, supra note 22, at 603.
question: “How valuable is a human life?” — a value that many would say is philosophically unquantifiable.  

Even the simplest environmental decisions implicate more values than can be considered using only benefit-cost analysis. For example, how does the EPA craft a truly cost-beneficial decision in a context in which exact market prices are not known or cannot be calculated? A determination of whether a National Pollutant Discharge Elimination System (NPDES) water permit should be issued under the Clean Water Act requires the EPA to determine if the permit meets a particular ambient standard, determined by the state environmental agency, to protect environmental health (or some other goal).  

But, doing this pursuant to a true benefit-cost paradigm also requires weighing that goal. How many dollars is it worth to have a small creek that is “fishable”? Or, how many dollars is it worth for us to know that it is “fishable,” even if we do not fish there? Of course, such questions cannot be answered directly with traditional benefit-cost analysis; indeed, in that context it is so irrelevant that sometimes the EPA does not even ask the question. Many times in practice the EPA and the state agencies to which clean water programs have been delegated in some states simply do not consider water quality criteria at all in making permit decisions — despite the fact that the Clean Water Act explicitly requires it.  

The EPA, along with other regulatory agencies, has shown some willingness to delve into these issues when it is trying to quantify human health values, but that is only part of the picture. The EPA still routinely underrates other environmental values that Congress has specifically indicated are to be given weight in environmental decisionmaking. This focus on human health or market goods alone, to the exclusion of other important environmental values, undermines the legitimacy of environmental values that are specified by Congress and

40. See Landy et al., supra note 24, at 180–83.
41. See Flatt, supra note 1, at 94. For instance, the Department of Interior, in consultation with the EPA, often fails to provide for proper endangered species recovery plans due to economic impact concerns even though the Endangered Species Act clearly requires this.
EPA Decisionmaking

are important to the public. How does one calculate the value of an endangered snail darter and compare it to the value of a major dam on a major river system? What about the value of a beautiful view? Even more difficult is how to give voice to the philosophical values of environmental law that plainly inform our society and even our laws.

More than this, benefit-cost analysis effectively excludes the public from meaningful discussion and participation in what is appropriate for the environment. As Michael P. Vandenbergh stated in his critique of the current EPA decision models, "environmental debate is dysfunctional. . . . The public is generally disengaged." Eileen Gauna suggests that environmental debates have come to be structured as "battles of experts" with no attention paid to other values not involved in making technical tradeoffs.

Because of these problems, criticism of the EPA's use of the traditional benefit-cost paradigm to make environmental decisions has been legion. The use of this paradigm also contributes to much uncertainty about policy direction, as it is unclear just which values the EPA can shoehorn into its old paradigm for decisionmaking. The very failure to speak in a common language about which values we are considering or should consider may explain much of the current conflict over environmental policy in our country. Michael Vandenbergh notes that "environmental law reform remains in gridlock," primarily because the debate does not center on the norm-creating issues at the heart of the environmental movement.

However, despite the failings of this paradigm, the uncertainty over its use, and its illegality when used in a way that ignores legislatively-mandated requirements, the push to continue such analysis and eliminate any non-quantifiable value judgments that remain in the process is inexorable in our modern society. In the United States there is a growing chorus of regulatory reformists who want to push the EPA and other

42. See id. at 102-03.
43. See id. at 98.
46. See Flatt, supra note 1, at 103.
47. See Flatt, supra note 22, at 604-05.
federal agencies into utilizing a more stringent form of benefit-cost analysis, particularly one that only looks at these so-called objective, reproducible values. The further we go down the "broad and wide" path, the wider it becomes and the harder it is to turn back. In the name of science and good public policy, we have already moved far from the aspirational goals of environmental protection that began the environmental movement. If we do not stop soon, "redemption" may be too late.

It is not that benefit-cost analysis is not useful or that it cannot have influence in understanding aspirational goals. The connection between the aspirational goals of environmental protection and the realities of funding those goals forces the agency to consider costs and benefits in some way. Indeed, one could interpret the Unfunded Mandates Reform Act to require a quantification of as many costs and benefits as possible. But, by encouraging or continuing to allow the EPA to base its decisions solely on such a paradigm without examining the problems of recognizing difficult-to-quantify policy choices, we delude ourselves into thinking that decisions made using such an analysis are objective when obviously they are not. As Eileen Gauna stated: "Experts increasingly recognize that even technical and scientific solutions to environmental problems involve value judgments. The desired level of environmental protection and corresponding strategies employed to achieve these desired levels are recognized as questions which are inherently political as well as technical." "Analytic" analysis is a false god. As much modern legal scholarship on perspective has suggested, it may be impossible to separate emotions and subjectivity from legal decisionmaking. Values that Congress clearly intended to be considered in the implementation of environmental laws may be ignored altogether or considered partially, depending upon the particular agency decisionmaker or agency approach to a given problem.

