Making The "Intangibles" Tangible: The Need To Use Contingent Valuation Methodology in Environmental Impact Statements

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I. INTRODUCTION

How much money would you spend to save the Grand Canyon from being destroyed? You may think this is a ridiculous question: It is impossible to put a price tag on places of such majestic natural beauty. However, this Comment will demonstrate that, not only is it appropriate to determine the monetary value that the average person affixes to places such as the Grand Canyon, but failing to assign a dollar amount to landscapes and natural areas causes their value to be given short-shrift compared to economic considerations in the context of federal agency decision making. Moreover, the National Environmental Policy Act

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(NEPA) requires that federal agencies give environmental amenities appropriate consideration in decision making.[1] Thus, although it may seem bizarre and counterintuitive, affixing monetary values to landscapes and natural aesthetics puts them on an even playing field with other considerations and therefore is necessary to ensure that NEPA's legislative mandate is fulfilled.

II. BACKGROUND

An ongoing debate in environmental law is whether contingent valuation methodology (CVM) is an appropriate technique for calculating damages to the natural environment.[2] Proponents of CVM argue that it "offers the best way to put intangible environmental benefits on the balance sheet,"[3] while critics of CVM "contend that the methodology is riddled with flaws and therefore produces uncertain results. They claim that problems created by using such uncertain assessments are greater than the threat posed by ignoring nonuse values; therefore, CVM should be barred from the assessment process."[4]

CVM supporters counter that, "[a]s survey techniques continue to improve . . . so will the accuracy and precision of information about the public's environmental preferences."[5] However, "[t]o some opponents, contingent valuation is both practically and logically impossible—as hopeless as quantifying the benefits of beauty or truth."[6]

Contingent valuation methodology is a survey-based economic methodology for determining the value of nonuse resources, such as

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1. 42 U.S.C. § 4332 (B) (2006) ("[A]ll agencies of the Federal Government shall . . . identify and develop methods and procedures . . . which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations.").

2. Robert R.M. Verchick, *Feathers or Gold? A Civic Economics for Environmental Law*, 25 HARV. ENVTL. L. REV. 95, 105-06 (2001); Thomas Kapper, *Bringing Beauty to Account in the Environmental Impact Statement: The Contingent Valuation of Landscape Aesthetics*, 6 ENVTL. PRACTICE 296, 296 (2004) ("Assigning a dollar value to the aesthetic damage wrought by a project would allow its incorporation into the cost-benefit analysis and thus increase its persuasive power. Aesthetic damage may continue to be a price of progress, but monetary valuation would illustrate that price in black and white."); Miriam Montesinos, Comment, *It May Be Silly, But It's an Answer: The Need to Accept Contingent Valuation Methodology in Natural Resource Damage Assessments*, 26 ECOLOGY L.Q. 48, 52-53 (1999); Gen. Elec. Co. v. U.S. Dep't of Commerce, 128 F.3d 767, 772 (D.C. Cir. 1997) ("Contingent valuation is not without controversy . . . .").

3. Verchick, *supra* note 2, at 105.

4. Montesinos, *supra* note 2, at 53.

5. Verchick, *supra* note 2, at 105.

6. *Id.*

environmental preservation or the impact of contamination.[7] Contingent valuation gets its name from the fact that an individual's willingness to pay is "contingent" on a change in the status of the resource.[8] The Grand Canyon scenario discussed *supra* (which was lifted from a real situation in which CVM was used)[9] is an example of a way in which contingent valuation methodology can be used.

Historically, parties alleging harm to the natural environment were merely awarded damages for use values—damages based on the use of the resource.[10] Use values, such as backpacking, swimming, hiking, camping, and mountain-biking, are readily measured through market-based methods such as fees paid for the use of the natural resource in question.[11] The controversy begins when parties seek compensation for nonuse values—values that complement use values and are obtained from the value humans place on resources even if they do not use them.[12] For example, a person might value the potential of using a resource in the future (option value),[13] merely knowing that the resource exists (existence value),[14] or preserving the resource for future generations (bequest

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7. Report of National Oceanic and Atmospheric Administration (NOAA) Panel of Contingent Valuation, 58 Fed. Reg. 4601, 4603 (1993) [hereinafter NOAA Panel Report].

8. *Id.* at 4611.

9. MARK SAGOFF, THE ECONOMY OF THE EARTH: PHILOSOPHY, LAW, AND THE ENVIRONMENT 81-84 (1988) (seeking to determine, through economic study, what the maximum limit of air pollution in the close proximity of the Grand Canyon should be under the "Prevention of Significant Deterioration" program of the Clean Air Act).

10. Verchick, *supra* note 2, at 103.

11. *See* 43 C.F.R. § 11.83(c)(1)(i) (2008). The Department of Interior regulation defines "use value," in the context of natural resource damage assessment, as: "[T]he economic value of the resources to the public attributable to the direct use of the services provided by the natural resources." *Id.*

12. Montesinos, *supra* note 2, at 50 ("Use values are not the issue. . . . The problem lies with nonuse values, which are meant to complement use values and are derived from the value humans place on resources even if they do not use them.").

