



Annotated Bibliography

This bibliography was prepared by Mark A. White, University of Virginia associate professor of commerce. It annotates documents cited in this compendium's Resource List. Bracketed letters indicate the corresponding Resource List topic:

EC	Economics
FI	Financial Institutions
G/CF	General/Corporate Finance
INS	Insurance
INV	Investments
RE	Real Estate

The alphabetical listing of Books and Articles begins below; the listing of Educational Tools is found on pages 14–15. A few of these materials are not commonly found in most campus libraries or bookstores. We have marked these with an asterisk; for information on obtaining them, see the Resource List.

Books and Articles

Alperson, Myra, Alice T. Marlin, Jonathan Schorsch, and Rosalyn Will. *The Better World Investment Guide*. New York: Prentice-Hall, 1991. [INV]

Introduction to socially conscious investing. The authors are affiliated with the Council on Economic Priorities (CEP), a long-time leader in this field.

American Institute of Certified Public Accountants (AICPA). "Statement of Position 96-1: Environmental Remediation Liabilities." *Journal of Accountancy* (March 1997): 96–114. [G/CF]

Final guidelines on accounting for environmental remediation liabilities. Includes brief summaries of pertinent U.S. environmental laws; much more in-depth guidance than heretofore available. Important reading.

Arrow, Kenneth, Robert Solow, Edward Leamer, Paul Portney, Roy Randner, and Howard Schumann. "Report of the NOAA Panel on Contingent Valuation." *Federal Register* 58 (15 January 1993): 4,601–4,614. [EC]

A distinguished panel of economists provides guidelines for the use of the contingent valuation method in valuing environmental assets. See also Hanemann (1994) and Diamond and Hausman (1994).

Bailey, Paul E., and Joseph G. Karam. "Expressing Environmental Liabilities in Dollars and Cents: What Corporations Can Do Now." *Environmental Finance* 1, no. 2 (Winter 1991/92): 369–388. [G/CF]

Identifies and describes various types of environmental liabilities and the reasons for seeking their monetization. Discusses "state-of-the-art" techniques for quantifying the timing, probability, and amount of environmental liabilities.

Bennett, S. J., R. Freierman, and S. George. *Corporate Realities and Environmental Truths: Strategies for Leading Your Business in the Environmental Era*. New York: John Wiley, 1993. [G/CF]

Chapter 9, "The New Environmental Watchdogs," describes the activities of the major organizations collecting and disseminating environmental performance data: Kinder, Lydenberg, Domini & Company (KLD); the Council on Economic Priorities (CEP); and the Investor Responsibility Research Center (IRRC).

Bornstein, David. *The Price of a Dream: The Story of the Grameen Bank and the Idea That Is Helping the Poor to Change Their Lives*. New York: Simon & Schuster, 1997. [FI]

Up-to-date account of a highly successful community development bank (in India). While many of its activities are geared toward fostering self-sufficiency and development in the third world, its basic principles and practices provide a useful model in many situations across the globe.

Bosch, J. C., and Insup Lee. "Environmental Regulations and Stockholders' Wealth: An Empirical Examination," 1996. [INV]*

Event study investigating the effects of U.S. EPA decisions on stockholder wealth. The authors find strong negative reactions to EPA investigations but little evidence that pollution costs are passed on to consumers: rather, such costs appear to be borne by a firm's shareholders.

Bowles, Ian A. "The Global Environment Facility: New Progress on Development Bank Governance." *Environment* 38, no. 3 (April 1996): 38–40. [FI]

Brief article recounting the history and current progress of the World Bank's global environment facility, a vehicle for financing environmentally responsible development.

Brennan, Michael, and Eduardo Schwartz. "A New Approach to Evaluating Natural Resource Investments." In *The New Corporate Finance: Where Theory Meets Practice*, ed. Donald Chew, 98–107. New York: McGraw-Hill, 1993. [G/CF]

Discusses a new approach to capital budgeting based on the option pricing model. According to the authors, current techniques are inappropriate for valuing natural resource investments due to uncertainties about future output prices, discount rates, and the impact of managerial flexibility. Numerical example for the valuation of a gold mine.

Brennan, Timothy J. "Discounting the Future: Economics and Ethics." *Resources* 120 (June 1995): 3–6. [G/CF, EC]

Brief overview of the discount rate controversy in environmental capital budgeting. Useful for stimulating classroom discussion. Brief; see Markandya & Pearce (1991) for a more detailed treatment of pros and cons.

Buckley, Ralf. "Environmental Opportunities and Risks in Finance." *Environmental Management and Health* 3, no. 2 (1992): 22–25. [G/CF]

Interesting article highlighting financial opportunities and risks posed by environmental problems. Practitioner-oriented; contains a list of risks faced by financiers, industry, and commerce.

Burtraw, Dallas. "Trading Emissions to Clean the Air: Exchanges Few but Savings Many." *Resources* 122 (December 1996): 3–6. [G/CF]

Progress report on the 1990 Clean Air Act allowance trading program. Despite relatively few trades, the program has generated tremendous cost savings overall.

Buxton, Brian, and Eric Nielsen. "How to Be Lean, Mean and Green." *Financial Executive* (July 1995): 29–33. [G/CF]

Practitioner article describing new reporting guidelines for environmental liabilities. Suggests development of a comprehensive environmental accounting system as a first step in reducing environmental costs.

Cairncross, Frances. *Costing the Earth*. Boston: Harvard Business School Press, 1992. [G/CF]

An early "business and the environment" book by the former environment editor for *The Economist*. Lots of anecdotes and examples woven around the overall question of "what should governments do/what should companies do" to effect better environmental quality. An oldie but a goodie.

———. *Green, Inc.* London: Earthscan, 1995. [G/CF]

Updates *Costing the Earth*, but in a more general fashion. Recommended as a general text — many anecdotes, good economic analysis, lots of opportunities for student discussion.

Callan, Scott, and Janet Thomas. *Environmental Economics and Management: Theory, Policy, and Applications*. Burr Ridge, Ill: Richard D. Irwin, 1996. [EC]

Up-to-date environmental economics text organized around major environmental problems (air, water, toxics). Very strong economics "feel." Instructor's manual available.

Carson, Carol S., and J. Steven Landefeld. "Integrated Economic and Environmental Satellite Accounts." *Survey of Current Business* 74, no. 4 (April 1994): 33–49. [EC]

Presents the basic analytical economic and environmental background for the new environmental satellite accounts. Fundamental, lengthy, and thorough.

Casey, K. Mike, and Ross N. Dickens. "Lenders: Treat Green Issues Cautiously." *Real Estate Review* 24, no. 2 (June 1994): 62–65. [FI, RE]

Practitioner-oriented piece discussing environmental risks faced by lenders. Contains a simple but useful model for pricing environmental risk.