49. See Flatt, supra note 22, at 605.
52. Gauna, supra note 45, at 24 (citations omitted).
54. See Landy et al., supra note 24, at 80.
By continuing down this road, we also fail to address the real questions that bedevil our society over the environment, such as how much we are willing to pay for our safety or who should be protected. This delays the hard choices that must be made and imposes exorbitant transaction costs on our society as we grapple in the courts over "who has the right to clean air?" and "who has a right to be protected?", but does so in the guise of "technological, scientific" decisions. How is a court to decide whether one scientific study concerning health risks is more accurate than another when the proponent of a scientific study is actually concerned with the costs of regulatory compliance?

To the EPA's credit, it has attempted to bridge the gap between environmental goals and numeric benchmarks that are being pushed in regulatory reform by attempting to place numeric values on these hard-to-quantify values, and then bringing them into the benefit-cost analysis. For instance, the EPA has tried to use new numeric tools such as Contingent Valuation Methodology (CVM) to assign reliable, rational values to more esoteric environmental concerns; but, with many interests at stake in such an analysis, CVM has been criticized for inconsistency and inaccuracy.55 Ironically, the very forces that insist on EPA regulatory science as a basis for decisionmaking are those that criticize the EPA's attempt to address non-traditional environmental values in that regulatory framework. Even the EPA's willingness to try such valuation does not address the deeper problems of framing all of our environmental disputes as numeric calculations.

What is clear is that traditional benefit-cost analysis as the sole basis for agency decisionmaking does not work in the environmental context because it ignores important environmental values that Congress has indicated must be considered in environmental decisionmaking; an attempt simply to patch the problem by using CVM (or like methods) may not be enough. By focusing entirely on this paradigm, the EPA strives for more and more technical certainty, causing its vision of the problems and issues to narrow. It also plays into the hands of those who stress that EPA decisionmaking must fit into benefit-cost analysis. It seems there is a belief that if there were better air quality modeling or if the causal pathways of cancer were better understood, the regulatory decisions of the EPA would be better. Of course more information is desirable, but this will only go so far in the environmental arena because of the great diversity of values and issues at play there. No amount of

55. See Menell & Stewart, supra note 12, at 1192–96.
fine tuning of benefit-cost analysis and no amount of externality pricing is going to make EPA regulation better unless the EPA and Congress can again understand, appreciate, and address the totality of environmental values and concerns that underlie our federal environmental laws. This calls for the rejection of the benefit-cost paradigm. A new paradigm for EPA decisionmaking must consider all values, environmental and otherwise, and point out policy questions and deficiencies so that Congress and the democratic process can address them and they are not simply buried for the benefit of one interest group or the other.

II. WHAT WILL THE STRAIGHT AND NARROW LOOK LIKE?
WHAT A NEW PARADIGM SHOULD DO

Now that we realize benefit-cost analysis is not appropriate for environmental analysis, what should we use? Where do we turn? Although some critics have offered proposals, few have addressed all of the problem. This section reviews some of the suggestions and points out requirements for a new paradigm.

A. Some Proposals for Change

Critics have made some attempts to push the EPA into making corrections to its regulatory process. Proposals include moving away from the command and control regime, returning to common law strategies, and allowing more public input. Although some of these proposals address certain of the EPA’s shortcomings, most fall far short of recognizing the central issue of whether the EPA is recognizing all appropriate values. One recent proposal to alter EPA decisionmaking does come close to addressing this issue. It proposes a model based on the Netherlands system, whereby certain policy goals are to be considered prior to implementation decisions—a laudable proposal that refocuses administrative action toward the examination and effective, orderly implementation of statutory values. Despite the good start this makes in addressing the issues needing change, it does not address a method or mechanism of implementation. However, such a mechanism is possible and its form conceivable. In recounting the problems of the benefit-cost paradigm in accommodating all important environmental

56. See Vandenbergh, supra note 44, at 859–60.
57. See id. at 803–918.
values in decisionmaking, one can see many of the requirements that are necessary for a new paradigm if it is to exceed the current one in effectiveness.

B. What the New Paradigm Should Require

Initially, the new paradigm must alter the EPA’s environmental policy implementation and decisionmaking by broadening the considered factors to encompass all factors underlying our environmental laws. This requires a close review of congressional intent. If legislation such as the Clean Air Act explicitly rejects pure benefit-cost analysis in regulatory decisions, the agency must ascertain which values are to be given broader consideration and by how much. Of course this process will not be perfect, but neither is the current method that ignores these values.