13. Peter A. Diamond & Jerry A. Hausman, *On Contingent Valuation Measurement of Nonuse Values*, *in* CONTINGENT VALUATION: A CRITICAL ASSESSMENT 3, 6 (Jerry A. Hausman ed., 1993).

14. Duane Woodward & Michael R. Hope, *Natural Resource Damage Litigation Under the Comprehensive Environmental Response, Compensation, and Liability Act*, 14 HARV. ENVTL. L. REV. 189, 200 (1990). Extinction of a species is probably the first situation which most people would associate with existence value. The enactment of the Endangered Species Act in 1973, with contains some of the most stringent requirements found in domestic environmental law, reflects the incredibly high value that our society has placed on preserving species. *See* 16 U.S.C. §§ 1531-1544 (1988 & Supp. IV 1992); Jeffrey C. Dobbins, *The Pain and Suffering of Environmental Loss: Using Contingent Valuation to Estimate Nonuse Damages*, 43 DUKE L.J. 879-80 n.4 (Feb. 1994) ("The Endangered Species Act (ESA), for example, imposes a complete ban on activities that threaten the well-being of endangered species, even when doing so results in significant economic losses.").

value).[15] Economists use contingent valuation to provide surrogate prices to these nonuse values vis-à-vis meticulously administered surveys aimed at discovering what people would be willing to pay to keep a specific natural resource.[16]

The 1960s were the tail-end of decades of rapid decline in the nation's natural environment.[17] Overpopulation and increased industrialization had contributed to a continuously deteriorating environment.[18] The Environmental Protection Agency (EPA) itself noted that this environmental damage "was not just esthetically displeasing but threatening to the very survival of man."[19] It was at this time of environmental crisis that environmentalism began to gain strength as a movement aimed at ending, and reversing, this environmental decline.[20] It was in 1969, during this time of rapid change, that Congress enacted NEPA.[21]

The striking urgency of the report issued by the Senate Committee on Interior and Insular Affairs prior to the statute's enactment illustrates how serious Congress viewed the problem of environmental degradation.[22] The Committee observed that "crowding, congestion, and conditions within our central cities" were resulting in "civil unrest and detract[ing] from man's social and psychological well-being."[23] Moreover, the Committee specifically referenced aesthetic problems as part of its primary concerns, stating that inadequate environmental policies were leading to "poor architectural design and ugliness in public and private structures; rising levels of noise . . . an increasingly ugly landscape cluttered with billboards, powerlines, and junkyards; and many, many other environmental quality problems."[24] However, the

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15. ROBERT CAMERON MITCHELL & RICHARD T. CARSON, USING SURVEYS TO VALUE PUBLIC GOODS: THE CONTINGENT VALUATION METHOD 65 (1989).

16. Verchick, *supra* note 2, at 104.

17. Jack Lewis, The Birth of EPA, http://www.epa.gov/history/topics/epa/15c.htm (last visited Feb. 14, 2009).

18. *Id.*

19. *Id.*

20. *Id.*

21. *Id.*

22. *See* SENATE COMM. ON INTERIOR & INSULAR AFFAIRS, NATIONAL ENVIRONMENTAL POLICY ACT OF 1969, S. REP. NO. 91-296, at 1 (1969) ("The inadequacy of present knowledge, policies, and institutions is reflected in our Nation's history, in our national attitudes, and in our contemporary life. We see increasing evidence of this inadequacy all around us . . . .").

23. *Id.*

24. *Id.*

grandiose aspirations found in the objectives of the statute itself that call for drastic actions have still not been fully realized.[25]

NEPA's objective is the protection of the environment through procedural safeguards. Specifically, the drafting of an Environmental Impact Statement (EIS) was designed to compel federal agencies to gather and analyze detailed information on significant environmental impacts caused by "major federal actions" before deciding on a precise course of action.[26] Moreover, in NEPA, Congress directed all federal agencies to interpret and administer all laws and policies under "a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment."[27] Significantly, Congress commanded federal agencies, "in consultation with the Council on Environmental Quality," to "identify and develop methods and procedures . . . which will insure that *presently unquantified* environmental amenities and values may be given appropriate consideration in decisionmaking *along with economic and technical considerations*."[28]

In one of the first cases interpreting NEPA, *Calvert Cliffs' Coordinating Committee v. U.S. Atomic Energy Commission*,[29] the United States Court of Appeals for the District of Columbia Circuit held that "[t]he word 'appropriate' . . . cannot be interpreted to blunt the thrust of the whole Act or to give agencies broad discretion to downplay environmental factors in their decisionmaking processes."[30] The court concluded that "[t]he Act requires consideration 'appropriate' to the problem of protecting our threatened environment, not consideration 'appropriate' to the whims, habits or other particular concerns of federal

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25. For example, NEPA requires federal agencies to "fulfill the responsibilities of each generation as trustee of the environment for succeeding generations," and to "assure for *all* Americans safe, healthful, productive, and *esthetically* and culturally pleasing surroundings." 42 U.S.C. § 4331 (2006) (emphasis added); *see also* Oliver A. Houck, Address at Council of Environmental Quality Southern Roundtable (Dec. 11, 2003), *available at* http://ceq.hss.doe.gov/ntf/inputreceived/20031212Tulane_Comments.pdf ("NEPA is not achieving its Congressional goals. The resistance to it remains strong and widespread, and will remain so forever, because it is not in human nature to like to have to change the way one does business.").