Cerf, Douglas C. "Conflicts of Interest and Measurement Issues and Their Effects on Reporting of Environmental Liabilities." *Managerial Finance* 19, no. 6 (1993): 53–64. [G/CF]

Discusses the nature of management-stakeholder conflicts of interest related to disclosure of environmental liabilities. Suggests that firms underreport the magnitude of their environmental liabilities in order to convince society that its interests are being protected.

Clough, Richard Read. "Impact of an Environmental Screen on Portfolio Performance: A Comparative Analysis of S&P 500 Stock Returns," (1997). Duke University Nicholas School of the Environment Working Paper. [INV]*

Using data collected by the Investor Responsibility Research Center (IRRC), this paper investigates the ways a firm's environmental performance affects its financial performance. Finds that a portfolio of environmentally responsible firms earns returns 1–3% greater than irresponsible firms. The former portfolio is riskier, although this difference diminishes over time.

Cohen, Mark, Scott Fenn, and Jonathan Naimon. *Environmental and Financial Performance: Are They Related?* Washington: Investor Responsibility Research Center, April 1995. [INV]*

Uses data from the Investor Responsibility Research Center (IRRC) to create "green" portfolios and evaluate their performance in split-sample tests against the Standard and Poor's 500. Finds no penalty for green investing and, in some cases, better overall performance.

Cormier, Denis, Michel Magnan, and Bernard Morard. "The Impact of Corporate Pollution on Market Valuation: Some Empirical Evidence." *Ecological Economics* 8, no. 2 (1993): 135–155. [INV]

Examines the 1986–88 pollution records of Canadian industrial and mining firms relative to their stock market performance. Strong theoretical development; interesting empirical model based on the accounting identity. Finds weak evidence of a "green" premium.

Cornell, Bradford, and Alan C. Shapiro. "Corporate Stakeholders and Corporate Finance." *Financial Management* 16, no. 1 (March 1987): 5–14. [G/CF]

Classic article suggesting financial managers might do well to expand their focus from simple maximization of shareholder wealth. Distinguishes between explicit and implicit claims upon the firm, arguing that the latter are more important than previously thought.

Costanza, Robert, and Herman Daly. "Natural Capital and Sustainable Development." *Conservation Biology* 6, no. 1 (March 1992): 37–46. [EC]

Provides a careful, detailed discussion of natural capital and its role in sustainable development. Tackles difficult issues in valuation, discounting, and growth, ending up with a conceptually simple proposal for achieving sustainability. Highly recommended.

Costanza, Robert, ed. *Ecological Economics: The Science and Management of Sustainability*. New York: Columbia University Press, 1991. [EC]

The seminal (edited) text in the recently established field of ecological economics. The latter takes a much more interdisciplinary approach to the problem of allocating scarce resources among competing needs. Incorporates insights from the physical sciences, ecology, philosophy, etc. into proposals for achieving a sustainable society. Jansson, Hammer, Folke, and Costanza (1994) is a good companion text; Krishnan, Harris, and Goodwin (1995) is a nice compendium of the various approaches.

Coulson, Andrea, and Rob Dixon. "Environmental Risk and Management Strategy: The Implications for Financial Institutions." *International Journal of Bank Marketing* 13, no. 2 (1995): 22–29. [FI]

Outlines governmental and market pressures leading firms to adopt more stringent levels of environmental responsibility and reporting. Has U.K. focus; see White ("Environmental Finance," 1996) for U.S. treatment.

Cronshaw, Mark B., and Carolyn M. Lang. "The New Market in Sulfur Dioxide Allowances: Examining Corporate Opportunities." *Environmental Finance* 1, no. 4 (December 1991): 407–419. [G/CF]

Slightly dated article describing the market for sulfur dioxide allowances authorized under the 1990 Clean Air Act. Suggests industrial investors might wish to participate in the allowance market for profit-based reasons. See Burtraw (1996) for a brief update of the program's impact.

Daily, Gretchen C., ed. *Nature's Services: Societal Dependence on Natural Ecosystems*. Washington: Island Press, 1997. [EC]

An intriguing book describing the many contributions of various natural systems and fledgling attempts to value same. Useful background reading (especially for non-scientists!) and, in some cases, helpful for benchmarking cost-benefit analyses. Contains six case studies of attempts to value natural services (with varying degrees of success).

Daly, Herman E. and Kenneth N. Townsend. *Valuing the Earth: Economics, Ecology, Ethics*. Cambridge, Mass.: MIT Press, 1993. [EC]

An edited collection of classic articles supporting Daly's integration of economics and ecology (the forerunner of the discipline of ecological economics).

Daly, Herman E., ed. *Economics, Ecology, Ethics: Essays Toward a Steady-State Economy*. San Francisco: W. H. Freeman, 1980. [EC]

Partially revised version of Daly's classic 1973 text, *Toward a Steady State Economy*. Clear, engrossing essays of Daly's solutions to environmental economic problems. A "must-read."

Diamond, Peter A., and Jerry A. Hausman. "Contingent Valuation: Is Some Number Better Than No Number?" *Journal of Economic Perspectives* 8, no. 4 (September 1994): 45–64. [EC]

Very critical article of the contingent valuation method, a frequently used tool for estimating environmental asset values. Should be read in conjunction with Hanemann (1994) and Arrow et al. (1993).

Diltz, J. David. "The Private Cost of Socially Responsible Investing." *Applied Financial Economics* 5, no. 2 (April 1995): 69–77. [G/CF, INS]

Examines 28 common stock portfolios to determine the effect of ethical screening using 1989–91 Council on Economic Priorities data. Finds market rewards good environmental performance and charitable giving. Interesting methodology involving "random" event days.

Ditz, Daryl, and Janet Ranganathan. *Measuring Up: Toward a Common Framework for Tracking Environmental Performance*. Washington: World Resources Institute, 1997. [G/CF]*

Builds upon the authors' earlier work (1995) on a set of common indicators for measuring corporate environmental performance in four categories: materials use, energy consumption, nonproduct output, and pollutant releases. The indicators emphasize pollution prevention, resource efficiency, and product stewardship. Nice examples of "best practices"; up-to-date bibliography.

Ditz, Daryl, Janet Ranganathan, and R. Darryl Banks. *Green Ledgers: Case Studies in Corporate Environmental Accounting*. Washington: World Resources Institute, 1995. [G/CF]*

Five case studies describing various ways in which firms are accounting for environmental costs (a first step to managing them). More accounting than finance, but provides a useful impetus for "gathering the numbers."

Dixit, Avinash, and Robert Pindyck. "The Options Approach to Capital Investment." *Harvard Business Review* 73 (May/June 1995): 105–115. [G/CF]

Practitioner-oriented article describing the use of the option valuation method to incorporate irreversibility and uncertainty (characteristics shared by many environmental problems) into financial decision-making. See also Brennan and Schwartz (1993).

Dowie, Mark. "Clean, Green and Guilt-Free Funds." *The Nation* 256 (26 April 1993): 550–556. [INV]

Examines pros and cons of socially responsible investing. Good collection of arguments on both sides, but the conclusion is not especially encouraging.

