UCLA Anderson
School of Management

BUSINESS AND THE ENVIRONMENT

Management 246A, Section 01
Spring Quarter 2006

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WEB SITE: http://www.anderson.ucla.edu/course/2005-2006/sp246a01/

CLASS HOURS Tuesdays from 4:00pm – 6:50pm

CLASSROOM Cornell Hall, Room D313

OFFICE HOURS "Open Door" policy, by appointment and immediately after class

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COURSE DESCRIPTION

CONTENT

There are many ways in which organizations interact with the natural environment, and many reasons to care about such interactions. Those reasons include purely business-minded reasons, such as marketing opportunities and potential for cost reductions; legal reasons, such as liability concerns and current and upcoming regulations concerning emissions and product takeback and ethical reasons, such as a personal or institutional desire to "do good." Each of these reasons is thoroughly legitimate, but, in this course, we will take a relatively business-oriented perspective to environmental issues. In other words, we will focus on the question: "what do I need to know about environmental issues to make my company more successful?"

During this course, we will first summarize the environmental issues facing business and society at large, including global warming, air and water pollution, soil contamination, etc. We will examine current and future legislation, both in the United States and elsewhere in the world related to each of these issues. We will then examine some environmental issues in each of the main areas of the MBA program: finance, marketing, operations, supply-chain management, accounting, entrepreneurship and strategy. During the course, we will also discuss a wide range of popular environmental literature (books by Cairncross, Diamond, Hawken, Lovins and many others).

METHOD

The course consists of a combination of lectures, case discussions and discussions of other materials.

A **group project** is a major component of the course. Each group will choose a research question related to the interaction between business and the environment.

COURSE OVERVIEW

SESSION	DATE	TOPIC
1	April 4	**Introduction: Environmental Science** ▪ Introduction To The Course ▪ Introduction To Science Underlying Environmental Issues
2	April 11	**Life Cycle Assessment** ▪ LCA Exercise (Paper Vs. Electric Hand-Drying) ▪ Case: McDonald's And The Environment
3	April 18	**Environmental Economics; Environment And Strategy** ▪ Externalities ▪ Case: Global Climate Change And Bp Amoco
4	April 25	**Environmental Marketing** ▪ Environment As Basis For Differentiation ▪ Green Advertising; Eco-Labels ▪ Case: Hayward Lumber
5	May 2	**Environmental Operations And Green Building** ▪ TQM And TQEM; Product And Process Design ▪ Green Building
6	May 9	**Environmental Risk Assessment** ▪ ISO 14001, EMAS ▪ Case: Chevron
7	May 16	**Environment, Accounting And Finance** ▪ Does It Pay To Be Green? ▪ Does The Stock Market Care? ▪ How To Incorporate Environmental Performance In Accounting? ▪ Emissions Trading Markets
8	May 23	▪ Guest Speaker (Joint With Social Entrepreneurship Lecture Series): Bill Mayer, Chairman, Board Of Trustees, The Aspen Institute (4-6pm) **Environmental Issues In Global Supply Chains** ▪ Incentives (Chemical Management Services) ▪ Closed-Loop Supply Chains ▪ Case: WEEE
9	May 30	**Environmental Entrepreneurship** ▪ Guest Speaker (Joint With Social Entrepreneurship Lecture Series): Lance Aryault, CEO, Flexcar (4-6pm) ▪ Case: The Body Shop International
10	June 6	**Sustainable Development And International Business** ▪ Case: Freeport Indonesia
11	June 13	**Project Presentations**

GRADING

There will be no final exam. The final grade will be determined as follows:

Class Participation:	25%	
Group Presentation ("mini-briefing"):	10%	
Assignments:	30%	(4 individual assignments)
Group Project:	35%	(report and presentation)

Grading will follow, to the extent possible and reasonable, the suggested distribution of grades for MBA elective courses:

A+, A, A-	No more than 50% of the class
B+ or below	At least 50% of the class

CLASS PARTICIPATION

This course will be quite heavily discussion-based, as is inevitable given the nature of the topic. As a result, you should be well prepared to participate in these discussions. This means reading the materials for that session, *thinking about them* and being creative and entrepreneurial in finding and digesting other relevant material from whatever sources you like to use.

GROUP PRESENTATION (OR "MINI-BRIEFING")

As a way to broaden the scope of the course, most sessions will include a brief presentation by a group of students on a focused topic of their choice. (This is entirely separate from the group projects below, and need not be the same group.) The default for such a presentation would be a short critique of a well-known book in the field (see below for some suggested titles). If you strongly prefer to cover a different topic, for instance a brief discussion of a recent development in the environmental arena (e.g., related to WTO meetings, summit meetings, debates about upcoming local legislation, etc.) or anything else, consult with me first. Check with me whether your book or topic is acceptable before you prepare your presentation. The presentation should be absolutely no more than 10 minutes (i.e., keep it to 2 to 3 slides), plus 5 minutes Q&A. The audience will not be familiar with the book or topic you pick, so make sure to include a short synopsis of the book before discussing and critiquing it.

