

**GRADUATE SCHOOL OF BUSINESS
HARVARD UNIVERSITY**

BUSINESS AND THE ENVIRONMENT

Course Syllabus, Winter Term 2005

Professor Forest Reinhardt

COURSE OVERVIEW

This is a course about opportunity and risk. Political demands for environmental improvement create obligations for managers that can conflict with the imperative of shareholder value creation. Whether or not human-caused damage to the natural environment is a serious problem from a scientific standpoint, executives need to manage the business risks that concern about the environment creates, and to seize the competitive opportunities it presents to well-managed firms. The lessons of the course are broadly applicable to strategy and performance in markets distorted by government intervention and imperfect competition.

Educational objectives

The course has two main objectives. First, we want to improve our ability to design and implement business policy in situations where environmental considerations are important. To do so, we need to think creatively but realistically about the central question of environmental management: under what circumstances can firms accommodate social demands for environmental improvement while simultaneously delivering superior returns to shareholders?

Studying environmental problems from the firm's perspective also turns out to be an excellent way to develop broadly applicable analytic skills. The course draws on industrial organization theory, natural resource economics, political economy, and the theory of the firm to understand a set of important market imperfections and their implications for business strategy. Among other topics, we study the links between market structure and profitability, the relationships between regulation and market structure, and the effects of incentives within the firm on managerial performance.

Many of the managers studied in the course are trying to design incentive systems and exercise leadership in large organizations where short-term and long-term objectives conflict and where values that are intangible and difficult to measure may be extremely important. Obviously, environmental cases are not the only ones in which these conditions apply. From an administrative point of view, analyzing the management of environmental externalities and public goods yields insights with applications to a wide range of managerial situations.

Content and Organization

Business and the Environment consists of fifteen class sessions, plus a final exam. Most of the discussions are based on company cases, although government and non-profit institutions figure prominently as well.

Environmental problems affect each of the traditional functional areas of the firm. For this reason, the cases draw heavily on concepts introduced in various required MBA courses, and many of the cases would fit easily in courses on strategy, finance, marketing, control, business-government relations, or general management. At the same time, environmental problems are inherently cross-disciplinary, spilling across the boundaries that separate traditional academic disciplines. The cases in the course therefore draw on economics, politics, natural science, engineering, and law. The cases are supplemented by readings that have shaped societal views about the appropriate roles for business and government in managing environmental quality.

The course is organized in five parts. **Part I, The Political Economy of the Environment**, introduces fundamental concepts of public goods, externalities, natural resource pricing, and cost-benefit analysis that we will use throughout the course. The course's first case, Champion International and the Northern Spotted Owl, introduces business-unit level strategy in a heavily regulated, environmentally sensitive industry. The next two cases consider the problem of acid rain as it appears from the differing perspectives of legislators, regulatory officials, transporters of coal, and coal-burning electric utility firms. These cases explore the considerations that affect governments' decisions to intervene in markets, the effects of governmental regulatory policies on firms, and the firms' attempts to shape those policies to their own advantage. In other words, we study the relations between a firm's behavior in the marketplace and its behavior in the non-market arena, paying special attention to political strategy and to business-government relations. Here, as throughout the course, we analyze managerial choices in the light of several criteria, including the maximization of expected value, the reduction of risk, the acquisition or maintenance of goodwill, and adherence to managerial ethics.

In **Part II, The Environment and Business Strategy**, we use these ideas to analyze the relationships between firms' fundamental strategic choices and their behavior with respect to environmental problems. In particular, firms that choose voluntarily to reduce their environmental loadings, or to provide environmental benefits beyond the levels required by law, need to find ways to offset the increases in their costs. Some have tried to do so through environmental product differentiation that enables them to recapture increased costs from consumers. Others have attempted to identify private cost savings that more than offset the increased costs of environmental protection. Still others try to satisfy both environmental and shareholder value objectives through strategic behavior, raising rivals' costs and thus securing competitive advantage through environmental performance. Obviously not all of these approaches will be feasible for all firms. We examine the circumstances under which each of them is likely to be appropriate, studying firms in the packaged food, commodity chemicals, and energy industries.

In **Part III, Strategies of Environmental Activists**, we study nonprofit advocacy and activist organizations from a business strategy perspective. Such organizations are an important part of the nonmarket landscape within which firms must operate, so company managers need to understand how they behave. Analyzing such organizations also affords opportunities to test the usefulness and limitations of fundamental concepts of business strategy to settings outside of the business world, and it allows us to consider explicitly the roles played by firms, nonprofit private entities, and governments in providing and maintaining environmental public goods.

