



**RESOURCES**  
FOR THE FUTURE

## **The Natural Resource Damage Provisions of CERCLA and OPA**

Testimony Prepared for Presentation to  
Subcommittee on Water Resources and Environment  
Committee on Transportation and Infrastructure  
U.S. House of Representatives  
July 11, 1995

By Raymond J. Kopp, Senior Fellow  
Resources for the Future

RFF is home to a diverse community of scholars dedicated to improving environmental policy and natural resource management through social sciences research. Resources for the Future provides objective and independent analysis and encourages scholars to express their individual opinions, which may differ from those of other RFF scholars, officers, and directors.

## **The Natural Resource Damage Provisions of CERCLA and OPA**

Testimony for presentation to the Subcommittee on Water Resources and Environment, Committee on Transportation and Infrastructure, U.S. House of Representatives, July 11, 1995

By Raymond J. Kopp, Senior Fellow, Resources for the Future

Mr. Chairman and distinguished members of the subcommittee, thank you for inviting me to testify before you today. My name is Raymond Kopp and I am the director of the Quality of the Environment Division at Resources for the Future, an independent, nonpartisan research and educational organization concerning itself with natural resources and the environment. I would like to take this opportunity to stress that the views I will present today are mine and mine alone. Resources for the Future takes no institutional position on legislative, regulatory, judicial, or other public policy matters.

I am an economist and have been a member of the Resources for the Future staff since 1977. During that time, I have specialized in the analysis of environmental and natural resource issues with a particular focus on federal regulatory activity. For the past seven years, I have conducted research pertaining to the natural resource damage provisions of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Oil Pollution Act of 1990 (OPA). This research has taken the form of books and published articles. In addition, I have worked with both plaintiffs and defendants in natural resource damage cases brought under CERCLA. In two cases, the *Exxon Valdez* and *U.S. v. Montrose Chemical Corporation*, I have been a principal investigator on contingent valuation studies designed to estimate nonuse values.

I am here today to speak on issues bearing on the natural resource damage provisions of CERCLA and OPA. In my prepared remarks I wish to focus on nonuse value and contingent valuation and will address four specific questions. First, why do we use economics to value losses when conducting natural resource damage assessments? Second, what is economic value and how does one measure it? Third, what is a nonuse value—or, as it has been termed, passive use value—and why is it relevant to the assessment of natural resource damages? And finally, can contingent valuation be used to reliably measure nonuse values?

### **1. Economic Values as the Basis for Public Compensation**

When a natural resource held in public trust is injured by a release of oil or a hazardous substance, the public suffers a loss. The size of the loss can be associated with the extent and duration of the injury. If the injury is small and very short-lived, the loss may be small. As the seriousness of the injury and the time necessary for recovery of the

resource grows, so too does the loss. Restoration of a resource to its baseline condition (preinjury state) ensures that the public will not suffer in the future, but restoration to baseline alone does not compensate the public for the losses it has incurred in the interim, from the time the injury takes place until the time the recovery is complete. The role of economics is to place a dollar value on this *interim loss* so that the public can be fully compensated for the injury and made whole.

For example, when an oil spill requires the closure of a public beach during the summer, the public suffers a loss. The longer the closure, the larger the loss. If the beach is closed for the entire summer while cleanup activities take place, the public loses a summer of recreation at this beach and other aspects of an unspoiled beach. If the cleanup activities are completed by the opening day of the next season, no further losses are incurred after that date. However, unless the value of the interim lost recreation and other interim losses due to the despoiled beach are assessed, the public has not been fully compensated for its loss due to the spill. Individuals enjoyed the beach before the spill and this enjoyment is denied while the beach is being restored. Even when the costs of restoration are paid, the precluded enjoyment of the beach during the restoration process is not included in the restoration costs and must be assessed separately as interim loss.