ASSIGNMENTS

The four individual write-ups each count for 7.5% of the final grade. They are due in weeks 2, 3, 4 and 7: deliberately mostly early in the course, partly to get you into the material quickly, but also to avoid conflicting with the many other projects and assignments and exams you will likely have towards the end of the quarter.

1. The first assignment is a simple LCA exercise, to introduce you to a common way of measuring environmental impacts.
2. The second asks you to think about how to convert environmental impacts into monetary values.
3. The third asks you to study and discuss a few environmental advertising campaigns. Start this third one early; at least, start keeping an eye out for environmental advertising, so you will have some material to work with when this assignment is due.
4. The fourth looks into environmental accounting and reporting, and gives you an opportunity to pick a financial statement and an environmental report to evaluate the quality of environmental information provided.

GROUP PROJECT

Each group (four to six members) chooses a topic from the list provided in the appendix to work on. If you have a strong preference to pick a different topic, for instance to identify a project with a real company with a real question, that may be acceptable, but check with me first. There is no hard rule on report length; take 20 pages, plus figures, as a rough guideline, but as always quality (insights, structure, breadth) comes before quantity. The last session of the course will be devoted to these project presentations. Note that the workload in sessions 8, 9 and 10 has been kept lower than in the first part of the course to allow more time to finalize your projects. Use it well!

GUIDELINES FOR WRITTEN SUBMISSIONS

Be concise and precise: I look for quality of reasoning and logical consistency, not work based on "stream of consciousness." Use 11 or 12 point font; single spaced. Individual assignments should be performed entirely individually; you may only discuss your work with others after submitting it. And always cite your sources carefully; see for instance http://www.library.ucla.edu/yrl/referenc/plagiarism.htm for detailed guidelines on how to cite correctly, and see www.deanofstudents.ucla.edu (click on "students") or http://internal.anderson.ucla.edu/programs/mba/handbook/standards/honor.html for more information on the UCLA and the UCLA Anderson student honor code regarding academic conduct. All work should be submitted electronically through the course website; I may use Turnitin.com to verify originality.

READINGS

All required materials for the course are contained in the course pack, available online through the UCLA library, or will be handed out in class. Note that several of the sessions contain a lot of reading material: make sure you at least skim all of it, and focus more deeply on the articles that interest you most. Each session indicates which readings are required, which are suggested and which are strictly background. You should definitely explore on your own too on each of these topics; new readings appear all the time.

REQUIRED READINGS

The course binder, plus the required readings available online; additional materials will be handed out in class. The binder only contains materials for which you do not already have electronic access through the UCLA library.

SUGGESTED BACKGROUND READINGS

These will not be used in class, but are possible choices to discuss in your group presentation:

- Paul Hawken. *Ecology of Commerce*.
- Paul Hawken, Amory Lovins, L. Hunter Lovins. *Natural Capitalism: Creating the Next Industrial Revolution*.
- Frances Cairncross. *Green Inc.*
- Carl Frankel. *In Earth's Company*.
- Bjorn Lomborg. *The Skeptical Environmentalist*.
- Joseph Romm. *Cool Companies*.
- Marc Epstein. *Measuring Corporate Environmental Performance*.
- Graedel and Allenby. *Industrial Ecology*.
- Forest L. Reinhardt (2000). *Down to Earth*. Harvard Business School Press.
- Jason F. McLennan (2004). *The Philosophy of Sustainable Design*. Ecotone Publishing Company.
- Jared Diamond (2995). *Collapse*. Viking.
- Russel (editor) (1998). *Greener Purchasing: Opportunities and Innovations*, GreenLeaf Publishing.

There are many other good books on environmental science and management aimed at a broad audience.

BACKGROUND TEXTBOOKS

These will also not be used in class:

- Turner, Pearce and Bateman (1994). *Environmental Economics: An Elementary Introduction*. Johns Hopkins University Press.
- Folmer and Gabel (2000). *Principles of Environmental and Resource Economics*. Edward Elgar.
- Gilbert M. Masters (1998). *Introduction to Environmental Engineering and Science*. Prentice Hall.

OTHER BACKGROUND RESOURCES

Check the following website: it contains a wealth of resources and links. There are many websites out there related to sustainability, this is definitely one of the most useful ones:

- www.cleanerproduction.com

SAMPLES OF PROJECTS

These reports are listed as selected examples only; see course website for the full reports.

- Greenhouse gas emissions: an analysis of the U.S. market for carbon offset credits (2005)
- Environmental Technology, Advertising, and Consumer Perceptions: A Case Study of Ford, Toyota, and Volvo (2005)
- Green plastics (2005)
- Environmental Assessment of a Tanzania Ecolodge (2004)
- Green Beans, Greenbacks, and Green Growers: An Analysis of the Benefits & Challenges Of Shade-Grown Coffee (2002)
- Ballard Power Systems: Is a focus on fuel cell development in the transportation industry enough? (2002)

COURSE OUTLINE

SESSION 1

Introduction To Course And To Environmental Science

This session will serve as an introduction to the course, and provide a high-level overview of the science underlying the main environmental issues confronting our planet.

