ENVIRONMENTAL ISSUES BASED ON COST BENEFIT ANALYSIS & VALUE OF A LIFE OR IGNORANCE?

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ABSTRACT

Since the establishment of the EPA in 1970 and the occurrence of the Green Movement, there has been a need to determine the specific source of pollution for both monitoring and regulation purposes. Due to their parsimonious attitude, many risk-creators avoid claiming responsibility for any pollutants that cannot be directly traced to them. It is in the risk-creators’ best interest to not conduct research that might tie responsibility for pollutants to them. This is where the “striving toward ignorance” idea comes into play.

Wendy Wagner writes about the “penalty for knowledge” that exists when dealing with such toxic tort cases: At present, common-law courts place the entire burden of proving causation on plaintiffs, a burden that includes responsibility for resolving both ‘trans-scientific’ and ‘preventable scientific uncertainties.’…Although this burden is not problematic in a handful of ‘hot’ toxic tort cases in which a wealth of studies have been produced, such cases are the exception rather than the rule.1

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INTRODUCTION

Since the establishment of the EPA in 1970 and the occurrence of the Green Movement, there has been a need to determine the specific source of pollution for both monitoring and regulation purposes. Due to their parsimonious attitude, many risk-creators avoid claiming responsibility for any pollutants that cannot be directly traced to them. It is in the risk-creators’ best interest to not conduct research that might tie responsibility for pollutants to them. This is where the “striving toward ignorance” idea comes into play. Wendy Wagner writes about the “penalty for knowledge” that exists when dealing with such toxic tort cases: At present, common-law courts place the entire burden of proving causation on plaintiffs, a burden that includes responsibility for resolving both ‘trans-scientific’ and ‘preventable scientific uncertainties.’…Although this burden is not problematic in a handful of ‘hot’ toxic tort cases in which a wealth of studies have been produced, such cases are the exception rather than the rule.²

Such a practice, Wagner says, “offer[s] manufacturers practical immunity for remaining ignorant about the latent hazards” they are likely responsible for.³ Because of the way the common law tort system works, when toxic tort cases are handled through this system, ignorance is promoted. The risk-creators producing the toxins that harm the people have no reason to study and research the effects of their actions; rather, they have every reason not to.

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³ Id. at 794.
The common law approach in dealing with toxic tort cases is all wrong in theory. Not only does it create a motivation for ignorance with regard to the effects of certain toxins, but it is also not consistent with the utilitarian theory that is central to the common law system. For a number of reasons (politics and the role of the media being two of them), our common law approach to tort cases is not achieving the greatest good for the greatest number of people. Simple economic analysis (cost benefit analysis and value of life analysis) will support this.

Criticism of cost-benefit analysis has been abundant, mostly contending that it is inhumane to apply a cost-benefit analysis to conflicts and issues of human behavior, particularly when this method of analysis leaves out the role of human emotion. Nevertheless, the approach has become entrenched in both academia and jurisprudence, so much so in fact that Justice Richard Posner has indicated that it is not a criticism to say that the economic approach portrays a cold world.4

In short, cost benefit analysis in terms of dollars, or liability, or any other objectively-scaled resource could be understood as a methodology for interpersonal comparison—where the existence of an objective scale is meant to get around unwelcome effect of subjectivity.5 “Professor Eric Posner and I have elsewhere argued that the welfare-maximizing procedure for regulatory agencies is often, although not always, the procedure of cost benefit analysis.”6 “Cost benefit analysis is a useful decision procedure and it should be routinely used by agencies. Cost benefit analysis is superior to rival

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6 *Id.* at 335.
methodologies in enabling agencies to evaluate projects according to the extent that they contribute to overall well-being.” Maximizing overall well-being is an important role of government.\(^7\)

Congress has forbidden cost-benefit considerations under Superfund, yet required cost-benefit analysis under Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) legislation.\(^8\) It makes a difference to Congress whether an agency is dealing with the nation's food supply and with major lobbying by agricultural interests, or whether the issue before the agency involves hazardous waste in a landfill. Hence, Congress has enacted different standards which confuses matters further.

Should this actually be the case, or should legislation be consistent and deal with cost-benefit analysis and cost-effectiveness across the board? Should this legislation, in regard to Superfund, be cost-oblivious? Is it socially responsible for government to require industry, primarily, to take actions that cost more than they benefit society? There are individuals, such as Lisa Heinzerling, that would conclude that “Cost benefit analysis cannot overcome its fatal flaw: it is completely reliant on the impossible attempt to price the priceless values of life, health, nature, and the future.”\(^9\) Heinzerling states that we should save “lives and eagles and rivers without waiting for formal, quantitative analysis proving that saving these things is worthwhile”.\(^10\) However, this statement ignores the fundamental issue of scarcity. If items are considered “priceless”, does that

\(^7\) Id. at 246.
\(^8\) Peter Brimelow & Leslie Spencer, You Can’t Get There from Here, FORBES, July 6, 1993 at 62.
\(^10\) Id. at 1584.
mean that unlimited amounts of funds should be spent to protect them without any consideration of alternative methods of spending the money? Doing so would equate to ignoring the concept of scarcity and the problem of limited resources. It would be impossible to apply an unlimited amount of resources to a variety of areas. Decisions involve trade-offs, and these, too, need to be considered.