Dudek, Daniel J. "Creating Self-Financing Environmental Markets." *Environmental Finance* 1, no 4 (December 1991): 511–516. [EC]

Briefly reviews pollution trading under the 1990 Clean Air Act. Advocates adoption of a similar system as a method for controlling global emissions of CO₂.

Elkington, John, and Andrea Spencer-Cooke. "The Banks Come Clean." *Tomorrow* 3, no. 6 (June 1996): 54–60. [FI]

Results of a survey on the relative importance of environmental and pollution prevention issues within the financial services industry. Evaluates the quality of eight major banks' environmental reports.

Epstein, Marc J. *Measuring Corporate Environmental Performance*. Chicago: Irwin Professional, 1996. [G/CF]

Practitioner-oriented text describing the results of a survey on methods for measuring corporate environmental performance. Chapter 8 describes various cost accounting systems; Chapter 9 addresses capital budgeting techniques. Good insights.

Feldman, Roger D. "The Greening of Environmental Finance." *The Bankers Magazine* 173 (November/December 1990): 68–73. [FI]

Suggests strategies financial institutions might employ to estimate environmental risks and profit from an expanding environmental technology industry. See also Feldman & Adams (1990).

Feldman, Roger D., and John W. Adams. "Environmental Finance." *Bank Management* 66 (April 1990): 38–43. [FI]

Identifies numerous opportunities for banks to participate in the growing market for pollution prevention and environmental technology. See also Feldman (1990).

Feldman, Stanley, Peter Soyka, and Paul Ameer. "Does Improving a Firm's Environmental Management System and Environmental Performance Result in a Higher Stock Price?" *Journal of Investing* 6, no. 4 (1997). [INV]*

Relates the change in a firm's systematic risk to a number of financial and environmental variables; finds environmental performance improvement to be correlated with risk reductions. Concludes that managers should focus on environmental improvements as a means of increasing shareholder wealth. Ambitious but frustrating article due to its proprietary nature (ICF Kaiser is a private consulting firm). Regression coefficients and t-statistics are not disclosed, both environmental performance variables are internal constructs, etc. Difficult to judge overall quality of results.

Field, Barry C. *Environmental Economics: An Introduction*, 2d ed. New York: McGraw-Hill, 1997. [EC]

Very nice introduction to environmental economics and cost-benefit analysis. More in-depth than Turner, Pearce and Bateman (1993); less accessible to the non-economist. Paper, instructor's manual available.

Fischhoff, Baruch. "Understanding Long-Term Environmental Risks." *Journal of Risk and Uncertainty* 3, no. 4 (1990): 315–330. [G/CF, INS]

Discusses ways in which people evaluate environmental risks and offers several proposals to facilitate better estimates. Part of a special *JRU* issue on long-term environmental risks.

Gamble, George, Kathy Hsu, Cynthia Jackson, and Cynthia Tollerson. "Environmental Disclosures in Annual Reports: An International Perspective." *International Journal of Accounting* 31, no. 3 (1996): 293–331. [G/CF]

Reports on a large survey of environmental disclosures in annual reports across the world. Internationally, environmental disclosure is increasing, with the U.S., Canada, and the U.K. leading the pack. Increased reporting requirements likely to have differential impact on cash flows, depending upon the reporting country.

Global Environmental Management Initiative. *Finding Cost-Effective Pollution Prevention Initiatives: Incorporating Environmental Costs Into Business Decision-Making*. Washington: GEMI, 1994. [G/CF]*

A nice primer focusing on the identification and quantification of environmental costs. Well-written and useful chapter on full-cost accounting (FCA), simple numerical example. No detailed explanation of financial methodologies.

———. *Total Quality Environmental Management: The Primer*. Washington: GEMI, 1992. [G/CF]*

Brief, early pamphlet describing the elements of "total quality environmental management" (TQEM) with simple examples of how to apply same.

Goodstein, Eban. *Economics and the Environment*. Englewood Cliffs, NJ: Prentice-Hall, 1995. [EC]

Lots of text, few graphs in this introductory environmental economics text. Competes with Tietenberg (1992), Callan & Thomas (1996), etc.

*To see how to obtain this document, refer to the corresponding entry in this compendium's Resource List.

Gray, Rob H., Jan Bebbington, and Diane Walters. *Accounting for the Environment*. New York: Markus Wiener, 1993. [G/CF]

An overview of how environmental issues are affecting the management accounting and corporate finance functions. Most examples are from the U.K., where the authors are based. Chapter 8 covers environmental capital budgeting. Chapter 10, "The Greening of Finance," discusses how environmental and pollution prevention concerns affect banks, insurance companies, and investment funds, concluding that while they wield significant influence over corporate management, profit motives are likely to restrict their impact. Nice review; not very optimistic about financial institutions' role in forwarding the goals of pollution prevention.

Griffin, Jennifer J., and John F. Mahon. "The Corporate Social Performance and Corporate Financial Performance Debate." *Business and Society* 36, no. 1 (March 1997): 5–31. [INV]

Updates Ullmann's (1985) classic analysis on corporate social responsibility and financial performance. Identifies similarities and differences in various CSR measures relative to their correlation with profit performance.

Grimsted, Bradley, Stefan Schaltegger, Christopher Stinson, and Christopher Waldron. "A Multimedia Assessment Scheme to Evaluate Chemical Effects on the Environment and Human Health." *Pollution Prevention Review* 4, no. 3 (June 1994): 259–268. [G/CF]

Introduces a new method for assessing the impact of environmental toxicity. Based on the Swiss "ecopoint" method, it incorporates regulatory standards and allows comparisons of environmental impacts across media. Recommended for its novel approach to environmental risk assessment.

Hamilton, James T. "Pollution as News: Media and Stock Market Reactions to the Toxics Release Inventory Data." *Journal of Environmental Economics and Management* 28 (January 1995): 98–113. [INV]

Event study investigating stock market reaction to the first release of the U.S. EPA's Toxic Release Inventory (TRI) figures in 1989. Shareholders in firms reporting TRI pollution figures experienced **statistically significant negative abnormal returns** [?]. Per-firm average losses totaled \$4.1 million the day of the announcement.

Hamilton, Sally, Hoje Jo, and Meir Statman. "Doing Well by Doing Good? The Investment Performance of Socially Responsible Mutual Funds." *Financial Analysts Journal* 49, no. 6 (Nov. 1993): 62–66. [INV]

Empirical study of socially conscious mutual funds from 1981 to 1990. Using standard financial techniques (Jensen's α), the authors find no evidence of statistically significant excess returns *vis-a-vis* all mutual funds.

Hanemann, W. Michael. "Valuing the Environment Through Contingent Valuation." *Journal of Economic Perspectives* 8, no. 4 (September 1994): 19–43. [EC]

Excellent review article describing the contingent valuation method, which is a useful tool for establishing values of non-marketable assets. Despite widespread use, this method is very controversial; see Diamond and Hausman (1994) for criticisms.