Readings

- "The Tragedy of the Commons." Garrett Hardin. *Science*. 162: 1243-1248. 1698. Available from several sources, including http://www.constitution.org/cmt/tragcomm.htm
- "Rapid Worldwide Depletion of Predatory Fish Communities." Myers & Worm. *Nature*. 423: 280-283. May 15, 2003. Available online: www.nature.com; access through a UCLA account.
- "Millennium Ecosystem Assessment: Ecosystems and Human Well-Being: Synthesis", available online: http://www.millenniumassessment.org//en/Products.Synthesis.aspx (Do NOT print, 155 pages! Definitely read the "Summary for decision makers" on pages 1-24; the rest is a great overview and resource though too.)
- Read the course materials posted on the course website; there will be several PowerPoint files (env_science1.ppt, etc.) containing the science overview that we will cover in class.

SESSION 2

Life Cycle Assessment

Case: McDonald's and the Environment A, B1 (Skim Parts B2, C)

Available on course website. This series of cases focuses on the work of a Joint Task Force of McDonald's Corp. and the Environmental Defense Fund (EDF); first, as it addresses McDonald's solid waste management strategy and second, as it poses the question of whether or not to replace polystyrene packaging with paper wrap. This series allows students to consider how environmental issues affect corporate strategy, how selecting appropriate partners can build credibility and how to frame decision-making in situations of limited information and conflicting perspectives.

Case Questions

1. Why did EDF approach McDonald's?
2. Why did McDonald's enter into the Joint Task Force with EDF?
3. Was EDF the right choice for a partner?
4. How well does the structure of the Joint Task Force serve as a model for future partnerships?
5. Has the Joint Task Force worked?
6. Should McDonald's continue its current recycling efforts or drop the "clamshell" sandwich container? Why?
7. Comment on the use of life-cycle analysis to arrive at your decision. What are the difficulties in using LCA for decision-making? What are the appropriate boundaries for the analysis? Is there one best solution? Does this change over time?

Individual Assignment

The assignment is posted on the course website.

- Exercises 1a and 1b: Calculations of energy in life-cycle assessments (1a: "drying your hands" and 1b: "getting to work").

- Think carefully about the sensitivity analysis part of the exercise. What assumptions would you question? How do they change the results?
- Submit your answer by email before the beginning of the session.

In this exercise, you will need to know what a "functional unit" is in the context of life-cycle assessment. You can search for this (there are many definitions and explanations), or see for instance the explanation offered by P&G at http://www.scienceinthebox.com/en_UK/sustainability/definition_en.html.

Once you have done the exercises you should:

- Feel confident in dealing with different units in quantitative analysis and be able to convert between them.
- Understand the distinction between feedstock, process and primary energy.
- Appreciate the role of different assumptions, and the need for transparency, in undertaking this type of analysis.

Readings

- "Note on Life Cycle Analysis." NPPC. Available on course website.
- "Thinking Outside 'the Box': Designing a Packaging Take-Back System." Matthews. *California Management Review*. 46(2): 105-119. Winter 2004. Available online: Google "California Management Review" from a UCLA account, click on link starting with "search.epnet.com/direct."

Strictly optional background readings

- "Note on the Trash Crisis." NPPC. Available on course website.
- "Sample Streamlined Life Cycle Assessment Project." Dave Allen. Available on course website.
- See the model partnership agreement for the Alliance for Environmental Innovation at: http://www.environmentaldefense.org/alliance/modelagreement.html

Sometimes one wishes to estimate the "total environmental impacts" of a region, city, industry, etc. If these impacts are expressed as how many acres of planet are needed to support that entity, this is often referred to as the ecological footprint. See, for example:

- Santa Monica's ecological footprint 1990-2000. Available online: http://www.earthscape.org/r1/ES16085/santam.pdf
- For Europe. Available online: http://www.footprintnetwork.org/gfn_sub.php?content=download

SESSION 3

Environmental Economics; Environment and Strategy

Case: Global Climate Change and BP Amoco

BP Amoco is the world's third largest oil firm. Its CEO, Sir John Browne, broke with his industry colleagues in 1997 when he publicly declared that global climate change was a serious problem and pledged BP to play a significant role in the search for solutions. The company has committed itself to voluntary cutbacks of carbon dioxide, the main gas held responsible for global climate change. Browne and his fellow executives believe that their approach makes sense not just from the perspective of social responsibility, but also from a hardheaded business standpoint. This case provides the information necessary to evaluate this belief.

Case Questions

1. Why did BP Amoco make the voluntary pledges it did? How does BP Amoco expect to get rewarded for those pledges?
2. How do *you* think they will be rewarded?