26. NEPA's stated purposes are "[t]o declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; [and] to enrich the understanding of the ecological systems and natural resources important to the Nation." 42 U.S.C. § 4321.

27. *Id.* § 4332.

28. *Id.* § 4332(B) (emphasis added).

29. 449 F.2d 1109, 1113 n.8 (D.C. Cir. 1971).

30. *Id.*

agencies."[31] However, it is important to note that NEPA does not compel an agency to choose the course of action that it deems best for the environment.[32] Instead, NEPA simply forces agencies to take a "hard look" at environmental consequences,[33] and to "[r]igorously explore and objectively evaluate all reasonable alternatives."[34]

The thrust of NEPA's mandate to give environmental amenities "appropriate" consideration is the requirement that federal agencies prepare a detailed EIS for every "major federal action" that significantly affects environmental quality.[35] In passing NEPA, Congress announced that it was national policy for all subsequent regulations and policies to employ an interdisciplinary approach that integrated the usage of the natural and social sciences and environmentally minded design into planning and decision making.[36] While such a balancing of different factors might have already been par for the course in certain progressive communities at the time of NEPA's enactment in the late 1960s, this mandate was revolutionary because it was directed at the entire federal bureaucracy.[37]

CVM emerged in the mid-1980s in the context of litigation as a method to calculate natural resource damages for lawsuits brought under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).[38] CERCLA authorized state and federal agencies to bring enforcement actions against responsible parties liable "for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss."[39] In *Ohio v. Department of Interior*, the D.C. Circuit ruled that nonuse values were compensable under CERCLA, and that CVM was a proper methodology for determining the exact nonuse value of a natural resource.[40] As part of its holding, the court upheld the Department of Interior's (DOI) finding that CVM was "'the best available procedure[]'" for determining natural

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31. *Id.*
32. Vt. Yankee Nuclear Power v. NRDC, 435 U.S. 519, 558 (1978).
33. *Id.*; Sierra Club v. Kleppe, 427 U.S. 390, 410 (1976); Earth Island Inst. v. U.S. Forest Serv., 351 F.3d 1291, 1300 (9th Cir. 2003); NRDC v. Morton, 458 F.2d 827, 838 (D.C. Cir. 1972).
34. 40 C.F.R. § 1502.14(a) (2000).
35. 42 U.S.C. § 4332(C) (2006).
36. *Id.* § 4332(A).
37. ALLEN Y. COOPERRIDER, SAVING NATURE'S LEGACY: PROTECTING AND RESTORING BIODIVERSITY 81 (1994).
38. *See* MITCHELL & CARSON, *supra* note 15, at 9-14 (discussing CVM development in detail).
39. 42 U.S.C. § 9607(a)(4)(C).
40. 880 F.2d 432, 438 (D.C. Cir. 1989).

resource damages.[41] Acknowledging the extensive amount of research that the DOI had conducted into CVM before deciding to use it as a proper way to calculate natural resource damages, the court stated that "[i]t cannot be gainsaid that DOI's decision to adopt CV [CVM] was made intelligently and cautiously."[42]

Contingent valuation was perhaps most famously employed in the effort to measure human injury caused by the EXXON VALDEZ oil spill.[43] In one of the surveys conducted, researchers attempted to quantify the existence value that non-Alaskans placed on the marine ecosystem of Prince William Sound.[44] The study concluded that the average household would be willing to pay $31 to prevent a similar catastrophe in the future, which equated to $2.8 billion.[45]

CVM is the only technique presently available to *directly* measure nonuse values.[46] While other techniques have arisen that measure such values in an indirect manner,[47] these methods obtain estimates by "utiliz[ing] assumptions of optimizing behavior to organize observations on behavior and to deduce measures of economic well-being."[48] Examples of indirect methods of ascertaining nonuse values include analyzing the decisions that people make that impact natural resources, and examining how much money people donate to environmental entities.[49]

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41. *Id.* at 439 (quoting 42 U.S.C. § 9651(c)(2)). The court also found the Department of Interior's use of CVM reasonable congruent with congressional objectives.

42. *Id.* at 476-77.

43. Charles H. Peterson & Jane Lubchenco, *Marine Ecosystems*, *in* NATURE'S SERVICES: SOCIETAL DEPENDENCE ON NATURAL ECOSYSTEMS 188 (Gretchen C. Daily ed., 1997).