Although this is a start, a mere identification of values would not be sufficient to create a new paradigm. Having worked with and given presentations to the EPA, I realize that much of the problem in environmental policy formulation and analysis is providing a method to do it. One reason that benefit-cost analysis has gained wide acceptance is because it is widely taught and seen as an objective way of reaching a conclusion. There is an understandable demand for a uniform approach to be used in making agency decisions. Therefore, a new paradigm that will incorporate or at least recognize the values that have been missing from benefit-cost analysis must include a step-by-step process that EPA personnel can use in conducting such an analysis.

Even without full reproducible objectivity, a new paradigm should preserve fairness and impartiality, not only because it is required by due process, but because any decisionmaking process must be perceived as supportable and fair to the general populace. Without that support, a new paradigm will wither before it can grow. Such a paradigm does not necessarily have to lead to a decision that a court could review de novo. Just as the courts defer to an agency’s valuation in benefit-cost analysis, they can defer to the incorporation of all values in the decisionmaking process as long as it is done in a way that is consistent, not irrational.

The new paradigm should not be a neo-Luddite rejection of market values and quantification. Clearly, our environmental decisions depend a

58. See supra Part I.C.
60. See supra notes 29–30 and accompanying text.
great deal on how the market values certain costs and benefits. And, even in a perfect world where the EPA can alter its internal decisionmaking, it is still subject to reform legislation such as the Unfunded Mandates Reform Act, where monetary costs and benefits are to be calculated. After all, environmental decisions do not exist in a vacuum. Comparisons across administrative programs must be undertaken, and to the extent we want Congress to make policy choices, benefits and costs of all kinds must be debated. Ignoring traditional benefits and costs or avoiding the use of comparison tools gives as incomplete a picture as ignoring other less tangible values. Thus, a new paradigm must retain all useful aspects of benefit-cost, while finding a way to incorporate the analysis into a broader paradigm.

Lastly, in the places that lack certainty, the new method should highlight this fact, throwing into relief points where policy decisions must be made. Although such a process will not purport to give an objective, reproducible answer to environmental policy formulation issues, it should put the critical issues into relief, leading to an open and honest discussion of the actual value choices that our government and society want to make about our environment.

This increases transparency and also calls for more government accountability, pushing policy decisions into a more democratic arena. For instance, where a great deal of scientific uncertainty is present in an environmental decision, the agency can pick and choose among other values, such as economic impact, and justify its choice by selecting the scientific study best accommodating these values. By acknowledging values openly, the values themselves can be debated.

III. CLIMBING JACOB’S LADDER: A PARADIGM PROPOSAL

Given the requirements that would be needed for the new paradigm, the following four-step method should serve as a new paradigm for environmental decisionmaking. It essentially takes the decisionmaker through four steps and requires a decision point, or analysis of policy, to move on to the next step. It does not eliminate a calculation of benefits and costs, but applies it only where appropriate, without sacrificing

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62. See Landy et al., supra note 24, at 79 (noting that educating public to make correct policy choices and being responsive to those choices should be among goals of agency action).
63. See Flatt, supra note 22, at 609.
policy nuances or uncertainties that must be addressed. Each step requires an answer to a question. Many of the questions may not lead to a decision but instead may lead to a realization that the decision is more appropriately made elsewhere.

In order to address correctly the questions raised at each step, the decisionmaker should keep in mind certain considerations that are likely to arise in the context of environmental regulation. Because of their commonness and importance, these factors should be addressed explicitly at each stage. Even if the agency decides that the factor is not particularly important at a given stage, it will at least have generated a conscious consideration that could lead to necessary and appropriate input.

The four steps to be addressed sequentially are as follows:

I. Is there a pollutant or environmental harm to be addressed?

II. What is the goal with respect to regulating that harm? For example, do we want to reduce the pollutant to natural, background levels; “beneficial,” non-harmful levels (to humans or other things); or some level that can be attained in an economically efficient manner?

III. Where do we set a regulatory level to meet that goal?

IV. Policy Implementation: How do we get to that level?

The following is the checklist of considerations that should be addressed at each of the four primary steps:

1. Values choices and assignment of entitlements: Who has the rights? Which rights?

2. How much scientific uncertainty is present? Can it be bounded? If one scientific study is to be preferred over another, why is that so?

3. Based upon our consideration of rights and values choices, as well as market values, what are the costs and benefits of this decision?

64. Other factors could be added to or subtracted from this list depending on particular substantive areas or emerging or evolving considerations.
4. What are the efficiency considerations, including enforceability and understandability of the regulations?

5. How may fairness and equity be served? 65

6. Does the regulatory choice assist in educating the public or affected groups?

7. Is the decision or implementation constitutionally and/or legislatively permissible?

One could obviously add other considerations, and these considerations may not apply equally to each of the four steps, but this is a manageable list that provides many of the important considerations in environmental regulation.

Overall, this four step analytic paradigm and the accompanying considerations are useful for examining environmental policies for several reasons. First, each step of the framework poses an important question, or series of questions, that requires decisionmakers to think clearly and thoroughly about the existence and nature of an environmental problem. Second, each step allows the decisionmaker to focus on subjective issues and analyze policy choices in a consistent and methodical manner.