3. How do you think other oil firms will react? How does BP Amoco want them to react?

Readings

- "Chapter 1: The Market and Nonmarket Environments." David Baron. *Business and Its Environment*. Prentice Hall. New Jersey. 2000.
- "Market Failure and the Environmental Policies of Firms: Economic Rationales for 'Beyond Compliance' Behavior." F. Reinhardt. *Journal of Industrial Ecology*. 3(1): 9-21. 1999. Available online at http://miranda.ingentaselect.com/vl=3729624/cl=44/nw=1/rpsv/cw/mitpress/10881980/v3n1/contp1-1.htm or Google "Journal of Industrial Ecology" from a UCLA account, pick the link starting with ingentaselect.com.

Background Information

- "Corporate Greenhouse Gas Reduction Targets." Margolick and Russell. Report for the Pew Center on Global Climate Change. November 2001. Available online: http://www.pewclimate.org/global-warming-in-depth/all_reports/corporate_greenhouse_targets/index.cfm
- "Greenhouse Gas Emissions Trading in US States." Aulisi, Farrell, Pershing and Vandeveer. WRI White Paper. 2005. Available online: http://pubs.wri.org/pubs_description.cfm?PubID=3954
- "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (revised edition). WBSCD and WRI. Available online: http://www.ghgprotocol.org/plugins/GHGDOC/details.asp?type=DocDet&ObjectId=MTM3NTc

Further Reading (Not For Class)

- "Climate Change Strategy: The Business Logic Behind Voluntary Greenhouse Gas Reductions." Hoffman. *California Management Review*. 47(3): 21-46. Spring 2005.
- "Business Responses to Climate Change: Identifying Emergent Strategies." Kolk and Pinske. *California Management Review*. 47(3): 6-20. Spring 2005.
- "Environmental Economics: A Survey." Cropper and Oates. *Journal of Economic Literature*. 30(2): 675-740. 1992.
- "The Benefits of Visibility Improvement: New Evidence from the Los Angeles Metropolitan Area." Beron, Murdoch and Thayer. *Journal of Real Estate Finance and Economics*. 22(2/3): 319-337. 2001.

Resources

- California Climate Action Registry: http://www.climateregistry.org/
- Chicago Climate Exchange: http://www.chicagoclimatex.com/

Externalities?

A fundamental concept in environmental economics is that of an "externality." Some definitions of this include:

- The side effect on an individual or entity due to the actions of another individual or entity. For example, the production of energy in a nuclear power plant benefits the owners of the power plant, but creates externalities in the form of radioactive waste for the environment and its inhabitants.
- An externality is present whenever an individual's utility or production relationships include real (i.e., non-monetary) variables, whose values are chosen by others (persons, corporations, governments) without particular attention to the effects on the individual's welfare.

Individual Assignment: Externalities

- Describe and rank two externalities you experience in one day and how much each costs or benefits you.
- How much would you be willing to pay to remove (or get) the externality? How much are you willing to accept in exchange for continuing to experience the externality? Be precise: give a figure in US$ and explain how you arrived at that figure.
- How would you find out what the cost or value of each of these externalities is to society? How would you measure that? Try to ask some friends or relatives how much they would be willing to pay or accept for the same externality. How would you get a more well-founded valuation?
- How would you validate your measures? I.e., once decisions based on your measures have been implemented, how would you verify whether the measures were indeed an accurate representation of society's preferences?

Pick two reasonably different externalities; for instance, "smoke from my neighbor's BBQ" and "music from my neighbor's parties" would be too similar. Submit a concise well-reasoned 2 page discussion of your answers by email before the beginning of class. In your discussion, consider whether the externality is private or public, and positive or negative.

SESSION 4

Environmental Marketing

Case: Environmental Product Differentiation by the Hayward Lumber Company (Stanford, OIT 38, 2004)

The case traces the greening of Hayward Lumber Company, a family-owned company based in California. As an initial step toward serving an environmentally focused market niche, the firm began selling Forest Stewardship Council (FSC) Certified Lumber to meet a growing demand for green building materials in California's central coast market. The company found that while supplying FSC wood afforded entry into the green builder market, horizontal expansion into higher margin green building materials created a greater opportunity for revenue enhancement. The case details competing certification standards, and the components of Hayward's environmental strategy. The case closes with descriptions of several propositions for strategic growth of the firm, to reach stated environmental and sales goals. A three-part video complements the case; you should watch this before the class. It is available at:
http://faculty-gsb.stanford.edu/cases/hayward_lumber/

Case Questions

1. How does the supply chain for FSC certified lumber differ from the supply chain for non-certified lumber?
2. Estimate the full cost to HLC for sourcing and stocking FSC lumber. How does this compare to the full cost for non-certified lumber?
3. Why is HLC better able to manage inventory of FSC certified lumber than a green builder? (See the attached exercise 'Managing Inventory of FSC Certified Lumber.')
4. How should Hayward Lumber Company (HLC) adapt its operations and supply chain management practices to handle FSC?
5. Does the FSC eco-label competitively differentiate HLC in the builder supply market?
6. What are the advantages and disadvantages of horizontal diversification to expand the portfolio of green products offered by HLC beyond FSC?
7. What are the options for vertical expansion for HLC? What subset of these options should HSC pursue, and why? Please support your recommendation with numbers from the case.