Lisa Heinzerling speaks of wasting time and money on cost benefit analysis. I concede that there flaws with the system, but doesn’t it seem even more ridiculous to invest huge amounts of money and resources into projects without doing any type of quantitative analysis, such as cost benefit? “There is now a truly startling disjunction between, on the one hand, the practices of government agencies and (more broadly) the applied economists and public-policy and, on the other hand, the skepticism about the moral status of cost benefit analysis that prevails in the scholarly literature.”11 “Cost benefit analysis does not price life, the environment, or any other irreplaceable commodity. . .rather it values the irreplaceable commodity in the sense that he is willing to pay to reduce the risk that he will lose that commodity. The use of cost benefit analysis; often improves the quality of decisions.”12 The following sections titled Value of a Life and Market System will provide examples of why government's cost-oblivious approach is irresponsible and does not provide maximum benefits to society. This analysis is based on the value of a life and the author's ten years as a governmental risk manager and attorney.

Since society, through its political processes and agencies, does in fact make decisions on regulations and investment expenditures that occasionally increase or reduce the number of deaths, an implicit value of human life has been calculated. These are implicit values placed on human life by the political process. The justification appears somewhat circular, even when we ignore the political realities of a democracy, since decisions to regulate certain industries or invest in certain projects are not determined by popular vote, but rather by government making decisions not always motivated by the desire to advance the general welfare and are sometimes the outcome of political conflicts. This means that an implicit value attributable to the loss of a life by a particular product will differ widely.\textsuperscript{13}

A regulatory agency like the EPA must gather, develop, and analyze relevant information about the activities that it wishes to regulate, and about available control techniques, before it can address the ultimate task of implementing the statutory trade-off between safety and cost.\textsuperscript{14}

In dealing with the Delaney Clause (cost-oblivious), threshold standard, or cost-benefit analysis, agencies are searching for the danger to the public health or welfare. "Cost per life theoretically saved" or "value of a life" are terms used when evaluating what the economic costs have been for particular activities.

In the past three decades, the Federal government has become increasingly interested in keeping us alive. Agencies have been created to deal with traffic, consumer,

environmental, and occupational safety. The government has become involved with lifesaving programs and has to deal with the question of "how much is a life worth?" The cost-benefit analysts have moved away from valuing dams and are now valuing lives. Cost effectiveness analyses are being conducted by agencies in which an estimate is made in relationship to how many lives could be saved at various levels of expenditure, and then it is up to the agency to determine how much businesses, consumers, and citizens can afford. These processes are implicitly putting a value on lives. Yet, while “there is considerable agreement among economists about the need to calculate a value for life, there is no consensus as to how it should be done.”15

John Goodman of the Dallas-based National Center for Policy Analysis reports a 1990 EPA regulation on wood preservatives that imposed costs at a rate of $57 trillion (This is $99 trillion in 2012 dollars) per life presumed saved.16 Clayton Gillette and Thomas Hopkins did a review of agency valuations of human life and found that EPA uses a figure ranging from $400,000 to $7 million per life saved (This is $692,000 to $12 million in 2012 dollars)17. EPA estimates that if all coal-burning power plants are required to be retrofitted with the best available control technology, expected annual incidence can be reduced by 0.2 cases per year, at an incremental annualized cost of $4.4 billion per year (This is $6.2 billion in 2012 dollars)18. This corresponds to a cost of $22

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15 Steven E. Rhoads, How Much Should We Spend to Save a Life?, 51 PUB. INT. 74,76 (1978).
16 Brimelow & Spencer, supra note 7, at 60.
17 The Calculations above and throughout the rest of this section have been adjusted to account for inflation since these numbers were first computed.
billion per life saved, which far exceeds the costs of previous EPA regulations (This is $40 billion in 2012 dollars). 19

A Wall Street Journal article indicates that a federal appeals court threw out Labor Department workplace-exposure limits involving the right to a safe workplace, because the 428 toxic chemicals were set on a general basis rather than substance by substance. 20 These regulations would have cost employers $788 million a year and would save 700 lives annually. This adds up to a per life cost of $1,125,714 (This is $1.2 billion and $1,814,581 in 2012 dollars). 21

Estimated cost for each premature death averted for the Diethylstilbetrol cattle feed ban in 1979 was $124,800,000; and the cost of the formaldehyde occupational exposure limit in 1987 was $86,201,000,000. 22 EPA estimates that the $6.1 billion spent on cleaning up hazardous waste sites save 500 cases of cancer annually, which is a cost of $122 million per life and may be less costly per life saved if these estimates are forecast into the future. 23 There has been no literature as to these speculative future lives saved in relation to what the calculated costs would be. Yet only $100 million annually is spent on combating radon, an odorless natural gas suspected of causing up to 20,000 deaths from lung cancer each year. The radon expenditures come to $5,000 per life saved (This is $8,300 in 2012 dollars). 24