## **2. Economic Values Defined by and Measured with a Trade-Off**

How does one place a dollar value on these interim losses? The answer to that question involves economics and, for some injuries, involves a consideration of nonuse values. To understand how interim losses are valued, one must first understand the term economic value and what it means to measure an economic value.

When an individual chooses to give up something to obtain something else, an economist is in a position to measure the value an individual has for what is obtained. From the economist's perspective, the value of what was obtained must be *at least* equal to what was given up. If I agree to pay \$5,000 for a used car, an economist observing my purchase would say the value of the used car to me is *at least* \$5,000. Since I may have been willing to pay more than \$5,000 for the car, the economist can only say that the car was worth at least \$5,000 to me. If the economist knew that I would not pay a penny more than \$5,000, then the value of the car would be just equal to \$5,000.

Since prices are ubiquitous, it is sometimes natural to think of economic value in terms of prices paid. However, there is nothing about the definition of economic value or the manner in which it is measured that requires prices to be posted and money exchanged in order for value to be defined and measured. For example, it is not uncommon for public beaches to be open free of charge. Does the fact that no price is posted or charged mean the economic value of enjoying a day at the beach is zero? Of course not. The fact that people were not charged a price to be admitted to the beach does not mean that the economic value is zero, or that nothing was given up by these people in exchange for a day's worth of beach enjoyment. At the very least, individuals had to travel to the beach and therefore gave up the travel expenses and time spent traveling in order to gain the beach enjoyment for a day. In fact, for decades economists have used

measures of these *travel costs* to estimate the demand for recreational sites such as beaches.

### 3. Use Values and Nonuse Values

The economic approaches selected to measure interim losses due to natural resource injuries depend on the character of the injuries, a full description of which is beyond the scope of my remarks today. However, suffice it to say that the approaches fall into two groups, those that measure use value and those that measure both use and nonuse values. An example of use values would be a day's worth of beach recreation, and the approach to value measurement could be based on the travel costs experienced by beachgoers.

The concept of nonuse value and approaches for its measurement have led to concern and misunderstanding among all parties involved in natural resource damage assessment. A significant cause of this misunderstanding comes from attempts to define nonuse values in terms similar to the manner in which we speak of use values, for example, the value of a day at the beach. Describing a use value is relatively straightforward because we can relate it to what we see people doing—spending a day at the beach. Describing use values in this manner leaves silent the issue of why people enjoy the beach or why they should be willing to bear the travel cost to get to the beach. These use value descriptions say nothing about people's motivations. In contrast, descriptions of nonuse values have been based almost exclusively on characterizations of motivations.

Using motivations as descriptors, nonuse values are often described as the "economic value one places on assuring that future generations will be able to enjoy unspoiled natural resources, or the value one places on the assurance that other members of the current generation will be able to enjoy the resource." These motivations to protect and preserve environmental resources for the benefit of current and future generations give rise to economic value because people are willing to give something up to obtain this protection and preservation. This trade-off is exactly analogous to the method used to measure use values. However, because many people making this trade-off may never actually use particular environmental resources themselves, economists have termed the value they place on preservation and protection a *nonuse* value.

It is important to understand that motivations to preserve and protect something are not limited to the environmental resources. Quite to the contrary, it is an exceedingly common motivation. For example, Americans' love for various lifestyles—such as the family farm, the cowboy and western ranch family, or the lumberjacks of the Northwest—can give rise to nonuse values if these individuals are willing to give something up to protect and preserve these lifestyles even if they themselves do not choose to live their lives in this manner.

The point I wish to emphasize is that nonuse values are not creations of economists, but rather are the result of common and widespread motivations among the public. When these motivations give rise to a trade-off an individual can make, where

something is given up (usually money) so that something is preserved, protected, or restored, an economist, as an external observer of that choice, can measure a nonuse value.

#### **4. Contingent Valuation and the Measurement of Nonuse Value**

Like all economic values, nonuse values are measured by the trade-off an individual makes giving up one thing to get something else. Contingent valuation (CV) is an economic technique that allows economists to pose trade-offs to people. From respondent's decisions, it is possible to measure values. Because CV permits the economist to pose the trade-off, it can measure many different types of economic value. At this time, CV is the only technique available to economists to measure nonuse value.