44. *Id.*

45. *Id.*

46. Brian R. Binger et al., *The Use of Contingent Valuation Methodology in Natural Resources Damage Assessments: Legal Fact and Economic Fiction*, 89 NW. U. L. REV. 1029, 1069 (1995); NOAA Panel Report, *supra* note 7, at 4603.

47. Frederick R. Anderson, *Natural Resource Damages, Superfund, and the Courts*, *in* VALUING NATURAL ASSETS 26, 27-28 (Raymond J. Kopp & V. Kerry Smith eds., 1993).

48. Kenneth E. McConnell, *Indirect Methods for Assessing Natural Resource Damages Under CERCLA*, *in* VALUING NATURAL ASSETS, *supra* note 47, at 153, 154.

49. John Daum, *Legal and Regulatory Aspects of Contingent Valuation*, *in* CONTINGENT VALUATION: A CRITICAL ASSESSMENT 389, 400-03 (Jerry A. Hausman, eds. 1993); Kapper, *supra* note 2, at 299.

III. DISCUSSION

A. Cost-Benefit Analysis and NEPA Section 102 (B): Why We Should Make the "Intangibles" Tangible

NEPA mandated aesthetically pleasing surroundings for *all* Americans, and directed agencies to give appropriate consideration to the previously unquantified environmental amenities and values.[50] Although NEPA does not require an EIS to include a cost-benefit analysis, an EIS frequently contains a cost-benefit analysis as part of the ultimate project assessment.[51] Cost-benefit analysis analyzes different potential courses of action to ascertain the costs and benefits affiliated with each, in order to determine which course of action contains the greatest net benefit.[52] In order to properly compare different costs and benefits, all values must be converted into one common metric.[53] Economists do this by quantifying all costs and benefits in terms of dollars gained or lost.[54]

For cost-benefit analysis to serve its purpose, all costs and benefits must be properly accounted for.[55] Traditionally, so-called "intangible" values, which are values that economists have deemed inappropriate for monetary valuation, have been undervalued or omitted from cost-benefit analyses.[56] Normally, "intangible" values have been represented separately, outside of a project's final cost-benefit equation.[57]

Monetizing environmental values, by placing a dollar value on the aesthetic damage caused by a project, would enable this intangible to be incorporated into the cost-benefit analysis found in the EIS and therefore significantly bolster the effect that aesthetic damage would have on the ultimate decision maker. While environmental degradation very well may be an unavoidable price of material progress, contingent valuation would clearly capture this price in round numbers. Alternative assessment techniques have been employed in an attempt to quantify aesthetics and other nonuse environmental values.[58] Besides indirect techniques, some additional methodologies include rank orderings of

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50. 42 U.S.C. § 4331(b)(2) (2006); *id.* § 4332(B).
51. Kapper, *supra* note 2, at 299.
52. *Id.*
53. *Id.*
54. *Id.*
55. *Id.*
56. *Id.*
57. A. Randall, *Taking Benefits and Costs Seriously*, *in* THE INTERNATIONAL YEARBOOK OF ENVIRONMENTAL AND RESOURCE ECONOMICS 1999/2000, at 250-72 (H. Folmer & T. Tietenberg eds., 1999).
58. Kapper, *supra* note 2, at 297.

photographs and scales that rate different types of environmental amenities.[59]

In response to NEPA's mandate to ensure that "presently unquantified" environmental amenities and values are given "appropriate consideration" in decision making, numerous federal agencies sought to develop methodologies that would assess these amenities and values.[60] While these methodologies primarily dealt only with large landscapes, environmentalists developed methods that would assess smaller landscapes.[61] However, the passionate pleas of these environmentalists were "ignored in favour of the slick presentations of corporations and government agencies armed with charts, graphs, tables, statistics, cost-benefit ratios and other persuasive quantified matter."[62]

The techniques initially developed by federal agencies were problematic because they were unable to provide a true comparison between the economic benefits and the "intangible" costs.[63] The techniques proved ineffective to directly compare the amounts generated by these techniques to the monetary value of economic considerations in the same project.[64] Moreover, in the context of governmental decision making (and, for that matter, American culture)[65], round numbers exude an aura of sound science (whether they are, in fact, based on science or not). Indeed, "[i]t is rare for the EIS's final decision to go against the cost-benefit analysis findings."[66] Accordingly, a decision that is mostly driven by a cost-benefit analysis will have neglected to take aesthetic values into account.

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59. *Id.*

60. Two such examples are the U.S. Forest Service Visual Management System and the Bureau of Land Management Visual Resource Inventory and Evaluation System. U.S. DEP'T OF AGRIC., U.S. FOREST SERV., NATIONAL FOREST LANDSCAPE MANAGEMENT (AGRICULTURAL HANDBOOK NO. 462) (1974); U.S. DEP'T OF THE INTERIOR, BUREAU OF LAND MGMT. (MANUAL H-8410-1—VISUAL RESOURCE INVENTORY), *available at* http://www.blm.gov/nstc/VRM/8410.htm/#Anchor-49575. Both of these systems categorize large landscapes, attempting to put areas into different grades of scenic quality.