Readings

- "Environmental Product Differentiation: Implications for Corporate Strategy." Reinhardt. *California Management Review*. 40(4): 43-73. Summer 1998. Available online: http://search.epnet.com/login.aspx?direct=true&db=buh&an=1081785
- "Shades of Green: A Multidimensional Analysis of Environmental Advertising." S. Banerjee, C.S. Gulas, et al. *Journal of Advertising*. 24(2) 21-32. 1995. Available online: http://search.epnet.com/login.aspx?direct=true&db=buh&an=9508072215. The 24(2) issue is entirely focused on green advertising; look at some of the other papers too.
- "Consumer Responses to Corporate Environmental Advertising." J.J. Davis. *Journal of Consumer Marketing*. 11(2): 25-37. 1994. Available online: http://search.epnet.com/login.aspx?direct=true&db=buh&an=9412022255
- "Targeting Consumers Who Are Willing to Pay More for Environmentally Friendly Products." Laroche, Bergeron and Barbara-Ferleo. *Journal of Consumer Marketing*. 18(6): 503-520. 2001. Available online: http://search.epnet.com/login.aspx?direct=true&db=buh&an=5937941
- "Choosing the Right Green Marketing Strategy." Ginsberg and Bloom. *Sloan Management Review*. 46(1): 79-84. 2004. Available online: Google "Sloan Management Review," from a UCLA account, click on link starting with "search.epnet.com/direct."

Web Research

Check out a few "green marketing" Internet sites, including:

- http://www.eco-labels.org/home.cfm
- http://www.greenmarket.com/
- http://www.envirolink.com/greenmarket/

For a critical perspective on environmental advertising, look at the following report, listing what the authors claim are America's ten worst greenwashers.

- http://www.thegreenlife.org/reports/DontBeFooled.pdf

In-Class Discussion Assignment

- Who do you think the "green consumers" are? Where are they? Where do you believe the most opportunities exist for green marketing (product types, consumer types, geographic areas, etc)? What should the message be?
- Pick two eco-labels (other than FSC and SFI, the ones discussed in the Hayward Lumber case) and find out as much as you can about them. Who administers the eco-label? Who decides which firms can carry the eco-label? How much do firms have to pay for the label? How much benefit do they get from the label? What criteria must they meet to carry the label?
- What successful and unsuccessful "green marketing" campaigns are you familiar with? Why were they (un)successful?

Individual Assignment

- Find a few "green" advertising campaigns and analyze them in terms of the readings from today's session and from any earlier marketing courses you have had.
- Characterize the advertisement or campaign using the "Shades of Green" framework in today's reading.
- Be critical: do you think the campaign is likely to be successful or not? What are the goals of the campaign? Why do you think the campaign will or will not meet those goals? How does this particular campaign fit with the company's overall advertising strategy?
- Be specific: relate your analysis to the readings, from today's session but also from any other marketing courses you have had.

- If you happened to pick one of the companies listed as one of America's top 10 greenwashers (see the link above), what is your take on that? Is that criticism fair or not?
- Submit a 2 page discussion of your answers and a copy of the advertisements by email before the beginning of class. In your write-up, include the exact source of the advertisements (publication, date, etc.). If you only have a hardcopy of the ads, please submit those in class, with your name clearly listed; *you should still submit your write-up via email.*

SESSION 5

Environmental Operations and Green Building

Readings

- "Motion Picture Industry Sustainability." C.J. Corbett and R. Turco. UCLA Institute of the Environment report to the California Integrated Waste Management Board. (To be distributed in class.)
- "Extending the Horizons: Environmental Aspects of Lean Operations." Charles J. Corbett and Robert D. Klassen. (To be distributed in class.)
- "Total Quality Environmental Management: The Primer." GEMI. Available online: http://www.gemi.org/TQE_101.pdf.
- Report on Diffusion of LEED Standards. MBA student team. 2006. (To be distributed in class.)
- "Building Momentum: National Trends and Prospects for High-Performance Green Buildings." US Green Building Council. Available online: http://www.usgbc.org/docs/resources/043003_hpgb_whitepaper.pdf
- "Costing Green: A Comprehensive Cost Database and Budgeting Methodology." Matthiessen, Morris and Langdon. July 2004. Available online: http://www.usgbc.org/Docs/Resources/Cost_of_Green_Full.pdf#search='Costing%20Green:%20Davis%20Langdon

Strictly Optional Background Readings

- "Lean Manufacturing and the Environment." US EPA report EPA100-R-03-005. Available online: http://www.epa.gov/innovation/lean/index.htm
- "Pursuing Perfection." US EPA report, August 20, 2000. Available online: http://www.epa.gov/innovation/lean/index.htm
- "Achieving Environmental and Productivity Improvements through Model-Based Process Redesign." Kumar Rajaram and Charles J. Corbett. *Operations Research*. 50(5): 751-763. 2002. Available online: http://search.epnet.com/login.aspx?direct=true&db=buh&an=7466119
- "Evaluating Environmental Performance using Statistical Process Control Techniques." Charles J. Corbett and Jeh-Nan Pan. *European Journal of Operational Research*. 2002. Available online: http://dx.doi.org/10.1016/S0377-2217(01)00155-2
- "The Costs and Financial Benefits of Green Buildings." Greg Kats. October 2003. Available online: do NOT print, this is 134 pages.