Step I identifies the specific pollutant or harm that is to be addressed. Defined broadly, all environmental policies should be able to fit within this identification rubric: Is the specific pollutant or harm a toxic waste, a loss of biodiversity, air pollution, or something else? This step is critical because it forces the decisionmaker first to address the question of whether a harm or problem truly exists and the nature of that harm. This is the "sixty-four billion dollar" question in current environmental regulatory debates.

In order for regulation to be effective and efficient, the harm must be described as accurately and specifically as possible at this first stage. Certainly there are many reasons why a substance may be harmful. Many substances have proven health impacts, and a society might simply wish certain products to be eliminated for aesthetic or philosophical reasons. Nevertheless, if a society does not determine whether and/or why a harm is to be regulated, the later regulatory decisions become much more

65. Many would argue that fairness and equity should always be among the values choices.
difficult and potentially expensive as various solutions may only work to eliminate certain parts of the harm.

Of the seven factors that are to be considered with each step, two are of particular importance here. The most important is the factor of scientific uncertainty. Generally, scientific information is required to discover whether certain types of harm, such as health effects, are associated with particular substances. Through scientific studies, we gather over time evidence for or against the existence and extent of a problem. Such studies would ideally include accurate quantitative data that would allow for an initial examination of the magnitude or presence of a harm. Yet, even with advanced equipment for testing and measuring, exact quantitative data regarding the effects of various substances (particularly subtle or long-term effects) are notoriously difficult to calculate. Since we live in a complex world with many environmental exposures and interactions, separating one substance’s effect from another’s is often difficult, even if measurements are extremely accurate. Moreover, because of past incidents of incomplete or lack of consent, direct human testing of harms is legally and morally suspect. The best we can often hope for is the identification of a range of exposures at which a substance becomes an environmental harm.

How then is Step I to be addressed or answered explicitly in the face of uncertainty? Doing nothing does not help. To say there is no harm in the face of uncertainty and therefore no need for regulation seems just as wrong as saying that there is harm that requires regulation. In such a situation, the decisionmaker is forced to consider another important factor: values.

Social and political realities have a tremendous influence upon the question of whether environmental harms are harmful enough to warrant a particular level of intervention. Much of the high level of today’s environmental concern can be traced to changing awareness of harms and increased appreciation of natural and health values. A consideration of values may also require analysis of resource allocation preferences. Political realities, combined with moral concerns, influence the palatability of regulating certain segments of the economy, the protection

66. See Flatt, supra note 32, at 294.
67. See id. at 295.
of certain populations, and the amount of funding to accomplish regulation. When faced with uncertainty, value systems can influence who is given rights, accountability, and responsibility for environmental harm. In the best of all possible worlds, values choices at the regulatory level are not made in a vacuum, but are made to be consistent with the dictates of enabling legislation. In the absence of that guidance, an agency such as the EPA may have to make a values choice, and it is better to do this explicitly. When the choice is made explicitly, the choice can be defined for purposes of debate. As Vandenberg stated, “At the outset, the debate over establishment of the initial... goals could stimulate open discussion about the importance of environmental protection and the trade-offs involved in environmental measures.”

Moreover, if the values choice concerning the need for regulation of a perceived harm differs from that of the body politic, legislatures will have an opportunity to clearly change the governing values or policy choice.

The purpose of Step II of the framework is to identify the goal or goals in controlling the now determined environmental harm. At this step, decisionmakers must decide what the goal of harm regulation may be. This is not necessarily as simple as it appears at first glance. Many people assume that simply because something is identified as an environmental harm, complete elimination of it is required. This is not necessarily preferred and may not be feasible. Instead, using benefit-cost analysis and notions of equity or fairness, we as a society may wish to regulate the harm only to a particular level. We might prefer a return to natural, safe, or even economically efficient levels, instead of “zero” level, and even these terms require further definition. Natural at what time in Earth’s history? Safe for whom? And how safe is safe? How is cost efficiency to be considered, if at all? These are questions that must be determined explicitly. Otherwise, these values choices will be made haphazardly at another time, with high transaction costs due to incomplete information or failure to determine goals.

Although decisionmakers and politicians tend to shy away from making explicit determinations about human safety and health, a de facto determination will be made in any event. Explicitly addressing the factors that go into setting this goal will improve the process. Determining what our goal is in controlling a harm requires an examination of who or what we wish to protect, and to what degree. This

70. Vandenberg, supra note 44, at 902.
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is obviously related to values and questions of fairness, equity, and how we see ourselves as a society. Examining these questions is difficult, but necessary. Currently, many of these questions are buried in debate about policy implementation devices, which masks and obscures society's ability to make hard choices. Examining these questions explicitly will again focus the discussion in a way that allows public input. It will also enable Congress to revisit policy choices about its goals for regulations with a workable frame of reference.