21 Id.
23 Id. at 1279.
24 Id.
Citizens often put pressure on Congress and regulatory agencies to ban certain substances at any cost on the basis of fear rather than knowledge. This basis is made vivid by a front page feature section of the Louisville Courier-Journal. This section had a color picture of a baby lying on its stomach and picking at a wood deck. The caption in red letters asked *Is This Wood Hazardous to Your Health?* This sensationalizing of the issue causes hysteria and results in a misallocation of resources.

The reduction of living standards associated with a $5 million to $12 million increase in regulatory costs is estimated to cause one additional death. Thus, if EPA’s claims about saving lives are correct, the saving of one life may be purchased at the cost of many others dying from, for example, a poorer diet. Some economists place the $500,000 range as the point at which people have to pay others to put themselves at risk in regard to a life saved (This is $830,000 in 2012 dollars).

In today’s society there is a resounding call from the public for more intense environmental regulations. The push for a cleaner, greener earth started in the middle to late sixties and has gained steam ever since. The American people have become terrified of the harm that industrial pollution causes to our land, water, and air. In response to their concerns the U.S. government has enacted legislation that places heavy restrictions concerning toxins. However, economists and businesses would contend that a major problem has been created in that the government acts to immediately appease the public instead of seriously considering the costs in relationship to the benefits. A way to

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26 Brimelow & Spencer, supra note 7, at 60.
27 Brimelow & Spencer, *supra* note 7, at 60.
measure the benefits of environmental regulations is in terms of the cost of the
restrictions per life saved. With our current toxic tort system, is clear that our current
toxic tort system does not maximize benefits of environmental regulations.

When determining the value of life, the average person is more apt to state a
higher price than would the owner of a large industrial company. This conflict arises
because businesses are forced to pay astronomical amounts to regulate the toxins they
produce. It is not that most business owners want to pollute the earth and kill innocent
people; they simply do not want to pay for regulations that are ineffective. While
spending money and resources to totally eliminate every minor toxin may be the noble
thing to do, businesses would contend that such a goal is unattainable because of
economic resources. It is becoming clear that this limitation must produce a
reconsideration of the current environmental protection policy. Previously, the
government was influenced by "advocacy groups that demanded the government protect
the public against all environmental toxins regardless of how small the risks or how great
the costs." This attitude has produced a current toxin control system that "costs the U.S.
economy absurd amounts of money per statistical human life saved." "The median cost
of toxin control programs is $2,782 million per life saved. This cost is 58 times larger
than the median injury prevention program and 146 times greater than the median
medical program."(This is in $4,618 in 2012 dollars) This discrepancy comes from the
ignorance of the general public, which wants absolute protection. Unfortunately, the

1994 at 7.
30 Graham, supra note 27, at 17.
money it would take to achieve absolute protection is not available. The government and society must realize the limitations of our economic resources and act to find ways to eliminate programs that spend billions to save one life. There are two schools of thought behind advocating the proposed change in toxin control programs. The first is that the system should be heavily reevaluated, and the money from programs such as chloroform emissions controls that spend $99 billion a year to save one life could be used more effectively to intervene in areas such as smoking cessation advice to pregnant women who smoke and flammability standards for children's sleep wear. These interventions have a cost per life-year saved of zero or less, meaning that there are more years of life saved than dollars spent to save them. It is becoming evident that many potentially valuable and inexpensive programs are not being implemented while absurd amounts of money are being thrown away on ineffective toxic control programs. Tammy Tengs has estimated in her 1994 doctoral dissertation “that if resources were allocated to more cost effective programs an additional 60,000 lives (or about 600,000 years of life) could be saved each year in the U.S. at no increased cost to the public or private sector.”

In the article by Lisa Heinzerling, Pricing the Priceless, she mentions one study claiming “that the cost of life saving interventions can reach as high as $99 billion for every life-year saved” and “From this perspective, cost benefit analysis emerges as both a money-saver and a life-saver.” Heinzerling’s generalizations as to the flaws in

31 Id.
32 Ackerman and Heinzerling, supra note 8, at 1562.
Graham’s and Teng’s research (regarding cost benefit analysis) is that environmental protection decisions are too complex to be made using cost benefit analysis, that buying environmental protection isn’t like buying other commodities, that we view precautionary investment in environmental protection as needless because we see problems as stable, but costs decline over time, and that many environmental considerations can not be quantified and priced.33