Harris, David. *The Last Stand: The War Between Wall Street and Main Street Over California's Ancient Redwoods*. New York: Times Books, 1996. [G/CF, FI]

Book-length account of Maxxam's 1986 takeover of Pacific Lumber. Describes the conflict between the firm's owners, workers, and ultimate purchaser and the resulting environmental losses engendered by overharvesting. (In order to meet interest payments on the junk bonds used to finance its purchase, the firm increased harvest beyond sustainable levels). Fascinating reading on the interaction between greed and the natural environment!

Hart, Stuart, and Gautam Ahuja. "Does It Pay to Be Green? An Empirical Examination of the Relationship Between Emission Reduction and Firm Performance." *Business Strategy and the Environment* 5 (1996). [G/CF, I]

Tests the relationship between toxic emission reduction and accounting profits. Firms reducing their emissions show an increase in profitability within one to two years after initiation. This effect is greatest for firms with the highest emissions levels.

Hawken, Paul. *The Ecology of Commerce*. New York: HarperCollins, 1993. [G/CF]

Entrepreneur Paul Hawken presents his view on what it takes to run a business sustainably. Not all of Hawken's ideas are in line with the assumptions of standard neoclassical economics, but he's a thoughtful and provocative writer. Recommended reading.

Hill, Joanne, and Thomas Schneeweis. "The Effect of Three Mile Island on Electric Utility Stock Prices: A Note." *Journal of Finance* 38, no. 4 (September 1983): 1,285–1,292. [G/CF, INS]

Empirical study examining the effect of the Three Mile Island nuclear accident on stock prices. Utilities with nuclear generating capabilities experienced more negative effects than non-nuclear utilities.

Jansson, AnnMari, Monica Hammer, Carl Folke, and Robert Costanza, eds. *Investing in Natural Capital*. Washington: Island Press, 1994. [EC]

Edited volume of papers addressing various approaches in ecological economics. Follow-up to Costanza (1991).

Johnson, Scott D. "An Analysis of Corporate Environmental Performance as a Strategic Issue." Working paper, 1995. [G/CF, INS]*

Uses data from the Investor Responsibility Research Center (IRRC) and the Council on Economic Priorities (CEP) to evaluate the relationship between financial performance (proxied by return on assets, return on equity, and total return) and environmental performance. Exceptionally thorough and well-researched; abstracted from his Ph.D. dissertation.

Kahn, James R. *The Economic Approach to Environmental and Natural Resources*. Fort Worth, Tex: Dryden Press, 1995. [EC]

Highly readable, engaging environmental economics text. Good introduction to the basics, followed by individual chapters on various environmental problems (global climate change, acid rain, energy issues, etc.). The section on renewable resources is especially well-done. Lots of "real-world" examples.

Kiel, Katherine A. "Measuring the Impact of the Discovery and Cleaning of Identified Hazardous Waste Sites on House Values." *Land Economics* 71, no. 4 (November 1995): 428–435. [RE]

Estimates the effect of toxic sites on house values. Finds that price declines are triggered by community knowledge of the site and announcements by government agencies.

Kinder, Peter, Steven Lydenberg, and Amy Domini. *Investing for Good*. New York: HarperBusiness, 1994. [INV]

Primer on socially responsible investing (SRI) from the gurus themselves: Kinder, Lydenberg and Domini run their own SRI fund and are the creators of the very successful Domini Index, a broad-based SRI benchmark that closely tracks the S&P 500.

Klassen, Robert D., and Curtis P. McLaughlin. "The Impact of Environmental Management on Firm Performance." *Management Science* 42, no. 8 (August 1996): 1,199–1,214. [G/CF, INS]

Event study examining the impact of environmental awards on a firm's stock market value. On average, a firm's market value increases by \$80.5 million following the award announcement. The authors interpret this as evidence of improved perceptions of financial performance related to strong environmental management.

Klassen, Robert D., and D. Clay Whybark. "The Impact of the Selection of Environmental Technologies on Manufacturing Performance," Richard Ivey School of Business Working Paper, December 1996. [G/CF]*

Introduces the "environment technology portfolio" construct as an explanation for conflicting results in the environmental management and performance literature. Very complete literature review, empirical analysis of manufacturing and environmental performance. Significantly better manufacturing performance was observed in plants where management selected a high proportion of adaptive (product or process) technologies vs. control technologies.

Knoll, Michael S. "Socially Responsible Investment and Modern Financial Markets." 1994. University of Southern California Law Center No. 94-13. [INV]*

Theoretical piece debunking the notion that negative portfolio screens will impact a firm's ability to raise capital . . . provides evidence against the usefulness of socially responsible investing as a way to improve corporations' environmental performance.

Koch, Gayle, Paul R. Ammann, and Kenneth Wise. "Evaluating Environmental Costs: Accounting for Uncertainties." *Chemical Waste Litigation Reporter* 27, no. 3 (February 1994): 554–559. [G/CF]

Brief article describing the decision analytic ("decision tree") approach for estimating environmental remediation costs. Useful introduction, but potential users should perhaps consult more in-depth references.

Kotvis, Jill A. "Strategies for Avoiding Lender Liability Under Environmental Laws," January 1994. [FI]*

Comprehensive, lengthy monograph on lender liability with respect to environmental problems. Very detailed, very legalistic . . . but thorough!

Krishnan, Rajaram, Jonathan Harris, and Neva Goodwin. *Survey of Ecological Economics*. Covelo, Calif.: Island Press, 1995. [EC]

Brief vignettes from classic works inspiring the loosely defined field of ecological economics. Provides a useful historical perspective.

Lamb, Reinhold P. "An Exposure-Based Analysis of Property-Liability Insurer Stock Values Around Hurricane Andrew." *Journal of Risk and Insurance* 62, no. 1 (March 1995): 111–123. [INV]

Examines the impact of 1992 Hurricane Andrew on the stock prices of property-liability insurers in Florida and Louisiana. Finds a significant negative reaction for exposed vs. non-exposed firms, consistent with the efficient markets hypothesis. See also Leggett (1993).

LaPlante, Benoît, and Paul Lanoie. "The Market Response to Environmental Incidents in Canada: A Theoretical and Empirical Analysis." *Southern Economic Journal* 60 (January 1994): 657–672. [G/CF, INS]

Expands on Muoghalu, Robison, and Glascock's (1990) work by examining the impact of environmental lawsuit announcements and settlements, environmental incidents, and investments on shareholder wealth using standard event study methodology. Using a sample of Canadian firms, the authors find that lawsuit settlements, rather than announcements, trigger declines in firm value. They interpret this to mean that there is stronger environmental enforcement in the U.S. vs. Canada.

Leggett, Jeremy. "Who Will Underwrite the Hurricane?" *New Scientist* (7 August 1993): 29–33. [INV]

Describes insurers' responses to the threat of global warming, as manifested in increased hurricane damage. Leggett (1996) is a continuation of these arguments.