The purpose of Step III is to realize the goal of Step II by setting a specific, quantifiable level of environmental output, whether for emissions, toxicity, or biologic reproduction rates. If we conclude in Step II that we want to protect the entire American population from any harms due to ozone exposure, Step III determines at what ambient level ozone concentration must be set to accomplish that goal. At this step, decisionmakers must truly define the solution that explicitly accomplishes the narrative language of the goals of Step II. Although one might argue that these two steps should be combined, separating them allows a more discrete consideration of values versus objective evidence. It may be hard to determine the point at which a goal is attained, but incorporating this step explicitly allows the EPA, private individuals, and industry to measure progress against a determined, set, reproducible, and measurable level. This allows for the critical step of policy program evaluation, at least with respect to identified numerical goals. Program evaluation is critical to studying the effectiveness of any policy implementation. In the environmental arena, we have been too long without it. In the absence of an identifiable target, judgments cannot be based on environmental quality, but on removed criteria of numbers of enforcement actions. Without program evaluation, it becomes difficult to know when goals have been accomplished or whether specific levels must be changed to meet the identified goals. This creates administrative waste, lowers administrative accountability, and decreases the ability to make necessary changes.

As in Step I, scientific uncertainty is arguably the most important factor in addressing Step III. Indeed, it may be more difficult to set a specific level at which a goal should be reached than to determine

71. See supra Part III, Step IV.
73. Vandenbergh, supra note 44, at 909.
74. See id.
generally that a harm exists. Because of the difficulties with scientific uncertainty, widely different levels could be supported by credible scientific evidence. However, unlike the scientific uncertainty at Step I, the EPA itself may more credibly handle scientific uncertainty at this level because it is charged with scientific expertise in the environmental area. Given uncertainty, decisions must be made on the best evidence available. Does that mean that EPA determinations are always objective? No, and when different criteria than the goal in step II are used to pick among equally valid scientific studies, those criteria should be made explicit. For instance, if the EPA were faced with two equally valid scientific studies that indicated different safe levels, the agency might pick one level over the other based on outside benefit-cost issues, such as whether one level might be less expensive than another. Identifying this reasoning explicitly points up the other effects of a policy outside of the goals—which may be a very important issue. Furthermore, it again creates a point of reference for discussion and allows for informed policy intervention by the legislative body if necessary.

The purpose of Step IV is to decide how the designated level of environmental harm allowed will be achieved. This step may be the most important for the decisionmaker because at this step the decisionmaker decides what actions will occur to effectuate the level determined in Step III. How will the policy be implemented? In choosing a particular course of action, the decisionmaker has many alternatives. In the environmental area, some common tools are command and control regimes, market-based incentives, exhortation and education, information requirements, and even a “no action” alternative. Certain regimes may be particularly helpful for one type of environmental problem, or the decisionmaker may choose to mix the policy tool options. The decisionmaker should focus on the supplementary factors discussed above, such as traditional benefit-cost analysis, values, equity, education potential, scientific uncertainty, and efficiency. Implementation is very important at this stage because the ability and likelihood of enforcement makes or breaks the effectiveness of a policy tool in enabling a set goal or level to be reached. For instance, command and control may be easy to enforce in many cases because it depends upon an initial outlay of resources and

75. See Flatt, supra note 22, at 602.
76. Landy et al., supra note 24, at 4–5.
standardized equipment and/or reporting.\textsuperscript{78} Usually, a firm with a large initial capital outlay has less incentive to remove or disable it later, and functioning equipment makes it easy to determine if compliance has occurred.\textsuperscript{79} Thus, command and control regimes usually make for easier enforcement, accountability, and monitoring. Some market incentives, on the other hand, may seem much more economically efficient when viewed in isolation, but might become very inefficient indeed if effective enforcement, such as policing pollution increments, is not really possible.\textsuperscript{80}

The educational component of any policy option also deserves special mention at this stage. Certainly, education must be aimed at those who will be affected. Education tells society how to comply and also ideally explains the reasoning behind the policy. It can pass the four step decision points on to the public for optimal understanding and/or criticism. But, even more importantly, education can provide the kind of change in values that assist in enforcement of environmental laws as a whole. Thus, education as a policy implementation mechanism has value beyond the immediate problem.