CV is an economic technique that gathers the information needed to measure values by interviewing people. The fact that CV uses survey interviews does not differentiate it from other economic approaches to valuation. Indeed, the vast majority of the empirical information economists use in their study of households and private businesses is based on survey data. What differentiates CV is that the survey is used to pose a trade-off to the individual being interviewed (termed the respondent). The trade-off describes what the individual can obtain by giving up some specified dollar amount and thereby controls the exact nature of the trade-off posed to each person. In CV surveys that my colleagues and I have conducted, the items that people can obtain are sometimes described as detailed programs to prevent future oil spills and the associated injuries to natural resources (the *Exxon Valdez* case) or programs to restore marine resources injured by chemical contamination (*U.S. v. Montrose*). In both of these studies, respondents were told that the payments for these *programs* will be in the form of one-time tax surcharges.

It is often claimed that CV surveys are hypothetical and therefore individuals know they will never have to pay for the items being offered. It is then asserted that people will agree in an interview to pay \$20–\$30 for any *good cause* when, in fact, they would pay nothing if they thought the payment was real. In surveys I mentioned, we do not suggest to the respondent there is anything hypothetical about the choice we are asking them to make. Households interviewed in the *Montrose* CV study were sent letters in advance of the interview telling them that the survey was sponsored by the State of California to gain their opinions on issues facing the state today. Then, during the actual interview, respondents were told that the state routinely conducts surveys such as these to find out how people think about proposed programs that would lead to California tax increases. They were told the state does not want to pursue these programs unless the people are willing to pay for them. After describing the program and how it would be paid for, the respondent was told by how much his or her household taxes would rise if the program was put in place. Finally, the respondent is asked, "If an election were being held today, would you vote for the program or vote against it?"

My colleagues and I attempt to make the choice as real as possible. Our objective is to make the trade-off understandable, credible, and plausible. It is our belief that by providing this realism, individuals take their decision seriously, accept the implied financial responsibility underlying their votes, and provide us with reliable information

upon which to base measures of economic value. Understandable, credible, and plausible CV surveys can provide reliable measures of economic value. This conclusion is supported by the results of our *Exxon Valdez* and *Montrose* studies and further confirmed by a replication two years later of the *Exxon Valdez* survey.

Will any CV study produce reliable estimates of economic value? The answer is generally no. Like all measurement techniques in the sciences, the results depend on how the methods are used. In the natural sciences, measurement protocols are common. Quality assurance and replication require adherence to these protocols. In the social sciences, protocols have been less rigorous. However, this is not true for CV. Rigorous protocols are established for CV.

In 1992, Thomas Campbell, general counsel to the National Oceanic and Atmospheric Administration (NOAA) during the Bush administration, appointed a panel of experts to examine the reliability of CV for measuring nonuse value in damage assessment cases. The panel was cochaired by two Nobel Laureates in economics, Kenneth Arrow and Robert Solow. After six full months of study, the panel produced a report that specified in detail numerous recommendations for the design and execution of CV studies. If studies followed the recommendations, the panel concluded, "...CV studies can produce estimates reliable enough to be the starting point of a judicial process of damage assessment, including lost passive use values."

Several CV practitioners believe the panel's guidelines and protocols for CV studies are overly prescriptive. These individuals argue that reliability can be obtained under less restrictive protocols. While their judgment may be correct, what is relevant to the current debate is whether there exists a set of circumstances under which contingent valuation can produce reliable estimates of value. The opinion of the NOAA CV panel is yes. My experience with the *Exxon Valdez* and *Montrose* studies and the replication of the *Exxon Valdez* survey confirms the panel's judgment. Whether reliability can be obtained under less restrictive protocols remains to be seen.

I would be pleased to answer any questions the committee may wish to pose.