———, ed. *Climate Change and the Financial Sector: The Emerging Threat – The Solar Solution*. Munich: Gerling Akademie Verlag, 1996. [INV, FI, INS]*

Proceedings from a seminar convened in Berlin just prior to the 1992 Convention on Climate Change intended to address the impact of global warming on the world's capital markets. Nice collection of perspectives from bankers, insurers, pension funds, and financial analysts.

Lindsey, Greg, Robert G. Paterson, and Michael I. Luger. "Using Contingent Valuation in Environmental Planning." *Journal of the American Planning Association* 61, no. 2 (March 1995): 252–263. [EC]

Traces the development of the contingent valuation method as a means for imputing values to public goods and summarizes recent federal guidelines. More "hands-on" than Hanemann (1994).

Markandya, Anil, and David Pearce. "Development, the Environment, and the Social Rate of Discount." *World Bank Research Observer* 6, no. 2 (July 1991): 137–152. [G/CF, EC]

Outlines and criticizes the rationale behind discounting environmental costs and benefits; argues for a sustainability criterion.

McCarthy, Richard N. "Financing Pollution Control Facilities with Tax-Exempt Bonds." *Environmental Finance* 1, no. 2 (June 1991): 211–217. [G/CF, EC]

Discusses the availability of tax-exempt financing sources for pollution control facilities. Essentially, such financing only applies to waste-disposal facilities, but creative interpretation of existing laws may also allow pollution prevention initiatives to be funded. Overview article.

McLaughlin, Susan, and Holly Elwood. "Environmental Accounting and EMSs." *Pollution Prevention Review* 6, no. 2 (Spring 1996): 13–21. [G/CF]

Argues for greater use of financial metrics in measuring a firm's environmental performance. Well-written and compelling; contains brief synopses of existing programs within major U.S. corporations.

Mikesell, Raymond E., and Lawrence F. Williams. *International Banks and the Environment*. San Francisco: Sierra Club Books, 1992. [FI]

Reviews the role of development banks in funding agricultural and irrigation projects in less-developed countries. Numerous case studies; somewhat reproachful with regard to historical practices, but contains thoughtful recommendations for change.

Moylan, Janet D. "Browsing Through the Environmental Marketplace: Choosing the Best Insurance Policy to Manage Environmental Liability Risks." *Risk Management* 42, no. 1 (January 1995): 53–59. [G/CF, INS]

Practitioner-oriented overview providing guidelines for identifying and addressing environmental loss exposures. Nicely written.

Munasinghe, Mohan. *Environmental Economics and Sustainable Development*. Environment Paper No. 3. Washington: World Bank, 1993. [G/CF, EC]*

Well-written summary of techniques used in valuing environmental costs and benefits. Contains case studies with examples of actual analyses and a thorough bibliography.

Muoghalu, Michael, H. David Robison, and John Glascock. "Hazardous Waste Lawsuits, Stockholder Returns, and Deterrence." *Southern Economic Journal* 57, no. 2 (October 1990): 357–370. [INV]

Event study measuring the abnormal losses suffered by stockholders associated with Superfund and RCRA lawsuits between 1977 and 1986. Finds a statistically significant 1.2 percent loss in market value at the suit's filing but no significant abnormal returns at disposition.

Nitsche, Christoph, and Chris Hope. "The Banking Sector and Environmental Issues: Some Empirical Evidence from Britain and Germany," May 1996. [FI]*

Results of a survey of more than 400 British and German banks concerning the banking sector's perception of environmental issues. Bank managers believe environmental issues will increase in importance, primarily because of commercial interests and legislative changes.

Norgaard, Richard B. *Sustainability and the Economics of Assuring Assets for Future Generations*. Working paper # WPS 832. Washington: World Bank, January 1992. [G/CF, EC]*

Enjoyable paper addressing intergenerational equity and the discount rate controversy in investment decisions. Argues it is inappropriate to lower the discount rate in favor of future generations, but shows that when the rights of future generations are protected, the discount rate is lower. See also Markandya & Pearce (1991) or Brennan (1995).

Northeast Waste Management Officials' Association. *Improving Your Competitive Position: Strategic and Financial Assessment of Pollution Prevention Projects*. Boston: NEWMOA, 1994. [G/CF]*

An honest-to-goodness training manual focusing on the financial ramifications of pollution prevention. Contains plenty of exercises and "hands-on" problems related to the identification and analysis of P2 projects. Instructors' guide also available. An excellent resource for the small company.

———. *Pollution Prevention and Profitability*. Boston: NEWMOA, 1993. [G/CF]*

Brief, broad overview of pollution prevention thinking and how it might impact the financial institutions' decision-making.

Oates, Wallace, ed. *The Economics of the Environment*. Hants., England: Edward Elgar, 1992. [EC]

Weighty collection of the "classic" articles in environmental economics. Not light reading, but an excellent reference for those who enjoyed the original!

Organisation for Economic Cooperation and Development. *Managing the Environment: The Role of Economic Instruments*. Paris: OECD, 1994. [EC]

A terrific overview of the major economic instruments (green taxes, emissions charges, marketable permits, etc.) useful in addressing environmental market failure. Contains lots of empirical examples of their use in OECD countries.

Palmer, Karen, Wallace Oates, and Paul Portney. "Tightening Environmental Standards: The Benefit-Cost or the No-Cost Paradigm?" *Journal of Economic Perspectives* 9, no. 4 (1995): 119–132. [EC]

Thoughtful reply to Porter and van der Linde (1995) questioning the validity of widespread "win-win" solutions. Important reading.

Palmisano, John. "Air Credit Trading: The Cost-Saving Compliance Alternative." *Environmental Finance* 2, no. 1 (Spring 1992): 53–67. [G/CF, EC]

Dated but nonetheless thorough article on air credit trading, a form of marketable pollution permits. More practitioner-oriented than Stavins & Whitehead (1992). Nice sections on trading risks, market supply and demand, and firm behavior.

Patchin, Peter J. "Contaminated Properties and the Sales Comparison Approach." *The Appraisal Journal* (July 1994): 402–409. [RE]

Describes methods for appraising contaminated properties; includes four illustrative case studies. Nice.

Pearce, David W. *Economic Values and the Natural World*. Cambridge, Mass.: MIT Press, 1993. [EC, G/CF]

An excellent primer on valuing the environment. Clear, concise descriptions of the major techniques and methodological controversies. Highly recommended.

Pearce, David W., and R. Kerry Turner. *Economics of Natural Resources and the Environment*. Baltimore: Johns Hopkins University Press, 1990. [EC]

Very well-written environmental economics text, though slightly dated.

Pfund, Nancy, and Shelly Guyer. "Environmental Venture Capital: What Investors Consider." *Environmental Finance* 1, no. 3 (Autumn 1991): 291–298. [G/CF, I]

Discusses the role of venture capital in financing pollution prevention and environmental technologies. Categorizes the different kinds of venture capital investments and identifies common themes for successful financing packages.