IV. THE PROMISED LAND: THE NEW PARADIGM IN ACTION

In order to understand further the workings of this new paradigm, let us apply it to an issue that was very visible in the news in 1997 and 1998: the EPA’s proposed decision to lower the ambient tropospheric (ground level) ozone and particulate standard under the Clean Air Act. These pollutants are responsible for the phenomenon known as “smog.”\textsuperscript{81} The EPA proposed lowering the limits of these pollutants in late 1996.\textsuperscript{82} The proffered reason for the change was that the current allowable ambient levels of ozone and particulates failed to protect health adequately, particularly the health of children.\textsuperscript{83} Predictably, various organizations that claimed the changes were expensive, unnecessary, and would hurt

\textsuperscript{78} See id. at 28.
\textsuperscript{79} See id.
\textsuperscript{80} Of course, some types of market incentives can harness the power of the market for self-enforcement and policing. For instance, privatizing ownership of “public” goods like forests could provide an incentive to the owner to prohibit poaching of trees and/or inefficient logging.
\textsuperscript{81} See Menell & Stewart, supra note 12, at 233.
\textsuperscript{82} See Warrick & Yang, supra note 28, at A1.
\textsuperscript{83} See id.
the economy opposed the proposed changes. How would the four step paradigm deal with this issue and the controversy it has engendered?

A. Step I: Is There a Pollutant or Environmental Harm to Be Addressed?

If one considers this question to refer to the problems of ozone and fine particulates in general, then the answer is unequivocally yes. There is strong consensus that these substances are harmful to humans and the rest of the environment. The more subtle question is whether the additional increment of pollution allowed by the current regulation, but omitted under the proposed regulation, is an environmental harm that needs to be addressed. According to the Natural Resources Defense Council, over 56,000 deaths a year could be prevented by adopting the EPA's particulate standards. This certainly sounds like a serious harm that needs to be addressed.

However, many opponents of the change in standards state that the implications of this study, and a similar one for ozone, are overblown, and that such regulation would be so costly that it would not be worth the small increase in benefits. Thus, scientific uncertainty in the evaluation of benefits is brought into the picture. This raises the question of values. What is the paramount value that the Clean Air Act's ambient standards are designed to protect? Do we save lives at all costs, particularly the lives of children? Is it fair to put heavy costs on industry or personal automobile usage to accomplish that? Do other values considerations help us answer these questions? We know that risk determinations are affected by whether the risk is voluntarily engaged, so a consideration of the routes of exposure might help us with this question.

In the case of air pollution, most people do not choose their own exposure. If 56,000 people a year died because they liked to breathe incinerator fumes, then regulation of the harm might not be appropriate. However, involuntary exposure is considered to be much less acceptable.

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84. See id.
85. See Menell & Stewart, supra note 12, at 230–33.
86. See Philip J. Hilts, Fine Particles in Air Cause Many Deaths, Study Suggests, N.Y. Times, May 9, 1996, at A8.
in our society.\textsuperscript{89} A straight benefit-cost analysis would attempt to quantify business and convenience costs and benefits of lives saved, but would not take into account issues such as voluntariness of exposure.

Step I forces the decisionmaker to consider what values govern the decision before benefit-cost analysis swings into operation. Beyond the general value of greater regulation of involuntary exposures, Congress itself has indicated a guiding values choice in the text of the Clean Air Act. In setting ambient air standards, the EPA is to be concerned with public health.\textsuperscript{90}

Recognizing this congressional values decision leaves many of the critics’ arguments moot. It really does not matter whether five or 50,000 lives are saved, or perhaps even if there is a mere possibility of death. If we are to choose human life above all else, such costs must fall where they may. As Carol Browner indicated in mid-1997, none of the criticisms of the EPA’s proposed standard convinced her that the EPA’s basic conclusion that lowering the ozone standard would save lives was untrue. Because that was the consideration the statute required, she stood by the EPA’s decision.\textsuperscript{91}

By making this policy choice explicit and clear, the agency creates a focused argument against this choice. Although Congress itself set up the policy choice, several in Congress have indicated that they might choose to overrule this particular legislative policy choice.\textsuperscript{92} Senator John Chafee of Rhode Island, in a letter to the EPA regarding the standard, noted that the current law required this policy choice, but indicated that science now “requires that this presumption be set aside.”\textsuperscript{93} Strangely, this statement is in a letter to the EPA, when it could become reality by passage of a new law in Congress with the signature of the President.

Taking Step I and putting the policy choice in relief focuses on responsibility for the policy choice. This essentially tells Congress to take responsibility for the policy choices it has made and should make, according to the public. For instance, if the costs of environmental compliance are harmful to society as a whole, it is Congress that should balance the interests. If Congress cannot change this policy choice

\textsuperscript{89} See id.
\textsuperscript{91} See Kimberly Music, EPA’s Browner Stands Her Ground in Face of Attacks at House Hearing, Oil Daily, May 16, 1997, at 1.
\textsuperscript{92} See Cushman, supra note 87, at A8.
\textsuperscript{93} Id.
comfortably with the body politic, then perhaps the policy should not be changed. Thus, by recognizing the policy choice at the first step in using this formula, the EPA recognizes a distinct societal policy choice and places the responsibility where it should be.  