In **Part IV, Environment and Entrepreneurship**, we integrate the material from the previous modules to analyze problems confronting entrepreneurs whose proposed activities will affect environmental values. Environmental concern can give rise to entrepreneurial opportunities, present obstacles to the realization of entrepreneurial objectives, or both. Integration of business strategy and of nonmarket strategy is critical to success.

Part V, Sustainable Development and the Firm, concludes the course by examining “sustainable development” and its relationship to firm behavior. Sustainable development seems an unambiguously desirable thing, but it has proven very difficult to operationalize. We examine various notions of sustainable development, and analyze the relationships between sustainable development and corporate performance.

* * *

The course thus provides an exposure to the important environmental issues that firms confront. Beyond that, however, it encourages participants to think systematically about industry structure, government behavior, and corporate strategy when investments are irreversible and uncertainty is pervasive—conditions that characterize increasing numbers of businesses today, both within the environmental arena and beyond it.

Class participation will account for 60% of each student's grade, with the remainder based on a four-hour written exam.

BUSINESS AND THE ENVIRONMENT

LIST OF MATERIALS

Cases:

Champion International Corporation:	
Timber, Trade, and the Northern Spotted Owl	792-017
Controlling Acid Rain, 1986	Kennedy School Case #C15-86-699.0
Acid Rain: Burlington Northern, Inc. (A)	792-018
Du Pont Freon Products Division (A)	389-111
Responsible Care	391-135
StarKist (A)	794-128
Global Climate Change and BP Amoco	TBD*
Environmental Risk Management at Chevron Corporation	799-062
Environmental Defense	703-029
National Parks Conservation Association	702-024
Reading Energy	794-102
Walden Woods	TBD*
Freeport Indonesia	796-124
Sustainable Agriculture Initiative Nestle	TBD*

Other Readings:

Ronald Coase, "The Problem of Social Cost," 3 Journal of Law and Economics (October 1960), pp. 1-44.

Aldo Leopold, excerpts from A Sand County Almanac, with Essays on Conservation from Round River (1949).

Michael E. Porter and Claas van der Linde, "Green and Competitive: Ending the Stalemate," Harvard Business Review, September-October 1995.

Robert Solow, "An Almost Practical Step Toward Sustainability." Washington: Resources for the Future, 1992.

*TBD = to be distributed later

SCHEDULE OVERVIEW

I. THE POLITICAL ECONOMY OF THE ENVIRONMENT

- | | |
|---------------------------------------|----------------------|
| 1. Champion (Also: Coase and Leopold) | Tuesday, January 18 |
| 2. Acid Rain | Thursday, January 20 |
| 3. Burlington Northern | Monday, January 24 |

II. BUSINESS STRATEGY AND THE ENVIRONMENT

- | | |
|---------------------------------------|---------------------|
| 4. Du Pont | Tuesday, January 25 |
| 5. Responsible Care (Also: Porter) | Monday, January 31 |
| 6. StarKist (A) | Tuesday, February 1 |
| 7. Global Climate Change and BP Amoco | Monday, February 7 |
| 8. Chevron | Tuesday, February 8 |

III. STRATEGIES OF ENVIRONMENTAL ACTIVISTS

- | | |
|---|----------------------|
| 9. Environmental Defense | Monday, February 14 |
| 10. National Parks Conservation Association | Tuesday, February 15 |

IV. ENVIRONMENT AND ENTREPRENEURSHIP

- | | |
|--------------------|------------------------|
| 11. Reading Energy | Tuesday, February 22 |
| 12. Walden Woods | Wednesday, February 23 |

V. SUSTAINABLE DEVELOPMENT AND THE FIRM

- | | |
|---|---------------------|
| 13. Freeport Indonesia (Also: Solow) | Monday, February 28 |
| 14. Sustainable Agriculture Initiative Nestle | Tuesday, March 1 |

CONCLUSION

- | | |
|------------------------|-----------------|
| 15. Concluding Lecture | Monday, March 7 |
|------------------------|-----------------|

**BUSINESS AND THE ENVIRONMENT
ASSIGNMENTS, WINTER TERM, 2005**

Class No. 1, Tuesday, January 18

Champion International Corporation: Timber, Trade, and the Northern Spotted Owl, case number 792-017

Supplemental Readings

Ronald Coase, "The Problem of Social Cost," 3 Journal of Law and Economics (October 1960), pp. 1-44.

Aldo Leopold, excerpts from A Sand County Almanac, with Essays on Conservation from Round River (1949).

We begin our analysis of business and the environment by traveling with Tag Edwards, a timber company vice president, to the northwestern United States. The federal government's listing of the northern spotted owl as an endangered species has radically altered timber markets in that region. Edwards needs to understand the implications for his various operations, and to consider what changes to implement in response.

The readings from Coase and Leopold encapsulate divergent and useful ways of thinking about environmental questions. We will draw frequently on these perspectives during the course.