61. Kapper, *supra* note 2, at 299.

62. J. DOUGLAS PORTEOUS, ENVIRONMENTAL AESTHETICS: IDEAS, POLITICS, AND PLANNING 194 (1996).

63. *See* Kapper, *supra* note 2, at 299 ("All values must be transformed to a common measurement in order to compare them.").

64. *Id.*

65. *Id.*

66. *Id.*

B. CVM Rectifies the Classic Market Failure of Externalities

A public good is a nonexclusive good.[67] The term itself is somewhat of a misnomer, because a public good can be both a good and service.[68] "Public goods" are goods or services that, once provided to a person, cannot logistically be withheld from any other person who wishes to consume or enjoy the good or service.[69]

The problem of externalities further complicates cost-benefit analyses of public works projects that will have a significant impact on the environment. An external cost is present when "(1) an activity by one agent causes a loss of welfare to another agent, and (2) the loss of welfare is uncompensated."[70] It is clear that a federal agency action that causes aesthetic damage to a natural area is a negative externality, since the government is harming the people without compensation for this harm.[71]

The market failure relevant to the instant discussion is in pricing aesthetics (a public good) and having the amount decided upon accurately reflect the harm caused (the externality). In a cost-benefit equation, the government (the project's proponent) usually incurs costs, while the benefits that the project creates go to the public.[72] Landscape aesthetics is one such benefit of a project. When a project creates deficiencies in aesthetics, the public suffers damages, which can be conceptualized as a negative benefit.[73] Thus, by failing to include aesthetic damage in a cost-benefit analysis of a federal project, the federal government is consciously permitting the classic market failure of public goods and externalities to thwart NEPA's purpose to deeply consider the environmental impacts of a federal project.

C. Combining Aesthetic and Economic Values: The Mechanics of Contingent Valuation Methodology

There is surprisingly little research which attempts to value aesthetics.[74] One commentator posited that the reason for this void "is the seeming incompatibility of beauty and money."[75] Consequently, the

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67. *Id.*
68. *Id.*
69. *Id.* at 300.
70. *Id.*
71. *Id.*
72. *Id.*
73. *Id.* at 301.
74. *Id.*
75. *Id.*

relationship between landscape assessment and a larger economic evaluation is rarely made.[76]

CVM seeks to close this gap by providing a tool for government actors to place economic and aesthetic concerns into one common measurement. Normally, CVM studies provide respondents with information about a hypothetical government program or activity that would reduce the probability of a future adverse environmental event (like a release of hazardous wastes or an oil spill).[77] The respondents are typically given some additional information about the specific nature of damages that the program in question would avert.[78] In addition, the respondents are presented with one or more questions that reveal information about the economic detriment they would incur as a result of supporting the environmental program.[79]

The primary argument against economic valuation of aesthetics is that it denigrates aesthetic value, and that the two types of values (aesthetic and economic) should not be conceptualized together because they "exist on fundamentally different planes."[80] Many view the beauty found in landscapes and other natural areas as priceless, and argue that the value of the natural resource in question is so great that no dollar amount could possibly compensate the public for its loss.[81] The ironic result of this perspective is that *no* monetary value is placed on the natural resource in question (meaning the attached monetary value is $0), and therefore the resource is undervalued.[82] In the context of a cost-benefit analysis, a $0 cost for damaging or destroying a resource will substantially increase the likelihood that the project will go forward because *any* benefit will any benefit will outweigh a $0 cost for harming the aesthetics of the area in question.[83] Moreover, the notion that no dollar amount can compensate the public for a resource's destruction is misplaced. The overwhelming majority of people would simply not give

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76. *Id.*

77. NOAA Panel Report, *supra* note 7, at 4603.

78. *Id.*

79. *Id.* ("This may take the form of an open-ended question asking what is the maximum amount they would be willing to pay for the program in question; it may involve a series of question confronting them with different prices for the program depending on their previous answers; or it may take the form of a hypothetical referendum (like a school bond issue) in which respondents are told how much each would have to pay if the measure passed and are then asked to cast a simple 'yes' or 'no' vote.").

80. Kapper, *supra* note 2, at 302.

81. *Id.*

82. *Id.*

83. *Id.*

up everything they own to preserve a natural resource.[84] The protection of natural resources and aesthetics is one of many goods and services in which people invest their personal incomes and for which public funds are allocated.[85]

In the context of supply and demand, economic value is rigidly defined.[86] Quite simply, it is the amount of money a person is willing to pay in order to get something or the amount required to convince a person to give something up.[87] Because no such market exists for the buying or selling of landscapes or endangered species, it is necessary to determine economic value in ways other than market prices. Nonmarket methods for ascertaining economic value are merely attempts to predict economic choices by determining how people would behave in an ideal market if one existed.[88] Economic value is inferred by the choices that people make, thus there is no value without human preference.[89] Furthermore, preference also plays a substantial role in contingent valuation.[90] Therefore, there is no genuine conflict in combining economic value with aesthetic value in contingent valuation.