B. Step II: What Is Our Goal with Respect to Regulating that Harm?

In determining what the goal of the environmental control should be in this case, one need only look at the guiding policy from Step I: protecting human health. If read expansively, this goal from the Clean Air Act would even specify setting ambient levels at a point at which no impairment of human health would occur. However, one should also note that the Clean Air Act seeks to control all human-made air contaminants, not necessarily all air contaminants, some of which may be natural.  

Thus, our desired goal of regulation would seem to be to alleviate all health impacts on humans resulting from human-produced or human-caused increases in the ambient ozone or particulate levels.  

C. Step III: Where Do We Set a Regulatory “Level” to Meet that Goal?

Step III asks us precisely what ambient level is necessary to achieve the goal determined in Steps I and II. This requires an in-depth examination of the scientific evidence. It may be at this time that the agency will have to decide between competing evidentiary claims. With respect to ozone, the EPA’s proposal is to lower the ambient air concentration from .12 parts per million to .08 parts per million.

The obvious question, after having our goals focused from Step I and Step II, is the following: If a reduction in ambient ozone exposure to .08 parts per million would save this many lives, what about a reduction to

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94. This step might also be the logical point to discuss the need for separating the harms of particulates from ground level ozone. Some have criticized that only one ambient change might be necessary. See John H. Cushman, Jr., *EPA Advocating Higher Standards to Clean the Air*, N.Y. Times, Nov. 25, 1996, at A1. The EPA has not gone ahead with the combined standard, perhaps because the effects are synergistic in smog formation (an assumption made for purposes of this experimental analysis), but this would still remain an important issue to examine at this stage.


96. Clearly, however, any so-called “natural” air pollution would affect how much human-made pollution could be tolerated without ill health effects.

97. See Cushman, *supra* note 94.
.07 parts per million? Or .06? Would that not save more lives? And if so, do our goals from Steps I and II require the level to be set at these lower thresholds rather than the level proposed by the EPA? The answer to this question and the determining factor in addressing Step III can also be found in the text of the Clean Air Act.

The history surrounding the development of the policy provision providing for ambient air standards suggests that at some level these human-made pollutants do not cause health impacts. Moreover, even if it is logical to assume that an even lower level might be helpful, Congress, perhaps in recognition of the other values that are competing against human health, has clearly indicated in the Clean Air Act that ambient levels should only be lowered to the point at which actual evidence supports the protection of health. Therefore, .08 parts per million may be an appropriate level because the EPA has quantified evidence showing a reduction in negative health effects. Unlike the first time the EPA set the ozone standard, this level can be reached purely from evidence of health impacts as required by the statute. Thus, there is every indication that the level selected by the EPA meets the goal of protecting human health as established in Step II, and does so with a level of certainty as required by the text of the Clean Air Act itself.

D. Step IV: How Do We Get to that Level?

The question of "how to reach the desired level" allows a consideration of different policy implementation devices. These are alternative ways of reaching a goal that are implemented in different ways and have different side effects. Under the Clean Air Act, the states are given responsibility for implementing ambient standards through the creation of State Implementation Plans (S.I.P.). Thus, the completion of the four part implementation plan for air may take place in the state agency rather than the EPA. Nevertheless, the state will be relying on the

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98. See Cushman, supra note 87.
101. See Landy et al., supra note 24, at 71–72.
other steps taken to complete the process. Moreover, the EPA is not out of the picture altogether. The EPA has oversight of the S.I.P. process and must approve the state’s plan as an effective way to reach the promulgated ambient standard.\textsuperscript{105} In order to gain the EPA’s approval, states may have to structure its plan to fit the EPA’s understanding of how polices work. How then would Step IV apply in this example?

The implementing agency must first determine the range of issues it may consider. Certainly in addressing the best way to reach this established ambient level, benefit-cost analysis should be one of the factors. If alternative policies for reaching the same desired level exist, then the agency should take the cost of those policies into account as one factor in determining which of these policies is more desirable. Indeed, in most instances, cost will be one of the most important considerations at this stage. However, a goal rarely has two equally effective paths with only a cost difference to distinguish them. Enforceability, efficiency, fairness, and any educational impact must also be considered and balanced with overall cost.

Congress has already explicitly set out some direction. For instance, the Small Business Regulatory Enforcement Fairness Act requires federal agencies to consider and take steps to mitigate economic impacts of agency decisions on small businesses.\textsuperscript{106} The EPA’s interpretation of how this act should apply to its decision is currently in dispute, but it is a factor to be considered.\textsuperscript{107}

Comparing all of these factors when examining policy implementation devices with respect to the Clean Air Act is not easy. It requires technical analyses, studies of sources, air movement, and dissipation, and analyses of exposures. A complete analysis cannot be performed within the limited scope of this Article, but some factors relating to differing policy implementation devices can be examined in order to explore the workings of Step IV in this example.