The second line of thinking mostly encompasses the businesses of this country. By reducing the stringency of some ineffective toxic programs, businesses would be saving money. Two analysts at the Heritage Foundation put out a recent report explaining how "greater economic growth reduces deaths by raising living standards."34 They cited the fact that "even the White House Office of Information and Regulatory Affairs says that one person dies for every additional $7.5 million in regulations."(This is $10.8 million in 2012 dollars) 35 While it is difficult to place a simple value on life, this figure makes it quite clear that taking money from the economy by way of costly restrictions on industrial pollution can actually have detrimental effects on society. It cannot be disputed that the need for pollution control is imperative. However, businesses would contend that the restrictions must be evaluated to weigh the benefits they produce. According to the White House figure, over 13,000 (divide the $99 billion

33 Ackerman and Heinzerling, supra note 8, at 1563-1583.
35 Id.
by $7.5 million) lives could be saved by simply doing away with the chloroform controls and allowing businesses to reinvest the money into the economy.36

The government's initial plans to control toxic substances did not take the question of costs versus benefits into account. However, as more pressure comes from industry and economists, government officials are beginning to take a hard look at certain programs. The first steps toward a more cost efficient toxic control system came with the changing of the Delaney Clause. The clause was passed in order to restrict use of any cancer causing pesticides on produce. However, businesses would contend that it has been proven that small amounts of these substances are harmless, according to the legal elements of causation. Technology today is such that pesticides can be detected in very small amounts. “The zero tolerance standard seemed reasonable when monitoring equipment could only pick up pesticide residues of parts per 100,000 or per million, but present-day equipment can detect traces down to 1 part per billion or trillion.”37

If the Delaney Clause had not been changed, farmers would not have been able to use some of the pesticides that they previously relied on. By lessening the restrictions the government in essence allowed farmers the use of these pesticides, thus increasing their product yields. Businesses and economists argued that the Delaney Clause was costing farmers large amounts of money and saved very few lives. If it was not changed, "Delaney would reduce the national competitiveness in processed food sales and would result in higher food prices.”38

By reforming the Delaney Clause, businesses argued that

36 Id.
38 Lynn Graebner, Food Industry Wants Pesticide Law Rewritten, BUS. J. SERVING GREATER

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the resultant increased profits will consequently help to stimulate the economy and increase living standards.

The question of how to most effectively spend the limited resources we have on protecting society is one that every business is involved in. The current system of regulating industries is causing billions of dollars to be spent on some restrictions that act to save very few lives. Businesses contend that they have to convince government that reforms must be made as to proper reallocation of this money. The perspective of business is that the decision as to how to reallocate these funds should be left up to the businesses, with the government overseeing their efforts. Businesses feel that if they can more effectively protect society through programs other than those already established, then they should be encouraged to do so. The argument is that if businesses are to reinvest the additional money, the economy will be stimulated and more lives will be saved through this approach. Therefore, the best way to determine the most effective use of resources to control toxins is by the number of lives, or life years, that each program saves. By eliminating the programs that spend large amounts compared to the lives they save, more money will automatically be freed up to put toward programs that more effectively save lives.

Why does society expend far greater resources to save the lives of known individuals in present peril than we are prepared to devote to measures that will prevent future dangers to individuals that are unknown or not yet born? The expenditure of resources for individuals in immediate peril has been shown in the long run to lead to a
smaller number of lives saved with the same or larger monetary expenditures. Should the
immediacy of an individual's peril of death create any special claims on society to relieve
that peril? Economists indicate that the rational strategy is to maximize the number of
lives saved. The assumption is that the resources allocated to save a life should be spent
so as to maximize the number of lives saved or minimize the number of lives lost.
Rationality dictates that resources be divided between saving lives and competing ends so
as to attain the highest possible level of benefit to society.\textsuperscript{39} So far, our government has
been cost-oblivious. Congress and agencies should look seriously at where dollars are
being spent, and that the total life-saving allocation of money should be spent in a way
that leads to the greatest number of lives saved in the long run.

If an individual compares the survey ranges of $0 to $2 million, which were
determined in the market, and the $500,000 economists indicate is the value of a life to
the government's cost of $12.2 million per life for hazardous waste sites; $22 billion per
life to retrofit coal-burning power plants; $5.7 trillion per life for wood preservatives;
what conclusion would a reasonable individual come up with? (This $0-$2, $763,000 ,
$18.61 million, $33.6 billion, $8.67 trillion in 2012 dollars). Who is to say whether $1
million, or $10 million, or $240 million, or $10 billion is too much, or too little, to spend
to save a life? Who can value a human life? Individuals value different risks differently,
depending on whether they are private or public risks. If it is reasonable to spend more
money to save a life when it is a public risk, then at least we need to determine how much

\textsuperscript{39} See BLACK'S LAW DICTIONARY 1138 (7th ed. 1999) (pareto-optimal is defined as an “economic
situation in which no person can be made better off without making someone else worse off”).