D. Why CVM Fulfills the Mandate of NEPA Section 102(b)

Besides CVM, there is no other existing methodology that directly measures passive values.[91] Moreover, the statutory language of NEPA section 102(b) suggests that the environmental amenities discussed in this Comment (aesthetics, landscapes, and the like) should be quantified in order to satisfy Congress's intent when it drafted this provision. NEPA section 102(b) requires federal agencies to develop methods that "will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations."[92]

This language strongly suggests that Congress thought that failing to quantify environmental amenities and values would cause federal decision makers to avoid giving said values "appropriate consideration." Otherwise, Congress could have easily chosen a word other than

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84. *Id.*
85. *Id.*
86. A. Randall, *The Conceptual Basis of Benefit Cost Analysis*, *in* VALUATION OF WILDLAND RESOURCE BENEFITS 53-64 (G. Peterson & A. Randall eds., 1984).
87. Kapper, *supra* note 2, at 302.
88. *Id.*
89. *Id.*
90. *Id.*
91. *Id.*
92. 42 U.S.C. 4332(B) (2006).

"unquantified" to convey this same point. For example, Congress could have replaced "underappreciated" for "quantified" in this sentence and changed the entire meaning of the provision. In that circumstance, one could argue that Congress merely required that "intangibles" be measured in some way (in order to insure they would be given "appropriate consideration"), but that there was no congressional mandate to quantify them. However, that is not what Congress chose to do. Rather, Congress determined that an unquantified amenity was an amenity that has not been given an appropriate amount of consideration by the federal government.[93] Therefore, it is appropriate for an EIS to contain a methodology that quantifies intangibles and places them on an even keel with economic and technical considerations in order to satisfy the statutory objective of NEPA section 102(b). Because CVM is the only existing methodology that quantifies intangibles in such a manner, it should be used for this purpose.

E. The Courts Speak: Judicial Support for the Proposition that CVM Be Incorporated into an EIS Cost-Benefit Analysis

There is judicial support for the position that CVM should be incorporated into an EIS cost-benefit analysis. In *Alabama v. U.S. Army Corps of Engineers*, the United States District Court for the Northern District of Alabama held that "where it is reasonably possible to quantify environmental amenities, *NEPA requires not only that such amenities be quantified but that they be included in the cost/benefit analysis*."[94] Further, the court ruled that, "where [environmental] factors . . . are reasonably susceptible of being quantified in economic terms (dollars), such must be done."[95] The court found that "[t]he reason for the foregoing is obvious when one recognizes that NEPA requires that environmental costs and benefits be compared with other project costs and benefits. . . . *Thus an optimal comparison can only be made if there exists a common denominator to which various factors may be reduced.*"[96] Finally, the court concluded that "[t]o the extent that environmental amenities are quantifiable and reducible to monetary terms, along with the claimed economic amenities, the decisionmaker is better able to compare values and comply *intelligently* with the mandate of NEPA."[97]

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93. *Id.*
94. 411 F. Supp. 1261, 1268 (N.D. Ala. 1976) (emphasis added).
95. *Id.*
96. *Id.* (emphasis added).
97. *Id.* (emphasis added).

The district court's ruling in *Alabama* bolsters the argument that CVM should be used to incorporate environmental amenities and value into an EIS. While at the time of the court's ruling CVM was not widely known and thus not used by the federal government, that is not the case today.[98] CVM has proven quite effective in quantifying environmental amenities, which is evidenced by its international acceptance.[99] Thus, it is indeed possible to quantify environmental amenities and values with CVM. Moreover, the loss calculated in the contingent valuation must be included in the final cost-benefit analysis for the overall project. As the court cogently reasoned, a single comparator is needed in order to properly compare seemingly different costs and benefits.[100] Federal agencies must compare apples to apples, not apples to oranges.

The D.C. Circuit held in *Calvert Cliffs'* that the purpose of an EIS is to "aid in the agencies' own decision making process and to advise other interested agencies and the public of the environmental consequences of planned federal action."[101] Moreover, the court ruled that environmental amenities and values "will often be in conflict with 'economic and technical considerations.'"[102] "To 'consider' the former 'along with' the latter must involve a balancing process. In some instances environmental costs may outweigh economic and technical benefits and in other instances they may not."[103] However, the court held that "NEPA mandates a rather finely tuned and 'systematic' balancing analysis in each instance."[104]

The "environmental costs" mentioned by the D.C. Circuit in *Calvert Cliffs'* are just that: *costs*. In the context of nonuse values, "environmental costs" should not be confined to a person's articulation of their subjective negative emotional feelings. Rather, environmental costs should be measured in dollars and cents. In CVM studies, people

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98. *Id.* at 1269; Hanemann, *supra* note 69, at 21.