At least some of the expected reduction necessary to meet the new standard may have to come from a reduction in vehicular emissions, which include both particulates and the precursor compounds (such as

\textsuperscript{105} See 42 U.S.C. § 7410(k)(2).
Nitrogen Oxides (NOx)) for the creation of ground level ozone. However, before going forward with a plan simply to cut automobile emissions, one must also consider other factors. What kind of reduction would be most fair and equitable and which would be the easiest to enforce?

In considering the human impacts of various proposals on vehicular restrictions, one would likely pay attention to the needs of lower socio-economic groups for vehicular travel. Much of the pollution from automobiles comes from older models, which are more likely to be used by members of lower socio-economic groups. Therefore, controlling pollution by reducing allowances for older automobiles without compensation might be very cost effective, but unpalatable for its distributive effects on society. Indeed, this distributive impact may be one explanation as to why such automobiles are not already regulated more stringently. However, such exemptions may no longer be possible if ozone standards must be lowered further. As they are already doing, agencies will have to continue to consider the tradeoffs in equity with pollution reductions, perhaps prompting them to look at ways of controlling older automobiles while undertaking ameliorative efforts to undercut the inequitable effects. Possible ameliorative options include waivers or variances for high cost repairs, compensation, increase in public transit options, or the distribution of vouchers to allow for upgrades to less polluting automobiles.

If agencies do not wish to tackle the problem of older, polluting vehicles, they may try driving restrictions, gasoline taxes, or general mass transit subsidies. These programs might have effects similar to direct automobile control but different costs, distributive effects, different educational messages, and different levels of intrusion into

109. See Rose, supra note 77, at 38.
110. Only recently have older vehicles in the City of Atlanta been required to have enhanced Inspection and Maintenance procedures even though it is known that they are less likely to operate efficiently. See Charles Seabrook, State Delays New Testing on Emissions, Atlanta J. & Const., Dec. 4, 1997, at C1.
112. For instance, gasoline taxes may not be associated directly with pollution control in the minds of many citizens and therefore may carry a different education message then do mass transit subsidies. Mass transit subsidies may help to create a different conservation ethic as well as address other problems of community and social isolation.
private citizens’ lives. The relationships of many of these factors to benefit-cost issues have already been studied or are being explored. For instance, it has been estimated that people may prefer voluntary restrictions to involuntary ones.113

Thus, although the problems of implementation in Part IV are complex, a consideration of even a few alternatives gives the agency an awareness of choices, which factors need to be considered, and how those factors should be weighed. At this stage, it may also be appropriate for an agency to solicit public input to broaden its understanding of the choices and tradeoffs required by differing policy implementation devices. Certainly, the Clean Air Act leaves the choice of implementation of ambient air standards to the states through the S.I.P. program so that the states must take into account public desires and tradeoff choices, through reasonable notice and public hearing, in deciding how best to address that state’s particular pollution problem.114 The state’s legislative body may also choose to address these policy issues directly.115 However these issues are ultimately addressed, Step IV provides the necessary point at which to narrow what the issues are and how the tradeoffs can relate to one another—a task suited to an agency’s technical expertise as informed by public input.

V. CONCLUSION

The EPA’s current method of environmental policy analysis is the cause of much friction and contributes to disrepute and disrespect for the agency. The public’s growing clamor for change almost led to wholesale changes in U.S. environmental law in 1994 and 1995.116 Some have made a concerted effort to use traditional benefit-cost analysis to curtail the amount of environmental regulation.117 The traditional benefit-cost paradigm is on its last legs, and society is clamoring for a new

113. See Flatt, supra note 88, at 1716.


115. Indeed, Congress itself addressed the tradeoffs inherent in policy implementation devices when in 1977 it explicitly prohibited the EPA from requiring certain land use controls in the implementation of the ambient standards. See Frederick R. Anderson et al., Environmental Protection: Law and Policy 141 (1984).

116. See generally Flatt, supra note 22, at 585 (discussing congressional push to alter review of environmental decisionmaking).

117. See id. at 605.
“religion”—a new way of thinking about the environment. In order for our society to grapple successfully with the choices it needs and wants to make about its environment and the environment’s relationship to the citizenry, a new paradigm must come forward. This Article’s proposed four step analysis is a good candidate for a new paradigm. This paradigm will purposefully identify all values at work in our environmental arena and related values and will put them in a forum where open discussion and analysis can take place. The paradigm involves some subjectivity, which will ultimately prove more beneficial to the population at large than the so-called objective benefit-cost analysis in current use. Just as the objective old testament standard of “measured forgiveness” was replaced with the subjective new testament concept of “unconditional forgiveness,” the new paradigm may give all, not just some, a way to get to environmental heaven.