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more and be able to explain why. Then we need to determine whether and where the
nation spends too much money to buy a little extra safety when the resources available to
combat health risks are not limitless. At all times regulation imposes costs that mean less
real income available to individuals for alternative expenditure. The deprivation of real
income itself has adverse health impacts, in the form of poorer diet, more heart attacks,
and more suicides. It is estimated that every $7.25 million spent on a cleanup regulation
will, under certain assumptions, induce one additional fatality through this income effect;
that a one percent increase in unemployment, sustained over five years, means 19,000
more heart attacks and 1,100 more suicides over time (This is $11.06 million in 2012
dollars). Where regulation involves large risks, this small counterproductive tendency is
irrelevant; where regulation aims at small risks, these small negative offsetting
consequences mean that a costly standard that seeks to save a few statistical lives, in
reality saves no lives at all, on balance. 40 Most likely the conclusion would be that
government has been cost-oblivious, that Congress and agencies should look seriously at
where these dollars are being spent, and that the total life-saving allocation of money
should be spent in a way that leads to the greatest number of lives saved in the long run.

In regard to our concern for human life, less is actually being done than what
could be with the resources available. An argument from a fairness perspective would
indicate that it is sufficient to justify the choice of a particular life-saving strategy or
regulation that leads to the least net loss of lives in the long run. 41

An argument can be developed that people do not accurately evaluate small risks, which would mean that an economist’s assumption of perfect information on behalf of the consumer is inaccurate, whether the consumer is purchasing air bags, Volvos, smoke detectors, life insurance, car insurance, homeowners' insurance or an airplane ticket. Some risks may be so small that this assumption could be correct, but it cannot hold true for all risk related purchases. If the reader is of the opinion that the author's survey and the value indicated by economists are not as meaningful as they would like, then let us look at studies that extrapolate from how much consumers are willing to pay for safety devices such as smoke detectors, automobile air bags, or the desire for prompt coronary care. In principle, this

. . . method starts with the dollars consumers spend on a certain life saving product or activity. That is divided by an estimate of the life-saving potential of that item. The result is the implied value consumers put on their own lives by their spending. A hypothetical example: Consumers might be willing to pay $100 for a brand of smoke detector that has one chance in 1,000 of saving a life. Thus, each detector "saves" one one-thousandth of a life. Buying of this detector implies a value of life equal to $100 divided by .001, or $100,000. Calculations in one actual smoke detector study were vastly more complicated, of course. Risks somehow had to be quantified and other variables held constant.
Once all the factors were controlled, that study produced an implied value of at least $373,000 per life.\textsuperscript{42}

This theory has been used successfully by Chicago economist Stanley Smith in a federal civil-right lawsuit in Illinois and has been endorsed by the Association of Trial Lawyers of America.\textsuperscript{43} This theory, in essence, involves the offer/asking dilemma. It measures cost-benefit by putting a dollar amount on what people will pay for an item. There are two ways to approach this theory. In the first approach the individual doesn't have the item and is asked how much he or she is willing to pay for it. In the second approach the individual has the item and is asked what someone else should have to pay them for the item. Cost-benefit analysis uses the first approach. The second approach, when an individual already has the item, does not depend on the individual's income; therefore the second approach usually has a higher dollar amount attributed to it.

This offer/asking dilemma was used in \textit{State of Ohio v. United States Department of Interior} in 1989. This case involved citizens' rights to natural resources and the D.C. Appeals Court dealt with the issue by assessing damages for impairment of natural resources and by determining the public loss under CERCLA. The Department of the Interior and the court described this theory as the contingent valuation process. The contingent valuation process included all the techniques that set up hypothetical markets to elicit an individual's economic valuation of a natural resource. Economist Stanley

\begin{itemize}
  \item \textsuperscript{43} See \textit{State of Ohio v. United States Dep’t of Interior}, 880 F.2d 432 (D.C. Cir 1989).
\end{itemize}
Smith has taken the application of this theory beyond natural resources and used it for actual products or services. In the State of Ohio case, the contingent valuation involved a series of interviews with individuals to ascertain the values they respectively attached to particular changes in particular resources. The contingent valuation methodology dealt with option and existence values:

Opinion value is the dollar amount an individual is willing to pay although he or she is not currently using a resource but wishes to reserve the option to use that resource in a certain state of being in the future. For example, an individual who does not plan to use a beach or visit the Grand Canyon may nevertheless place some value on preservation of the resource in its natural state for personal enjoyment in the event of a later change of mind.\(^44\)

Existence value is the dollar amount an individual is willing to pay although he or she does not plan to use the resource, either at present or in the future. The payment is for the knowledge that the resource will continue to exist in a given state of being. Though lacking any interest in personally enjoying the resource, an individual may attach some value to it because he or she may wish to have the resource available for others to enjoy.\(^45\)

\(^{44}\) Id. at 474, 476.

