GRADUATE SCHOOL OF BUSINESS
HARVARD UNIVERSITY

BUSINESS AND THE ENVIRONMENT

Course Syllabus, Winter Term 2003

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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 the environment is a serious problem from a scientific standpoint, executives need to manage the business risks that environmental concern 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 uses 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 four parts. **Part I, The Political Economy of
the Environment**, introduces basic 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 as diverse as DuPont, Patagonia, and
Chevron.

In **Part III, Economic Institutions and the Environment**, we
explicitly consider the roles played by firms, nonprofit private entities, and
governments in providing and maintaining environmental public goods. Nonprofit advocacy and activist 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.

**Part IV, 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.

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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 9-792-017
Controlling Acid Rain, 1986 Kennedy School Case #C15-86-699.0
Acid Rain: Burlington Northern, Inc. (A) 9-792-018
Responsible Care 9-391-135
Du Pont Freon Products Division (A) 9-389-111
StarKist (A) 9-794-128
Environmental Risk Management at Chevron Corporation 9-799-062
Reading Energy N9-794-102
Ciba Specialty Chemicals 9-799-086

Other Readings:


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


SCHEDULE OVERVIEW

I. THE POLITICAL ECONOMY OF THE ENVIRONMENT

1. Champion (Also: Coase and Leopold) Monday, March 10
2. Acid Rain Tuesday, March 11
3. Burlington Northern Monday, March 24

II. THE ENVIRONMENT AND BUSINESS STRATEGY

4. Responsible Care (Also: Porter) Tuesday, March 25
5. Du Pont Wednesday, March 26
6. StarKist (A) Monday, March 31
7. Patagonia Tuesday, April 1
8. Chevron Monday, April 7
9. Reading Energy Tuesday, April 8

III. ECONOMIC INSTITUTIONS AND THE ENVIRONMENT

10. Environmental Defense Monday, April 14
11. Guest lecture Tuesday, April 15
12. National Parks Conservation Association Tuesday, April 22

IV. SUSTAINABLE DEVELOPMENT AND THE FIRM

13. Ciba Specialty Chemicals (Also: Solow) Wednesday, April 23
14. Guest lecture Monday, April 28
15. Concluding Lecture (No Reading) Tuesday, April 29
Class No. 1, Monday, March 10

Champion International Corporation: Timber, Trade, and the Northern Spotted Owl, case number 9-792-017

Supplemental Readings


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, Tuesday, March 11

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, March 24

Reading:

Acid Rain: Burlington Northern, Inc. (A) case number 9-792-018

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, March 25

Reading:

Responsible Care, case number 9-391-135

Supplemental Reading:


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. 5, Wednesday, March 26**

Reading:

Du Pont Freon Products Division (A), case number 9-389-111

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. 6, Monday, March 31

Reading:

StarKist (A) 9-794-128

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, Tuesday, April 1

Reading:

Patagonia N9-703-035

Discussion questions:

1. Evaluate Patagonia's strategy.

2. How fast can Patagonia grow? How fast should it grow?

3. How important to Patagonia's strategy is its environmental position?

4. How would Patagonia's strategy differ if the company were publicly held?
Class No. 8, Monday, April 7

Reading:

Environmental Risk Management at Chevron Corporation, case number N9-799-062

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, Tuesday, April 8

Reading:

Reading Energy, case number N9-794-102

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. 10, Monday, April 14

Readings:

Environmental Defense N9-703-029,

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. 11, Tuesday, April 15

Guest lecture: Environmental Defense and Global Climate Change

Guest: Annie Petsonk, International Counsel, Environmental Defense

Readings:


Also examine recent speeches on climate by Prime Minister Tony Blair and Shell Chairman Philip Watts [links on course website].
Please think about the following questions:

Over 100 nations, including Canada, Japan, the 15 member states of the European Union, and all of the EU accession states, have ratified the Kyoto Protocol on Climate Change. If it is ratified by the Russian Federation, the Protocol will enter into force 90 days after Russian ratification. In September 2002, at the World Summit on Sustainable Development, Russian Prime Minister Kasyanov said that it was very likely that Russia would ratify soon. To date, however, the Protocol has not been sent to the Duma (Parliament) for consideration for ratification.

The European Union has announced that it will launch a domestic greenhouse gas emissions cap and trade program beginning in 2005. A draft EU Directive has gone through its first reading in Parliament.

Several US states have enacted legislation on greenhouse gas emissions. Massachusetts has adopted a regulation capping GHG emissions from electric power facilities in the Commonwealth. New Hampshire has enacted a law capping emissions of four pollutants, including GHGs, from its power plants. California has enacted a law capping GHG emissions from motor vehicles beginning with the 2009 model year. Governor Pataki of New York has announced that using his regulatory authority, he will follow California's lead.

Senators John McCain (R-AZ) and Joe Lieberman (D-CT) have introduced a bill that would place a mandatory cap on roughly 85% of US greenhouse gas emissions. The Energy Bill currently pending in Congress and widely expected to be enacted contains a Climate Title that provides a registry in which companies may voluntary record their emissions reductions (a slight expansion of an existing voluntary registry enacted in 1992) - a provision strenuously opposed by the Wall Street Journal in its editorial of April 8. Some legislators have threatened to introduce amendments that would replace the voluntary provision with a mandatory one; however, an amendment that would have tightened fuel economy standards was defeated on April 8.

1. In light of the above and the material you read for class, what do you think a company should do, if anything, about the global warming problem?

2. Do you think US corporations should disclose, to their shareholders, to potential investors, or to others the greenhouse gas emissions of their manufacturing operations? Why? Does your answer depend on the country or state in which the facilities are located?

3. To what extent should US corporations disclose the greenhouse gas emissions that will occur with use of their products (e.g., cars)? Why? Does it depend on the jurisdiction in which the products are being used?
4. If a multinational whose shares are publicly traded in the US does business in a country that has ratified Kyoto, do you think that company should disclose the impacts of Kyoto regulation in their 10-K filings with the SEC? If so, what should they disclose?

5. What other strategies would you recommend that companies adopt? Why? What are the cost ramifications of your recommended strategies?

Class No. 12, Tuesday, April 22

Reading:

National Parks Conservation Association  N9-702-024,

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. 13, Wednesday, April 23

Reading:

Ciba Specialty Chemicals, case number 9-799-086

Supplemental Reading:

Robert Solow, An Almost Practical Step Toward Sustainability

As part of the merger of Swiss firms that created Novartis, the companies spun off their chemicals manufacturing divisions into a new entity called Ciba Specialty Chemicals. Executives at this firm need to formulate their environmental policies and to think about the relationships between environmental performance and competitive positioning, both in Switzerland and abroad.

Discussion questions:

1. Have Ciba managers been successful in using the environment as a cost-cutting tool? Why or why not?

2. Will Ciba’s product differentiation tactics for its LS dyes be successful? Is environmental product differentiation likely to be a successful strategy for any of CSC’s other products?

3. Do you think that Ciba is devoting about the right amount of money and management attention to environmental matters? What additional information would you like to have in making this assessment?

4. Ciba executive Jean-Luc Schwitzguébel says, “Environment no longer has the same prominence in our value system.” Is this a positive development? Why or why not?

5. Are Ciba’s operations consistent with sustainable development as defined by Solow? How can you tell? On what assumptions does your answer depend?
**Class No. 14, Monday, April 28**

Guest Lecture: The Environment, the Media, and the Firm

*Guest:* Natalie Pawelski, Environment Correspondent, CNN News Group; Nieman Fellow, Harvard University

Readings: none

**Class No. 15, Tuesday, April 29**

Concluding presentation
No assignment