Assignment

- Make sure you are well on the way with your group project by now.
- Think about what "environmental operations" means for companies that are not in manufacturing (e.g., service companies, banks, etc.). Among others, this would refer to having green buildings; what is a "green building"?

Resources on Green Building

- www.ciwmb.ca.gov/greenbuilding/
- www.eere.energy.gov/buildings/high_performance/
- www.epa.gov/opptintr/greenbuilding/
- www.usgbc.org
- and many others…

SESSION 6

Environmental Risk Assessment

Case: Environmental Risk Management at Chevron Corporation

Chevron Corp., headquartered in San Francisco, manages a worldwide, vertically integrated value chain from the oil well to the gasoline station. Mishandling of oil at any stage of production can damage the natural environment, human health, corporate profitability or all three. But at the same time, Chevron needs to be prudent about the amount of money it spends on measures to manage these risks, and environmental programs within the firm can conflict with a longstanding tradition of decentralized management. To manage risks more efficiently, Chevron executives are contemplating the use of quantitative decision tools that enable operating managers to compute rough benefit-cost ratios for various alternative risk management projects. The case focuses on the pros and cons of using such tools within the context of Chevron's overall system for environmental risk management.

Case 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?
3. If you are the CEO of Chevron, are you more worried that line managers will spend too much money on environmental risk management or not enough?

Readings on Risk Management

- "Process Risk Evaluation: What Method to Use?" Montague. *Reliability Engineering and System Safety*. 29(1): 27-53. 1990. Available online: http://dx.doi.org/10.1016/0951-8320(90)90071-T
- *Understanding Risk Analysis*. Mark Boroush. Available online: http://www.rff.org/rff/Publications/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=14418

Readings on ISO 14000 and Related Standards (read the first; the rest is strictly optional)

- "ISO 14000: An Agnostic's Report from the Frontline." Charles J. Corbett and David A. Kirsch. *ISO 9000 + ISO 14000 News*. 9(2): 4-17. March-April 2000. Available on course website.
- "Does ISO 9000 Certification Pay?" Charles J. Corbett, María J. Montes, David A. Kirsch and María José Alvarez-Gil. *ISO Management Systems*. 23-32. July-August 2002. Available on course website.
- "ISO 14001: irrelevant or invaluable?" Charles J. Corbett and Michael V. Russo. *ISO Management Systems*. 2001. Available on course website.

SESSION 7

Environment, Accounting and Finance

Issues

- Does it pay to be green?
- Green investing
- How to measure environmental performance?
- Green accounting
- Environmental reports
- Emissions trading markets

Readings on Environmental Accounting

- *Finding Cost-Effective Pollution Prevention Initiatives: Incorporating Environmental Costs into Business Decision Making*. Global Environmental Management Initiative (GEMI). 1994. Available online: http://www.gemi.org/COS_107.pdf.
- "Improving Environmental Management with Full Environmental Cost Accounting." Epstein. *Environmental Quality Management*. 11-22 Autumn 1996.
- "Using a Balanced Scorecard to Implement Sustainability." Epstein and Wisner. *Environmental Quality Management*. Winter 2001 1-10. Available online: http://www3.interscience.wiley.com/cgi-bin/fulltext/89011826/PDFSTART

Readings on the Financial Impact of Environmental Management

- "The Eco-Efficiency Premium Puzzle." J. Derwall, N. Guenster, R. Bauer, et al. *Financial Analysts Journal*. 61(2): 51-63. March-April 2005.
- "Does the Market Value Environmental Performance?" S. Konar and M.A. Cohen. *Review of Economics and Statistics*. 83(2): 281-289. 2001. Available online: http://search.epnet.com/login.aspx?direct=true&db=buh&an=4428108

Readings on Sustainability Reporting

- "Sustainability Reporting Guidelines." Global Reporting Initiative. 2002. Available online: http://www.globalreporting.org/ (Don't print: 104 pages!)
- "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (revised edition). WBSCD and WRI. Available online: http://www.ghgprotocol.org/plugins/GHGDOC/details.asp?type=DocDet&ObjectId=MTM3NTc
- "Corporate Governance and Climate Change: Making the Connection." Douglas G. Cogan. CERES. March 2006. Available online: http://www.ceres.org/pub/publication.php?pid=84 (Don't print: 300 pages!)