\(^{45}\) Id. at 432.
The Department of the Interior:

. . . in the face of critical comments, "recognize(d) that the application of willingness-to-accept", formerly a factor in option and existence valuation, "can lead to more technical difficulties and uncertainties than willingness-to-pay." The conclusion was reached that, as studies indicated, use of willingness-to-accept--meaning an individual is to be paid to forfeit his interest in a resource, as opposed to the individual himself paying to preserve that interest--yielded disproportionately high dollar assessments. For example, one study showed that actual payments for goose hunting licenses were $880,000 while willingness-to-sell was $1,411,000, and willingness-to-pay was only $293,000.46

The court found that the Department of the Interior's promulgation of contingent valuation was made intelligently and cautiously and the methodology was reasonable and consistent with congressional intent under CERCLA. Economist Stanley Smith used the same methodology, but rather than directing it to natural resources, asked the question; "How much is one life worth?" Stanley Smith determined a range of implied values of a human life, extrapolated from what people pay for various products or services, to be as follows:

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Basis for Calculation Value of Life

<table>
<thead>
<tr>
<th>Decision</th>
<th>1988 $ Value</th>
<th>2012 $ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desire for prompt coronary care</td>
<td>$68,000</td>
<td>$103,000</td>
</tr>
<tr>
<td>Automobile air bag purchase</td>
<td>$380,000</td>
<td>$580,000</td>
</tr>
<tr>
<td>Smoke detector purchase</td>
<td>$373,000</td>
<td>$569,000</td>
</tr>
<tr>
<td>Seat belt usage</td>
<td>$541,000</td>
<td>$825,000</td>
</tr>
<tr>
<td>Wage premiums for dangerous police work</td>
<td>$850,000</td>
<td>$1,297,000</td>
</tr>
</tbody>
</table>

Two studies, one by Robert Smith, and a second study by Richard Thaler and Sherwin Rosen, examined decisions made in the job market. They believed that workers would have an incentive to acquire decent information about work-related risks, and since risky jobs are less attractive, the expectation is that after controlling for education, race, experience, unionization, and region, wage rates will be higher in high-risk occupations. Smith's study indicated that manufacturing industry workers collectively were willing to forego $1.5 million in pay if employers undertook steps to save one life.

Thaler and Rosen's study of 37 hazardous occupations had an implied value for life of $200,000 (This is $5.21 million & $694,000 in 2012 dollars).\(^{48}\)

The worth or value of a thing is determined by what a person is willing to pay for it. It does not focus on how much an individual would pay to avoid certain death, since most individuals would pay almost all they could get their hands on. However, most safety and health programs lower the risk of death, but we do not know who would have died without the program. The preferences of consumers probably are the best guide for government policy makers. The preferences can be determined by looking at decisions that individuals make when their lives are actually at risk as has been presented by polling consumers.\(^{49}\)

Mark Kelman provides a poll of middle-aged male students in a business school cost-benefit course, the students were asked two questions. The first question was: Suppose you have been exposed to a disease that would kill you painlessly in one week. The probability that you have contracted it is .001. There is a vaccine, limited in supply, that will cure you if taken now. How much will you pay? You will have thirty years to pay, so problems of raising large lump sums of income are eliminated. The second question was: How much would a person have to offer you to expose yourself to the same disease? There is a .001 chance you will contract it if exposed, and no cure will be available if you contract it. If people behaved as they must to verify the Coase Theorem, the answers to both questions would be roughly the same, although there might be some

\(^{48}\) Rhoads, supra note 14, at 82, at B1.

\(^{49}\) Rhoads, supra note 14, at 82.
small divergence insofar as the marginal utility of money declines. The answers, however, differed by orders of magnitude for many students; for example, the same student answered that he would pay only $200 for the vaccine, but would demand $50,000 to be exposed to the disease. The students spent opportunity income—the amount they could earn by agreeing to run a .001 risk of contracting a fatal disease—very freely to avoid that risk, although they spend little received income to avoid the same risk. The Coase Theorem points out that when it comes to the cost-based decisions of environmental damages that they should be left to the singular polluting entity because it would be impossible for the smaller party to bargain against a party with many individuals. In hope that this would balance out the risk-reward aspect of the Coase Theorem.

Heinzerling, in her discussion of cost benefit analysis, “contingent valuation,” which is essentially a form of opinion poll. There are two standard criticisms of using polling. The first is that respondents may not be able to understand and give consistent answers and that an individual's stated preferences and actual behavior often differ widely. The second is the possibility that respondents may engage in strategic behavior by understating or overstating their real preference.

If Stanley Smith's, Robert Smith's, Richard Thaler's, and Sherwin Rosen's surveys of the value that individuals attribute to a life are relevant, then government is not

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51 Macey, Gregg P, Coasean Blind Spots: Charting the Incomplete Institutionalism. 98 Geo. L.J. 863, 27(2010), at 2-4
52 Ackerman and Heinzerling, supra note 8, at 1558.
53 Rhoads, supra note 14, at 81.
being cost-effective; and society's resources for reducing risk are being poorly allocated. Congress and regulatory agencies should use the Pareto optimal standard and determine what citizens, in essence as consumers, are willing to spend to save one life. This determination needs to be weighted in regard to the costs and benefits to society, a need which is indicated in the extreme when government action involves a cost of $5,000 per life saved for radon and yet a cost of $12.2 million per life saved from cleaning up hazardous waste sites (This is $15,000 and $38 million in 2012 dollars).