Leopold was one of the pioneers of ecological science, and an intellectual godfather of western environmentalism. Sometime during the early weeks of the course (i.e., prior to March 24), you should read at least the first several pages (137-141, 188-190, and 237-246) of the Leopold excerpts.

Coase won the Nobel Prize for Economics in 1991, largely for writing "The Problem of Social Cost" more than thirty years earlier. Sometime during the early weeks of the course, you should read at least parts I through VI and part X of the Coase article (pages 1-19 and 42-44).

Discussion questions:

1. What are the basic economics of the industries in which Edwards competes? Is timber production a profitable activity? What, for example, are the returns to investments in planting trees at Kapowsin? Is lumber manufacture a profitable activity?

2. How have the government's actions in this case affected the markets for forest products in the Northwest?
3. What motivates the government's interventions in northwestern timber markets? Do you think this is good policy?
4. What should Edwards do? To whom is the company responsible?

Class No. 2, Thursday, January 20

Reading:

Controlling Acid Rain, Kennedy School case number C15-86-699.0

We continue our coverage of the economic analysis of natural resources and the environment, using a case from Harvard's Kennedy School of Government. It is assigned there to teach the basics of benefit-cost analysis, perhaps the most widely used conceptual tool for analyzing environmental problems and formulating government policies.

Discussion questions:

1. What are the costs of acid rain control? Which costs should the government include in its analysis? Which costs should it exclude?
2. Did the NAPAP study evaluate the appropriate benefits of control and place the correct dollar values on those benefits?
3. Is benefit-cost analysis an appropriate decision tool for this problem? Why or why not? If not, what would you propose as an alternative?

Class No. 3, Monday, January 24

Reading:

Acid Rain: Burlington Northern, Inc. (A) case number 792-018

We now approach the problem of acid rain from the perspective of a railroad whose principal product is the transportation of low-sulfur coal. Burlington Northern executives understand that their product's competitive position depends, in part, on the form of acid rain legislation that the Congress passes; now they need to decide what to do.

Discussion questions:

1. Is the Clean Air Act a significant issue for Burlington Northern?
2. Are BN's arguments about technology-forcing and cost sharing valid? Does the validity of BN's arguments matter to BN's shareholders or to its managers?
3. Who would benefit from legislation to control acid rain? Who would lose? How do the answers depend on the specific provisions of the legislation? In particular, who would benefit from legislation that established tradable emission rights for utilities?
4. What should BN do about this legislative issue? Should it commit managerial and economic resources to direct involvement in the political process?

Class No. 4, Tuesday, January 25

Reading:

Du Pont Freon Products Division (A), case number 389-111

In March 1988, the world's largest producer of chlorofluorocarbons must decide how to respond to a new scientific report issued by the U.S. government, which includes new evidence about the destruction by CFCs of stratospheric ozone. The case requires us to craft a strategy for Du Pont in the marketplace and in the political arena, considering numerous competing objectives and stakeholder groups.

Discussion questions:

1. What is your evaluation of Du Pont's strategy with respect to its CFC business over the period of 1974-1986?
2. How has the Montreal Protocol affected CFC markets? What will be the likely impacts of the Trends Panel Report?
3. What would you recommend that Joe Glas do now? Why?

Class No. 5, Monday, January 31

Reading:

Responsible Care, case number 391-135

Supplemental Reading:

Michael Porter and Claas van der Linde, "Green and Competitive: Ending the Stalemate," *Harvard Business Review*, September-October 1995.

In this case, members of the Chemical Manufacturers Association, troubled by their industry's poor environmental reputation and worried about the prospect of additional government regulation, attempt to create a private solution to the provision of public goods.

In addition, we will examine a classic *Harvard Business Review* article by Michael Porter and Claas van der Linde, in which they argue that the tradeoffs between environmental objectives and traditional shareholder value imperatives have been considerably overdrawn. Many of the examples in the article pertain to the chemical industry, which is the topic of today's case.

Discussion questions:

1. What is your assessment of Responsible Care? What are its objectives? Will it succeed?
2. Could initiatives like Responsible Care work in other industries that we have studied in this course, or in other industries with which you are familiar?
3. Do Porter and van der Linde provide convincing evidence that companies in the chemical industry can simultaneously reduce environmental burdens and production costs? If so, are their ideas applicable in other industries?

Class No. 6, Tuesday, February 1

Reading:

StarKist (A) 794-128

This case describes one of the most famous "green marketing" initiatives in history: the decision by StarKist, Heinz's canned tuna subsidiary, to sell only "dolphin-safe" products. We analyze the ramifications of this decision for Heinz's business and for marine ecosystems.