Background Readings

- Two reports on socially responsible investing from the perspective of investors:
  1. "Socially Responsible Investment Survey 2002." Available online: http://www.deloitte.com/dtt/cda/doc/content/sri(2).pdf
  2. "Investing in Responsible Business." Available online: http://www.deloitte.com/dtt/cda/doc/content/dtt_gfsi_CSRweb2_110603.pdf
- "State and Trends of the Carbon Market, 2005." International Emissions Trading Association. Available online: http://www.ieta.org/ieta/www/pages/getfile.php?docID=899

- More reports on environmental cost accounting available at: http://www.epa.gov/opptintr/acctg/resources.htm

In-Class Discussion Assignment

- Visit the websites listed below and form a well-reasoned opinion of whether, when and how environmental performance is linked to financial performance.
- Look at some online corporate environmental reports and assess how well they do in measuring and reporting their environmental performance. How much is real, how much is greenwash?

Individual Assignment

- Pick a company that publishes financial statements and an environmental report (or sustainability report, or extended section on sustainability on their website, etc.). Make sure you select a company that has actual environmental impacts on an ongoing basis.
    1. First, look at how this company accounted for environmental costs, and relate what you find to the readings for this session. Do you think the costs were accounted for appropriately? Why (not)? Describe where in the financial statement the costs appear, under what heading, how large they are relative to the size of the company, whether they were one-time or recurrent, etc.
    2. Then, look at the environmental report, and critique it. Is it insightful? Useful? Greenwash? Is it consistent with the financial statement? How does it fit with the GRI guidelines?
- Write two to three pages summarizing your answers to the above. Try not to pick the most publicized environmental reports (BP...) but find one that you have an actual interest in.

Websites to Visit

- http://www.innovestgroup.com
- http://www.environmental-performance.org/index.php
- http://www.irrc.org
- http://www.sustainability-index.com/
- http://www.lightgreen.com/eco_performance.htm
- CERES, AA1000
- http://www.toyota.com/about/environment/news/enviroreport.html

SESSION 8

Environmental Issues in Supply Chains

Guest Speaker: Bill Mayer, Chairman, Board of Trustees, The Aspen Institute.
This will be joint with the Social Entrepreneurship Lecture Series, 4-6pm (room TBA). After the lecture, we will return to our regular classroom for a short discussion on environmental issues in supply chains.

Note: the workload for sessions 8, 9 and 10 has been kept lower than in the first part of the course to allow more time for your final project reports.

Case: The WEEE Challenge. INSEAD case 304-624-1, 2004.

Readings on Reverse Logistics / Closed-Loop Supply Chains

- "Design Engineering." Chris Hendrickson, H. Scott Matthews, Jonathan Cagan and Francis C. McMichael. *Closed-Loop Supply Chains*. Guide and Van Wassenhove (eds.).

- "Supply Loops and their Constraints: The Industrial Ecology of Recycling and Reuse." Geyer and Jackson. *California Management Review*. 46(2): 55-73. Winter 2004. Available online: http://search.epnet.com/login.aspx?direct=true&db=buh&an=12391592
- "Strategic Management of Product Recovery." Toffel. *California Management Review*. 46(2): 120-141. Winter 2004. Available online: http://search.epnet.com/login.aspx?direct=true&db=buh&an=12391602
- "Poison PCs and Toxic TVs." Silicon Valley Toxics Coalition. Available online: http://www.svtc.org/cleancc/pubs/poisonpc.htm

Background Readings on Incentives

- "Servicizing the Chemical Supply Chain." E.D. Reiskin, A.L. White, J.K. Johnson and T.J. Votta. *Journal of Industrial Ecology*. 3(2-3): 19-31. 2000. Available online: http://taddeo.ingentaselect.com/vl=4005357/cl=64/nw=1/fm=docpdf/rpsv/cw/mitpress/10881980/v3n2/s6/p19
- Or, see the full report on servicizing and Extended Producer Responsibility at www.tellus.org.

In-Class Discussion Assignment

- Visit: www.chemicalstrategies.org; analyze the environmental and competitive implications of this program.
- Why has this program taken hold primarily in the chemical industry so far? What characteristics of the chemical industry make it suitable for "chemical management services" programs? What other industries might be good candidates? Do you know of other examples?

SESSION 9

Environmental Entrepreneurship

Guest Speaker: Lance Aryault, CEO, Flexcar.
This will be joint with the Social Entrepreneurship Lecture Series, 4-6pm, in room ??. After the lecture, we will return to our regular classroom for a short case discussion.

Case: The Body Shop International
The case traces the development of the Body Shop, a company founded on nontraditional values and beliefs that has grown to become a major player in the cosmetic and beauty products industry. Defying industry traditions of expensive packaging, massive advertising and retailing through department stores and pharmacies, the entrepreneurial Anita Roddick created a company that rejects all of these principles and many more. After describing the very different portfolio of business practices that Roddick has developed, the case then focuses on her unique management philosophy both within the company and externally. As a strong advocate for the environment and community activism, she has created a highly successful company based on what she calls "profit with principle." The trigger issue in the case focuses on the challenge that the company is facing in entering the U.S. market, on which has very different characteristics from the European environment in which The Body Shop has developed. Roddick is challenged whether to change any of the company's so far successful strategy, organization and management values. Finally, the issue of her own succession is raised.