Annual risks of death in schools from asbestos are less than 1 in 10 million; removing all asbestos in the nation as a whole might save between 1 and 25 lives per year, putting aside the lives of removal workers placed at risk. The removal costs are estimated ranging from $53 billion to $150 billion. A mid-range of $100 billion, assuming a mid-range of 10 lives saved per year for 40 years, means an expenditure of $250 million per statistical life saved over 40 years (This is $80 billion to $228 billion & $152 billion & $381 million in 2012 dollars). Is this cost sensible? These figures can be translated into a more understandable number since automobile accidents kill about 50,000 individuals per year. Imagine how much an individual would willingly pay for a slightly safer car that would reduce automobile deaths by 5 percent, to 47,500 per year. Would an individual pay an extra $1,000 for such a car? To spend $100 billion as a nation to save 10 lives per year assumes we value safety so much that each of us would pay $48,077 extra for any such new safer car. Perhaps Americans are more willing to run private, voluntary, automobile-related risks, than to run public, involuntary, school-related risks; perhaps they believe death, at an old age, by cancer is worse than death, at a
younger age, in an automobile accident. If the estimate is divided in half, and in half again, the safer car cost would be over $12,000, and yet compare airbags which cost $200 to $500 per car and may save 3,000 to 10,000 lives per year. It seems highly unlikely that the public would pay 24 to 60 times more per car to save far fewer lives.\textsuperscript{54}

These costs cause higher prices for goods and services, higher taxes, and socially undesirable consequences such as the failure of companies to develop and introduce products that the public wants. They also cause the wasteful and unnecessary testing that doctors engage in for the purpose of avoiding lawsuits and the excessive defense litigation strategies that attorneys and insurance companies use to defeat even those lawsuits that are justified under classic tort law.\textsuperscript{55}

Just as an increase in the number of accidents and fatalities can be a by-product of some growth in economic activity, so can a reduction in the number of accidents and fatalities. Any expected loss of life or saving of life, any expected increase or reduction in suffering, in consequence of economic activity, is to be evaluated for the economy by reference to the Pareto principle, by reference to what each member of the community is willing to pay, or to receive, for the estimated change of risk.\textsuperscript{56}

Society judges many forms of activity, including government action, like national defense, the medicare system, the space program, the Food and Drug Administration, and the Environmental Protection Agency, by comparing their costs of

\textsuperscript{54} BREYER, supra note 39, at 13, 14.
\textsuperscript{56} MISHAN, supra note 12, at 315 & 318.
operations with their benefits. Isn't it about time that society evaluates the value of a law and the classic common law toxic tort system in relation to its costs and benefits?  

"Economists generally believe that health and safety regulations should be designed to cure observed ‘market failure’-- instances when markets cannot operate efficiently to provide an effective level of health or safety. Regulation is an attempt to cope with the absence of appropriate market signals and to achieve more efficient allocation of resources by directing them toward, for example, the reduction of accidents, morbidity, or premature death." Many inconsistencies or inefficiencies with our regulatory system contribute to this problem. For example, often the issuance of regulations arises from a popular reaction from a particular event, when, in fact, these should arise because scientific evidence concludes that danger to human health and safety is caused by a particular source that a regulation biologists would contend that this policy leads to inefficient regulation that may cost millions and only save .005-.006 per million people. They suggest that, instead, this scientific evidence should undergo evaluation by other scientists. The opinions and evaluations by these other scientists should be presented in court, along with the scientific evidence. A change in court procedure like this one may decrease the amount of inefficient regulation and focus allocation of funds to regulations and problems which could save more lives.

Stephen Breyer, a member of the United States Supreme Court, suggests that because people lack understanding of the magnitude of certain risks, billions of dollars

57 Sugarman, supra note 54, at 795.
per year are spent inefficiently. For example, risks such as asbestos exposure in school, only kill .005-.006 per million people a year, and yet the economy, government, private corporations and taxpayers, spend millions a year in an attempt to remove asbestos. Yet, government and businesses really are not spending money efficiently because they are only affecting .005-.006 per million people. Resources could be allocated toward reducing risk in areas such as long-term smoking, which kills 1,200 per million people a year. While many expenditures on safety are obviously effective and desirable, when it comes to certain federally-mandated programs, such as, in the extreme, chloroform controls, we may be using precious resources that could have saved more lives elsewhere. The net cost to society to save one life through chloroform controls at pulp mills is $99,400,000,000 (This is $151,617,000,000 in 2012 dollars).<ref>
An economist would recommend a cost-benefit analysis before enacting any regulations. The benefits should be derived from scientific evidence that is supported by a majority of the scientific community. If a considerable number of lives could be saved through correction of a particular problem, then costs must be assessed. If the cost of saving the lives is worth the number of lives that it will save, then the regulation should be enacted and the cause or problem should be eliminated. Considering a cost-benefit analysis, regulators would set priorities and use them to govern the allocation of the agency's scarce staff time and resources.  </ref>