Porter, Michael E., and Claas van der Linde. "Toward a New Conception of the Environment-Competitiveness Relationship." *Journal of Economic Perspectives* 9, no. 4 (1995): 97–118. [EC]

Argues that competitiveness arises from superior productivity, and that properly designed environmental regulations can serve to stimulate this productivity. Introduces "innovation offsets" to describe these apparent "win-win" scenarios. See Palmer, Oates, & Portney (1995) for criticisms.

Raftelis, George A. "Financial and Accounting Measures as Part of Pollution Prevention Assessment." *Environmental Finance* 1, no. 2 (Summer 1991): 129–150. [G/CF]

Well-written, thorough article about environmental cost identification and decision-making. Numerical examples (including net present value analysis), beginnings of an activity-based cost rating system for environmental hazards. Highly recommended.

Russo, Michael V., and Paul A. Fouts. "The Green Carrot: Do Markets Reward Corporate Environmentalism?" Working paper presented at the 1993 Academy of Management Meetings. [INV]*

Examines the relationship between environmental and economic performance using data from Franklin Research and the Compustat database. Finds significant positive returns for accounting-oriented performance measures.

Sandoval, Ricardo. "How Green Are the Green Funds? Fiscal and Philosophical Ups and Downs of Environmental Investing." *The Amicus Journal* 17 (Spring 1995): 29–33. [INV]

Brief article illustrating difficulties inherent in applying a "green screen" to investment alternatives. Scorecard of the top performing environmental investment funds.

Sarokin, David, and Jay Schulkin. "Environmental Concerns and the Business of Banking." *Journal of Commercial Bank Lending* 73 (February 1991): 6–19. [FI]

Describes ways in which environmental concerns are affecting financial institutions. Suggests banks should take an active stance on environmental issues rather than reacting defensively to societal, financial and regulatory pressures. Worth reading for the "fish deposit" anecdote alone!

Savage, Deborah, and Allen White. "New Applications of Total Cost Assessment." *Pollution Prevention Review* 4, no. 1 (December 1994): 7–15. [G/CF]

Discusses the use of total cost assessment in environmental capital budgeting decisions. Includes a case study illustrating use of the P2/FINANCE software for analysis of pollution prevention projects.

Schmidheiny, Stephan, Federico J. L. Zorraquín, and the World Council for Sustainable Development. *Financing Change: The Financial Community, Eco-Efficiency, and Sustainable Development*. Cambridge, Mass.: MIT Press, 1996. [G/CF, FI]

In their followup to the best-selling *Changing Course*, Schmidheiny and the WCSD identify numerous areas where environmental issues and pollution prevention initiatives are directly impacting (or impacted by) the financial markets. Practitioner-oriented with many anecdotes and mini-case studies. Recommended reading.

Schneider, Paul. "Green Money: More Investors are Seeking Out Companies With Good Environmental Records — And Finding That It Can Pay." *Audubon* 95, no. 2 (March 1993): 65–71. [INV]

General overview of "green" mutual funds, highlighting what is and what isn't environmentally responsible. Well-written advocacy article.

Schoemaker, Paul J. H., and Joyce A. Schoemaker. "Estimating Environmental Liability: Quantifying the Unknown." *California Management Review* 37, no. 3 (Spring 1995): 29–61. [G/CF, INS]

Fascinating article on the monetization of environmental liabilities. Describes a methodology for estimating environmental liability "in both hard and soft analyses" Highlights areas of greater and lesser certainty and notes strong correlations among various liability components.

Slovic, Paul. "Perception of Risk." *Science* 236 (17 April 1987): 280–285. [G/CF, INS]

Environmental risk assessment remains one of the most challenging areas of environmental finance. This article, which appeared in a special issue of *Science* devoted entirely to risk assessment, is a true classic, identifying major discrepancies between true risk and perceived risk. Highly recommended.

Snyder, Jonathan V., and Charles H. Collins. "The Performance Impact of an Environmental Screen." Working paper, 1993. [INV]*

Examines the performance of environmentally screened portfolios in a split sample of the S&P 500 over 22 years. Found no consistent evidence of either a "green premium" or "green penalty."

Solow, Robert M. "Sustainability: An Economist's Perspective." In *Economics of the Environment: Selected Readings*, 3d ed., ed. Robert Dorfman and Nancy S. Dorfman, 179–187. New York: W. W. Norton, 1993. [EC]

The author, a Nobel Laureate, presents his views on sustainability. Brief but to the point, identifying what sustainability is and isn't (within the context of economics).

Stavins, Robert N., and Bradley W. Whitehead. "Dealing with Pollution: Market-Based Incentives for Environmental Protection." *Environment* 34, no. 7 (September 1992): 7–11 + 29–42. [EC]

Nice overview of economic incentives for environmental protection, many anecdotes. Good assigned reading for students.

Stüdemann, Frederick. "'Green' Bank Puts Principles First." *International Management* 48, no. 8 (October 1993): 32–33. [FI]

Describes the activities of Germany's "Ecobank." Founded in 1988, the bank offers preferential lending rates to borrowers engaged in alternative energy projects, women's issues and third world development, yet remains profitable.

Thompson, Hilary J. "The Role of Financial Institutions in Encouraging Improved Environmental Performance." In *Business and the Environment*, ed. Michael D. Rogers, 271–285. New York: St. Martin's Press, 1995. [FI]

Describes the response of financial institutions to environmental concerns in the management of their own operations, in assessing environmental risks, and evaluating the impact of new legislative requirements on financing needs and risks.

Tietenberg, Tom H. *Environmental and Natural Resource Economics*, 3rd ed. New York: HarperCollins, 1992. [EC]

Best-selling environmental economics text packed with problems and practical examples.

Turner, R. Kerry, David Pearce, and Ian Bateman. *Environmental Economics*. Johns Hopkins University Press: Baltimore, 1993. [EC]

Perhaps the best introduction to environmental economics; especially accessible to the non-economist. In plain language, with thoughtful examples, the authors explain how environmental problems arise and economists attempt to solve them. Highly recommended; paper.

Ullmann, Arie. "Data in Search of a Theory: A Critical Examination of the Relationships Among Social Performance, Social Disclosure, and Economic Performance of U.S. Firms." *Academy of Management Review* 10, no. 3 (July 1985): 540–557. [INV]

An extremely thorough review of the empirical literature on corporate social responsibility and economic performance. Somewhat dated, but seminal. (See Griffin and Mahon, 1997, for an update).

*To see how to obtain this document, refer to the corresponding entry in this compendium's Resource List.

United Nations Environment Programme. *Environmental Policies and Practices of the Financial Service Sector*. Geneva: UNEP, January 1995. [FI]*

Results of an international survey on environmental policies and practices in the commercial and investment banking industries. Of respondents, 70 percent believe environmental issues materially impact their business, with liability the greatest single concern. Environmental site assessments and screening are the most widely used tools to manage these risks.