99. Hanemann, *supra* note 69, at 21 ("Contingent valuation is now used around the world, both by governments agencies and the World Bank for assessing a variety of investments. A recent bibliography lists 1600 studies and papers from over 40 countries on many topics, including transportation, sanitation, health, the arts and education, as well as the environment. Some notables examples are . . . on air quality in the Four Corners area, the first major non-use value study . . . on air pollution in Southern California . . . on national water quality benefits from the Clean Water Act . . . on cleaning up the Monongahela River . . . on highway safety . . . on rafting in the Grand Canyon . . . on drinking water supply in Brazil; and the study on the EXXON VALDEZ oil spill I helped conduct for the State of Alaska" (internal citations omitted)).

100. *Alabama*, 411 F. Supp. at 1268.

101. Calvert Cliffs' Coordinating Comm. v. U.S. Atomic Energy Comm'n, 449 F.2d 1109, 1114 (D.C. Cir. 1971).

102. *Id.* at 1113.

103. *Id.*

104. *Id.*

are frequently asked how much they would be willing to pay (in tax dollars) to keep an area from being developed.[105] When one thinks about our tort system, this technique suddenly loses the strangeness that many might initially feel towards it. In the context of personal injury lawsuits, juries are frequently called upon to arrive at an amount that a person is entitled to for pain and suffering.[106] To arrive at such an amount, the jury must make a collective determination regarding how much the plaintiff must be compensated for his or her emotional and physical harm.[107] Similarly, in CVM, a group of people are often asked how much they would be willing to pay to prevent environmental harm to a natural resource.[108] In both situations, a group of people is asked to make a subjective determination about how much an experience is worth. In the personal injury context, the experience in question is being subject to substantial physical and emotional injury. In the CVM context, the experience (or lack thereof) in question is the changing or destruction of a landscape or aesthetic that they currently derive pleasure from.

F. Aesthetic Harm: Explanation Through a Case-Study

While CVM has been used frequently in other areas, "it has not yet been applied to landscapes aesthetics in the context of the EIS process."[109] However, a pilot study was conducted as an example of how contingent valuation could be used for aesthetic assessment.[110] The subject of the pilot study was the widening of a highway in Wisconsin.[111] The valuation scenario set up a hypothetical transaction.[112] The respondents were asked to imagine they lived near a highway, and that construction would be taking place close by.[113] The respondents were told that the end result of the project would be the widening of the highway and were shown "before" and "after" pictures of the impact.[114] The respondents then gave various figures for the amounts they would be willing to pay to prevent the widening of the highway.[115] Tellingly, everyone found the widening of

105. Khalid Abdul Rahim, Presentation at the Regional Training Workshop: Economic Valuation of Goods and Sources of Coastal Communities (Mar. 24-28, 2008).
106. Dobbins, *supra* note 14, at 889.
107. *Id.* at 890.
108. NOAA Panel Report, *supra* note 7, at 4603.
109. Kapper, *supra* note 2, at 297 (internal citations omitted).
110. *Id.* at 303.
111. *Id.*
112. *Id.*
113. *Id.*
114. *Id.*
115. *Id.*

the road caused some harm to their community.[116] The final willingness-to-pay total was established at $37,700, which represents the aesthetic harm caused by the new roadway.[117] The aesthetic harm is a cost to the overall project, and is subtracted from the project's net benefit as listed in the EIS.[118] In this particular situation, the aesthetic harm would reduce the net benefit, but benefits would still significantly exceed costs.[119] The number on the benefits side of the ledger was staggeringly higher: $2.1 million.[120] Thus, the project would most likely have gone forward, due to the much higher net benefit that this project would have brought to the community.

G. Criticisms of CVM

The primary criticism of CVM comes from studies that imply that "people's expressed attitudes do not accurately predict their actual behavior."[121] Some critics argue that, because survey participants are not "putting their money where their mouth is," the numbers the participants toss out are unreliable.[122] Moreover, some critics have pointed out that some respondents may use the survey as a way to express their support for a cause.[123] Consequently, responses may end up being nothing more than "casual votes for a cause that the respondent believes to be generally 'good' in a political or social sense, and for which a positive 'vote' provides the respondent with a 'warm feeling.'"[124] Additionally, the participant may simply give an answer that he or she thinks the surveyor wants to hear known as response bias.[125]

The most problematic aspect of participants' not paying their reported resource values is that participants place unreasonably high economic values on said resources.[126] Thus, the true amount that they personally would be willing to pay is not reflected in the answer given to the surveyor. A CVM survey participant might claim that he or she is willing to pledge $10 to keep an endangered species from going extinct, which, at first blush, may even seem like a low figure for such a dire

116. *Id.*
117. *Id.*
118. *Id.*
119. *Id.*
120. *Id.*
121. Frank B. Cross, *Natural Resource Damage Valuation*, 42 VAND. L. REV. 269, 315 (1989).
122. *Id.* at 330.
123. Binger, *supra* note 46, at 1033.
124. *Id.*
125. Daum, *supra* note 49, at 393-94.
126. MITCHELL & CARSON, *supra* note 15, at 120-21.