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<ref>BREYER, supra note 39, at 23-27.</ref>

Before we go further, we must first consider the question: Is it the number of lives we save that determines the greatest good to society, or must we consider who we are saving? Is the value of life different depending on one’s race or income? Poor people and minorities bear the brunt of environmental dangers from all kinds of toxins. At the same time, poor people and racial minorities have the fewest resources to cope with these dangers, legally, medically, or politically. Issues of race, low income, and political disenfranchisement appear in cases such as Poletown “where a poor but stable mixed-race neighborhood” was taken through eminent domain by the City of Detroit, to become a site for a General Motors Cadillac factory.61

Residents of Kennedy Heights, Houston are suing Gulf Oil, in federal court, contending that they, as racial minorities, have been disproportionately subject to pollution hazards. The Houston neighborhood is where homes were built three decades ago atop abandoned oil pits and where many people complain of cancer, tumors, painful rashes and lupus erythematosus. Plaintiffs contend that Gulf Oil covered up toxic hazards when the homes were marketed, in the words of a 1967 company document, “for Negro residential commercial development.”62 Many Kennedy Heights residents say they would gladly leave if they could afford to do so, but their homes are virtually worthless because of the publicity over the case.

The state of Louisiana backs building the $700 million plastics and chemical plant. The EPA is investigating whether the location of the plant violates Title VI of The

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Civil Rights Act of 1964. The EPA also objected to the state-issued air- emissions permits for the proposed plant and it appears to be the first time the agency has granted a citizen’s petition for review under Title V of the Clean Air Act of 1990.63

Title VI of the Civil Rights Act of 1964 prohibits discrimination by any program receiving federal funds, and EPA regulations state that disparate impact of environmental problems on a minority community violates Title VI. The civil rights remedy was bolstered in a 1994 executive order by President Clinton that each federal agency shall make achieving environmental justice part of its mission. While not defining environmental justice, the order directs agencies to consider the effects on minority and low-income groups.64

The issue of health or value of life verses economic development, in regard to the St. James Parish case, has different perspectives. The proponents for and opponents of the proposed plant do not fall along racial lines. The Southern Christian Leadership Conference is for the plant, the local and New Orleans NAACP chapters are against it, and the state chapters are neutral.65

A blatant example of the mingled effects of political clout, economic resources, and racism can be seen in the following New York incident. For a twelve-year period, officials assumed that a trash-burning incinerator did not cause a health risk for residents of a predominantly black neighborhood in Albany, New York. But less than three weeks after the incinerator’s emissions blackened the snow at the nearby governor’s mansion,

63 Id.
64 Id. at 33.
65 Id.
the incinerator was shut down. Until the day it closed, the plant burned approximately 350 tons of waste each day, sending arsenic, lead, mercury, and other toxins into the air. It also provided steam to heat and cool the offices of the governor of New York and state legislators.\textsuperscript{66}

What about the indirect effects of individuals exposed to environmentally hazardous substances, effects which might be a contributing factor in their committing violent crimes that result in the loss of life? Deborah Denno, a Fordham University law school professor, conducted a long-term study of the biological and sociological predictors of crime.\textsuperscript{67} The study showed that males were twice as likely to commit a crime as females and for men, the strongest predictors of crimes were lead poisoning, low language achievement and frequent household moves.\textsuperscript{68}

Dartmouth College Government Professor Roger Masters’ research linked exposure to toxic materials and crime.\textsuperscript{69} Masters found that violent crime rates on average are significantly higher in areas with environmental releases of lead and manganese than in areas without such pollutants.\textsuperscript{70} L. Buddy Gwin, Vermont Law Professor and American Indian, indicated that if environmental pollution contributes to crime, it is no accident that most toxic waste sites are located in poor and minority communities.\textsuperscript{71} It is part of an all-too-familiar pattern, he indicated, going back to the genocide policies of Lord Jeffrey

\textsuperscript{66} N.Y. State Accused of Environmental Racism for Incinerator Site CHRISTIAN SCI. MONITOR, Feb. 8, 1994, at 21.

\textsuperscript{67} Deborah Denno, Gender Differences in Biological and Sociological Predictors of Crime, 22 VT. L. REV. 305 (1997).

\textsuperscript{68} Id.

\textsuperscript{69} Roger Masters, Environmental Pollution, Neurotoxicity and Criminal Violence, in ASPECTS OF ENVIRONMENTAL TOXICOLOGY (J. Rose, ed., 1997).

\textsuperscript{70} Id.

Amherst, who distributed small pox-infested blankets to the Indians as a means of waging biological warfare.\textsuperscript{72}

For all of the above mentioned reasons, it is clear that our current common law tort system is not adequately solving toxic tort cases. We need another means of handling these types of cases.

\textsuperscript{72} Id.