United States Environmental Protection Agency. *Environmental Accounting Resource List (Revised)*. EPA 742/B-96/005. Washington: U.S. EPA/OPPT, March 1996. [G/CF]*

Annotated bibliography of useful resources for environmental accounting and capital budgeting.

———. *Facility Pollution Prevention Guide*. EPA/600/R-92/088. Washington: U.S. EPA, May 1992. [G/CF]*

A general guide to the establishment and implementation of pollution prevention programs. Chapter 6 covers the economic analysis of P2 projects (i.e., a verbal description of total cost analysis).

———. *Incorporating Environmental Costs and Considerations Into Decision-Making: Review of Available Tools and Software*. EPA/742-R-95/006. Washington: U.S. EPA/OPPT, Sept. 1995. [G/CF]*

Sourcelist for cost-estimating software useful in life-cycle and pollution prevention analysis. Very thorough descriptions.

———. *An Introduction to Environmental Accounting as a Business Management Tool: Key Concepts and Terms*. EPA/742/R-95/001. Washington: U.S. EPA/OPPT, May 1995. [G/CF]*

Extremely thorough summary of full cost accounting, P2, and environmental capital budgeting. Fantastic glossary of key terms used in these fields.

———. *A Primer for Financial Analysis of Pollution Prevention Projects*. EPA/600/R-93/059. Washington: U.S. EPA/ORD, April 1993. [G/CF]*

A well-written, thorough primer covering the basic analytical techniques needed to justify P2 investments. Discusses decision rules, opportunity costs, discount rates and adjusting for uncertainty. Includes several simple numerical examples showing the importance of assumptions and baseline comparisons. A “must-read.”

———. *Valuing Potential Environmental Liabilities for Managerial Decision-Making: A Review of Available Techniques*. EPA/742/R-96/003. Washington: U.S. EPA/OPPT, December 1996. [G/CF]*

Profiles various tools, techniques, and algorithms used to estimate environmental liabilities. Most are adaptations of widely used methods in finance, accounting, and decision sciences. Extensive bibliography, unusual coverage of the contingent valuation methodology.

van Dieren, Wouter. *Taking Nature Into Account: Toward a Sustainable National Income*. New York: Springer-Verlag, 1995. [EC]

Collection of essays by international authors addressing shortcomings of our national income accounting systems. Suggests changes that might foster better environmental quality and long-term sustainability.

Verein für Umweltmanagement in Banken, Sparkassen und Versicherungen. *Umweltberichterstattung von Finanzdienstleistern: Ein Leitfaden zu Inhalten, Aufbau und Kennzahlen von Umweltberichten für Banken und Sparkassen [Environmental Reporting in the Financial Service Industry: A Primer to the Contents, Construction and Ratio Analysis of Environmental Reports for Banks and Savings Institutions]*. Bad Honnef, Germany: VfU, 1996. [FI]*

Ordinarily, one wouldn't expect to find a German-language publication in an annotated English bibliography. This report, however, is too valuable to leave unmentioned. Using the “ecobalance” method (see White and Wagner, 1996), it identifies numerous standards for reporting on the environmental impacts of financial institutions — generally thought to be relatively benign. Highly recommended.

Wall, Larry D. "Some Lessons From Basic Finance for Effective Socially Responsible Investing." *Federal Reserve Bank of Atlanta Economic Review* 80, no. 1 (January/February 1995): 1–12. [INV]

Discusses significant social changes likely to result from investment decisions and the implications of effective socially responsible investment on an investor's rate of return. Does *not* address optimal investment policies for investors wishing to take into account the way in which firms obtain their earnings.

Walley, Darlene, Karen Blumenfeld, Nancy Kolodny, and Nasir Ali. "A Product Life-Cycle Assessment of Arm & Hammer Baking Soda." *Pollution Prevention Review* 2, no. 1 (December 1992): 51–64. [G/CF]

Very accessible example of product life-cycle analysis for a common household product. Useful as a springboard for estimating future cash flows in full-cost accounting. Excellent classroom example.

Westin, Richard A. "The Collision Between the Tax System and Environmental Policies." *Environmental Finance* 1, no. 3 (September 1991): 327–334. [G/CF]

Thoughtful article describing how the U.S. tax system works against achievement of better environmental quality. Many interesting examples.

White, Allen, and Deborah Savage. "Budgeting for Environmental Projects: A Survey." *Management Accounting* 77, no. 4 (October 1995): 48–54. [G/CF]

Presents results of environmental cost accounting survey. Costs of on-site waste management, energy, and water are most often considered when preparing financial justifications for pollution prevention projects, followed by cost of future compliance and impacts on corporate image.

White, Allen, Monica Becker, and Deborah Savage. "Environmentally Smart Accounting: Using Total Cost Assessment to Advance Pollution Prevention." *Pollution Prevention Review* 3, no. 3 (Summer 1993): 247–259. [G/CF]

P2 projects often lose out in the capital budgeting process because conventional methods fail to include a complete set of benefits. This article shows how total cost assessment (TCA) methods can improve cash flow estimates and increase the competitiveness of PP projects. Good numerical example.

White, Mark A. "Does It Pay to Be 'Green'? Corporate Environmental Responsibility and Shareholder Value." In *Proceedings of the Fourth Annual Business Strategy and the Environment Conference*, Leeds, England, September 1995, 236–241. [G/CF, INS]*

Examines the link between corporate environmental responsibility (measured by environmental reputation indices) and shareholder wealth. Investors in a portfolio of firms enjoying above-average reputations for corporate environmental responsibility earn risk-adjusted returns significantly greater than either the overall market or portfolios composed of less environmentally responsible firms. Results are supported by preliminary evidence concerning the value of adopting the CERES Principles, a formal code of corporate environmental responsibility.

———. "Environmental Finance: Value and Risk in an Age of Ecology." *Business Strategy and the Environment* 5 (1996): 198–206. [G/CF]

Broad overview of how environmental issues are affecting markets and capital flows around the world. Reviews major ways organizations are responding to environmental threats and opportunities in the three major branches of finance: corporate finance, investments, and financial institutions.

———. "Investor Response to the Exxon Valdez Oil Spill," November 1995. [G/CF, INS]*

Examines the impact of the 1989 *Exxon Valdez* oil spill on investment returns. Within the oil industry, the effects of the spill were strongly negative and idiosyncratic to Exxon. In another study, companies with exemplary reputations for environmentally responsible behavior earned significantly positive abnormal returns, while companies with neutral or negative environmental reputations showed no response.

———. "The Performance of Environmental Mutual Funds in the United States and Germany: Is There Economic Hope for 'Green' Investors?" *Research in Corporate Social Performance and Policy Supplement* 1 (1995): 323–344. [INV]

Reviews the performance of environmentally oriented mutual funds in the United States and Germany. Over the time period examined, the study finds that funds in both countries seriously *underperformed* broad market indices on a risk-adjusted basis. Argues that this is more a reflection on fund managers than a natural characteristic of the underlying assets.