situation (the permanent loss of a species).[127] Yet when one considers that there are 50,000 endangered species in the world, this translates into a financial pledge of $500,000 for one household, a number that the average household is unlikely to be willing (or able) to pay.[128]

H. Answering the Critics

Despite these criticisms, CVM provides genuine estimates of natural resource values if the studies are conducted in a careful manner.[129] Many of the economists that administered these early studies were not properly trained in survey research procedures, and mistakes in early studies were due to inadequate survey protocols.[130] Even some of the harshest critics of CVM concede that, when properly conducted, the methodology produces accurate results.[131]

There are several different ways to ensure that more accurate results are generated from CVM interviews.[132] First, CVM interviews should be administered in person, rather than over the telephone.[133] Moreover, interviews should be conducted in a private setting where the interviewee feels comfortable, such as his or her home.[134] The reason that the correct setting is critical to the validity of these interviews is that a more solemn and private setting makes it less likely for respondents to give flippant responses.[135] In addition, it is critical that the interviewer ask questions that are specific. Asking how much a person would pay to protect the wilderness is not helpful because it is a mere abstraction, and a more helpful question would ask a person how much he or she would pay in

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127. Montesinos, *supra* note 2, at 64.

128. *Id.*

129. *See* David S. Brookshire & Don L. Coursey, *Measuring the Value of a Public Good: An Empirical Comparison of Elicitation Procedures*, 77 AM. ECON. REV. 554, 565 (Sept. 1987) ("Our study provides evidence which suggests that hypothetical willingness-to-pay values may be both more accurate and more stable than hypothetical willingness-to-accept values. We interpret this evidence as providing a constructive response to those who would reject all contingent valuation methods, data, and implications for policy analysis in an out-of-hand fashion."); Hanemann, *supra* note 69, at 23 ("In all research, details matter. How a contingent valuation survey is conducted is crucial."); Alan Randall et al., *Contingent Valuation Surveys for Evaluating Environmental Assets*, 23 NAT. RESOURCES J. 635, 641 (1983) ("In spite of the generally encouraging performance of contingent valuation methods, some doubts remain. First, concerns about sampling bias and enumerator bias arise from time to time. These concerns, however, are best treated as problems common to all survey methods, and controllable with competent research design and management.").

130. Hanemann, *supra* note 69, at 21-25.

131. *Id.* at 23.

132. *Id.* at 22.

133. *Id.*

134. *Id.*

135. *Id.*

taxes to protect a *specific* wilderness in a *specific* manner.[136] This is particularly important in the context of CVM studies conducted for EISs, since the size and location of the project is already known. In the EIS context, the questions asked should focus on the project in question, not on the environment in general. By focusing on the exact harm that the proposed project would cause to a specific resource, the helpfulness of the respondents' answers will be increased exponentially. Furthermore, questions should be future-oriented rather than focused on a past event. For example, it is more ideal to ask a person how much he or she would be willing to pay in taxes for a new program that will limit damage to Prince William Sound rather than to ask how much he or she would pay to prevent the EXXON VALDEZ oil spill from occurring in the first place.[137]

The ultimate objective in designing a CVM study is to formulate it around a specific commodity.[138] This is easier in the context of an EIS, because the federal agency already knows what the action will be and where it will take place. By informing the respondent of the exact resource that will be affected by the action in question and providing specific details on how much he or she will ultimately have to pay for said resource, the interviewer forces the interviewee to commit to a precise course of action (supporting a government program) and an exact dollar amount. While the interviewee is not required to actually pay the money, the evaluation of a specific and realistic situation (such as the money it would cost for the government to build a road across a park, as opposed to the amount of taxes that would be required to build the road around the park) is a valid manner of ascertaining so-called "intangible" values.

In conclusion, it appears that the primary (and most valid) criticisms against CVM studies are aimed at the manner in which they are administered, not CVM itself. As long as the surveys are administered in a careful and discerning manner, the results of a CVM study should be taken into consideration by federal decision makers.

IV. CONCLUSION

Forty years later, NEPA continues to require federal agencies to insure that environmental amenities and values are given appropriate consideration in decision making.[139] Moreover, by examining the

136. *Id.*
137. *Id.*
138. 42 U.S.C. § 4332 (2006).
139. *Id.* § 4332(B).

statutory text of NEPA, it is obvious that Congress viewed quantification as a necessary condition to achieving its objective of assuring "for *all* Americans safe, healthful, productive, and *esthetically* and *culturally pleasing* surroundings."[140] Whether this lofty goal will ever be met is questionable. However, one step that can readily be taken that will move the nation significantly closer to attaining this goal is to accept CVM as an appropriate methodology for quantifying nonuse values in EISs. Therefore, federal agencies should, as standard practice, employ CVM when drafting EISs.

140. *Id.* §§ 4331, 4332(B) (emphasis added).