Discussion questions:

1. Do you think StarKist's managers made the right decision in April 1990? Why or why not? On what criteria are you basing your evaluation?
2. What else would you like to see StarKist do?

Class No. 7, Monday, February 7

Reading:

Global Climate Change and BP Amoco, to be distributed

Discussion questions:

To be distributed

Class No. 8, Tuesday, February 8

Reading:

Environmental Risk Management at Chevron Corporation, case number 799-062

Executives at Chevron Corporation, managing a worldwide value chain integrated from the oil field to the gasoline pump, confront significant business risk in their daily operations. They are considering the use of analytical risk management tools that are intended to help them manage those risks more systematically and efficiently.

Discussion questions:

1. Is Chevron using the right tools for managing environmental business risk? Why do those tools differ from those used to manage other types of business risk?
2. Should Chevron make company-wide use of quantitative risk management tools like DEMA?

Class No. 9, Monday, February 14

Readings:

Environmental Defense 703-029

Environmental Defense is one of the most famous of the American environmental groups. We will study its strategy and its operations, much as we have those of the firms examined earlier in the course.

Discussion Questions:

1. Evaluate the strategy of Environmental Defense. Has it been successful? Why or why not?
2. Is the organization devoting about the right amount of resources to various environmental issues? How can you tell?
3. What advice would you give to Krupp about his organization's portfolio of activities? In particular, should Environmental Defense do more joint work with companies? If so, what kinds of companies?
4. How fast can Environmental Defense grow? How fast should it grow?
5. In what ways do Krupp's strategic and management challenges differ from those of the company managers we have studied? In what ways are they similar?
6. What further advice would you give to Krupp?

Class No. 10, Tuesday, February 15

Reading:

National Parks Conservation Association 702-024

The National Parks Conservation Association, a Washington-based nonprofit organization, has undertaken an initiative to help the national parks write “business plans.” The case affords an opportunity to think not just about this initiative but more broadly about the roles of government, firms, and nonprofit organizations in the provision of environmental quality.

1. What explains the governance structures of the economic activity discussed in the case? Specifically, what explains the fact that Yellowstone Park is managed by a government agency and not by a firm or a private nonprofit organization? What explains the fact that NPCA is organized as a private nonprofit rather than a firm? Why are the concessioners (discussed in Appendix A) firms rather than private nonprofit or government entities, and what explains the distribution of economic surplus among the concessioners, their customers, and the government?
2. What is your evaluation of NPCA’s strategy , and especially of the Business Plan Initiative?
3. How, if at all, should NPCA continue the initiative in the national parks? Should it try to expand the initiative to other federal land management agencies (e.g., the US Forest Service), to national parks in other countries?

Class No. 11, Tuesday, February 22

Reading:

Reading Energy, case number 794-102

This case integrates questions of environmental product differentiation, the pricing of energy and waste flows, business-government relations, and environmental justice. Tom Cassel, a Philadelphia entrepreneur, is trying to build a solid waste incinerator in a small, poor suburb of Chicago, but has encountered stiff political resistance. The case requires the analysis of an entrepreneurial investment opportunity. It also raises broader questions about the use of quantitative environmental risk assessment and about environmental equity.

Discussion Questions:

1. Does Robbins present a good opportunity for Tom Cassel? Should he continue to pursue it?
2. What accounts for the opposition to the project? What role has quantitative risk assessment played?

Class No. 12, Wednesday, February 23

Reading:

Walden Woods, to be distributed

Discussion questions:

To be distributed

Class No. 13, Monday, February 28

Reading:

Freeport Indonesia, case number 796-124

Supplemental Reading:

Robert Solow, An Almost Practical Step Toward Sustainability
(Washington: Resources for the Future, 1992).

Freeport is the operator and majority owner of one of the world's largest copper mines, in Irian Jaya in eastern Indonesia. The company has recently taken some steps toward mitigating environmental externalities at the mine, but western and indigenous environmental groups regard them as inadequate. The case also raises broader questions about "sustainability" as that term is variously defined by environmental economists and by social activists.

Discussion questions:

1. How, very approximately, are the resource rents from the mine being divided among residents of Irian Jaya, the Indonesian government, governments of the US and other nations, and Freeport shareholders? What might explain this allocation of rents?
2. What is your evaluation of Freeport's environmental management program? Is it allocating about the right amount of money and

management time to the environment, and in about the right ways?
How can you tell?

3. Does the Freeport operation conform to Robert Solow's definition of sustainability? On what assumptions, if any, does your answer depend?

Class No. 14, Tuesday, March 1

Reading:

Sustainable Agriculture Initiative Nestle, to be distributed

Discussion questions:

To be distributed

Class No. 15, Monday, March 7

Concluding presentation

No assignment