*To see how to obtain this document, refer to the corresponding entry in this compendium's Resource List.

White, Mark A., and Bernd Wagner. "Ecobalance: A Tool for Environmental Financial Management." *Pollution Prevention Review* 6, no. 2 (Spring 1996): 31–44. [G/CF]

Describes the development and use of a new instrument, the "ecobalance," to collect and organize environmental data for the purposes of pollution prevention, cost reductions, and environmental financial management.

Wilson, Albert R. "The Environmental Opinion: Basis for an Impaired Value Opinion." *The Appraisal Journal* (July 1994): 410–423. [RE]

Comprehensive view of what an environmental opinion must provide to support an appraisal opinion. Dispels common myths and defines/explains components of impaired property values. Thorough.

Wittman, Marlene R. "Costing and Financial Analysis of a Pollution Prevention Project." *Environmental Finance* 1, no. 4 (Winter 1991): 433–452. [G/CF]

Extremely clear and detailed "hands-on" analysis of a pollution prevention project at a lighting manufacturer. Contrasts a standard project analysis based on the accounting rate of return with an in-depth net present value analysis highlighting hidden savings from pollution prevention. Highly recommended.

Wright, Martin. "God, Mammon and the Markets," *Tomorrow* 3, no. 6 (June 1996): 10–11. [G/CF, FI]

Lead article of a special issue devoted to the impact of environmental concerns on financing and the financial markets. Additional articles detail the performance of environmental mutual funds, venture capital initiatives, and efforts by the insurance industry.

Educational Tools: Case Studies, Exercises, and Textbooks

Buchholz, Rogene A., Alfred A. Marcus, and James E. Post. *Managing Environmental Issues: A Casebook*. Englewood Cliffs, NJ: Prentice Hall, 1992.

Early casebook containing 17 brief cases. Although only the DuPont cases contain sufficient information to perform introductory financial analyses, the cases' brevity allows for creative expansion along these lines.

Harvard Business School. "Acid Rain: The Southern Company (A)." 1992. Case 9-792-060.*

A company must decide whether to install pollution control equipment and generate excess permits for sale to other firms or emit larger quantities of SO₂, save capital costs and purchase pollution permits. Good capital budgeting case for capital budgeting analysis of P2 projects.

———. "Franklin Research and Development Corporation." 1989. Case 9-390-027.*

Joan Bavaria, President of Franklin Research and Development must decide how to respond to clients' complaints of poor performance. Good background on the philosophy and implementation of socially responsible investing; challenges students to address difficult economic and social issues.

———. "ITT Rayonier, Inc." 1981. Case 9-678-179.*

Older case in which a company is required to comply with the Clean Water Act, but management contends further cleanup would be more detrimental than pollution.

———. "Navistar (A)." 1996. Case 9-96-D001.*

A company's environmental coordinator must develop a total waste management program addressing corporate reduction goals and regulatory requirements. Originally written for an operations management course, there are sufficient numbers included to warrant its use as a finance case. Students must decide among several alternatives for waste disposal/recycling.

———. "Negotiation Exercise on Tradeable Pollution Allowances: General Background Information." 1993. Case 9-793-072.*

Comprehensive negotiation exercise. Teaches students about tradeoffs faced by firms exploring alternative approaches to complying with pollution control regulations. In this stylized negotiation, each utility has the option of reducing emissions via (1) installation of pollution control equipment, (2) substitution of high-sulfur coal with low sulfur coal, and/or (3) purchase of tradeable SO₂ allowances from other firms that over-comply. Profiles of 12 separate firms (negotiating groups) are provided through the supplements.

———. “Polaroid: Managing Environmental Responsibilities and their Costs.” December 1993. Case 9-194-052.*

Example of management accounting for environmental costs at a major U.S. manufacturer. Nicely done, with teaching note.

Management Institute for Environment and Business/World Resources Institute. “A Burning Issue.” 1992.*

A small town wrestles with the decision to construct an incinerator and/or recycling plant for the disposal of municipal solid waste. Students must evaluate both quantitative and qualitative aspects of their decision.

———. “St. Charles Medical Center: A Green Lights/Energy Star Case Study.” 1996.*

As a participant in the U.S. EPA’s voluntary “Energy Star” program, the facility services director for a medical center must select among several alternatives for reducing energy use. This case highlights the assumptions inherent in the financial analysis of pollution prevention projects.

———“Tempes Corporation (A).” 1995.*

Students must choose between two competing designs for a diving instrument. The first is less expensive, but calls for the use of cadmium (a toxic heavy metal) and is composed of more parts. The second design is simpler, uses recycled plastic, but is more expensive. Straightforward application of NPV and cash flow analysis in a “Design for the Environment” problem.

National Pollution Prevention Center for Higher Education. “Crotalus Circuits.” In *Pollution Prevention Educational Resource Compendium in Finance*. 1998.*

A lending officer must decide whether to approve Crotalus Circuits’ loan request to fund the purchase of a new process technology. Students must analyze this pollution prevention project from the perspectives of the company, the bank, and society. Provides practice in environmental investment analysis and financial forecasting; highlights issues in lender liability.

———. “Green Lights Economics: Graphic Design Considers a Lighting Upgrade.” In *Pollution Prevention Educational Resource Compendium in Finance*. 1995.*

Uses NPV analysis to analyze the financial impact of an energy-efficient lighting upgrade inspired by the U.S. EPA’s “Green Lights” program.

Reinhardt, Forest, and Richard Vietor. *Business Management and the Natural Environment: Cases and Text*. Cincinnati: South-Western College Publishing, 1996.

Contains 26 lengthy cases, most written by Harvard professors Reinhardt and Vietor. Many of the cases have a finance or economics angle; all are informative. Highly recommended.

Watkins, Tom, Murray Young, Tommi Johnsen, Tom Howard, and Glyn Hanbery. “Recycling: A Structured Exercise.” *Journal of Management Education* 21, no. 2 (May 1997): 244–254.

Describes a novel two-day exercise for raising students’ awareness of recycling issues. Teams of participants are asked to deal with various cast-off items in one of three ways: landfilling, reuse, or creating new uses. Includes elaborate bidding and scoring system. Fun!

White, Mark. “Avtex Fibers: Profits vs. Pollution.” 1995.*

Examines how large debt-servicing requirements affect decisions to expend funds for the proper maintenance of environmentally sensitive facilities in a declining industry. Enables students to explore how irresponsible financing decisions can lead to irresponsible social and environmental performance.



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The mission of the NPPC is to promote sustainable development by educating students, faculty, and professionals about pollution prevention; create educational materials; provide tools and strategies for addressing relevant environmental problems; and establish a national network of pollution prevention educators. In addition to developing educational materials and conducting research, the NPPC also offers an internship program, professional education and training, and conferences.

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