Case Questions:

1. How has the Body Shop become such a success while defying proven industry norms and strategies? What are the most important sources of its success?
2. How do you evaluate Anita Roddick's management philosophy and style? How important a contribution did she make to the creation of the Body Shop? How important is her role in its ongoing management?

3. What lessons are there to learn from The Body Shop as a corporate model and Roddick as a model of management? To what extent is this a unique and eccentric approach and to what degree are the challenges to a mainstream practice valid and generalizable?
4. How sustainable is The Body Shop's success? In particular, what should Roddick do about the emerging problems and expected difficulties of developing its operations in the United States?

SESSION 10

Sustainable Development and International Business

Case: Freeport Indonesia

In 1996, PT Freeport Indonesia, the mining subsidiary of Freeport McMoRan, had just completed an expansion of its copper and gold mine in the western half of New Guinea. The mine, which had dealt with numerous environmental and socio-cultural problems over the past couple of years, had recently proposed concrete plans for dealing with problems of acid drainage and spoils deposition. Now, although under widespread criticism and attack, the company is undergoing environmental and social audits and is again contemplating a major expansion.

Case Questions:

1. Describe and evaluate PTFI's environmental management strategy. Is environment part of the parent company's general corporate strategy? (See http://www.fcx.com.) Has it always been?
2. Describe and evaluate PTFI's treatment of social and cultural affairs in Irian Jaya.
3. Would you describe this project as "sustainable"? What criteria would you use to evaluate this claim? Compare how economic rents are being distributed under PTFI's stewardship with your sustainability criteria.
4. Should the Indonesian government allow PTFI to expand?
5. How does PTFI compare to other firms engaged in similar operations? E.g., Rio Tinto, Newmont, BP Amoco, all in the same area? Shell, Chevron, and others, in other areas?
6. Are these issues relevant only for a large-scale operation such as this?

Reading:

- "Beyond Greening: Strategies for a Sustainable World." Hart. *Harvard Business Review*. 1997.

Not much to read today, to give you extra time to work on your projects. Check the following website; you will enjoy it!

- http://scorecard.org

SESSION 11

Project presentations

Presentation of group projects

GROUP PROJECT TOPICS

1. **Honda of North America's Sustainability Report.** Precise topic to be determined jointly with Honda of North America.

2. **Analysis of Market for Carbon Trading.** There are several markets across the world where one can trade carbon (or carbon offsets, or CO2 emissions, etc.). Some of these are regional, some national, some international; some connected to legal requirements, others voluntary. Unsurprisingly, the price, volume, volatility, etc, of each market, varies depending on these factors. Conduct an analysis of these market: what are the markets worldwide? Who are all the players in these markets (traders, regulators, brokers, etc)? Are they for profit or non-profits? What is their competitive positioning? What are their market shares? How large is this market today, and in future? Who are their customers? Based on your analysis, what do you predict for the future evolution of this market?

3. **Green Conferences.** One of the complaints among deep-green environmentalists is that there are so many environmentally-themed conferences which themselves add to problems of air and water pollution, water consumption, GHG emissions, climate change, etc. Some organizations attempt to organize conferences with minimal or no environmental impact. Identify these organizations, and describe what they do to minimize environmental impacts of a conference, through special travel arrangements, GHG offsets, hotel selection, conference organization, location choice, etc. Quantify the effects, both in economic and environmental terms that greener conferences have had. Specifically, try to develop a simple tool that will allow a conference organizer to quickly estimate the total environmental impacts of a conference, and how that impact can be reduced by following various greener practices. Some examples to look at: Greenbuild 2005 (and previous editions; see http://www.greenbuildexpo.org/Attendee/greening.asp); EnvironDesign 9 (and previous editions; see www.isdesignet.com/ED/ED9/greening_ed9.html); the Greening of Industry Network conference in San Francisco 2003 (see http://www.greeningofindustry.org/gin2003.htm); CERES (http://www.ceres.org/conference/2005/logistics.php), and others. Most of these do not have much detailed information, but contain some ideas.

4. **UCLA and Sustainability on Campus.** UCLA recently appointed a campus-wide Sustainability Committee. There will be many interesting research questions about sustainability on campus coming out of that committee; you can pick campus-specific questions to work on.

5. **Other Topics.** To be announced.

CHARLES J. CORBETT

Charles J. Corbett is an associate professor of operations management and environmental management at the UCLA Anderson School of Management, and was AT&T Faculty Fellow of Industrial Ecology in 1998-1999. He received a Drs. (MSc equivalent) degree in operations research from the Erasmus University in Rotterdam and an MSc and PhD in Production and Operations Management from INSEAD in Fontainebleau, France. His current research focuses on supply-chain management, on environmental issues in business, and on operations in small businesses. At UCLA, he teaches courses on operations management, global operations strategy, environmental management, and business plan development, in the MBA, FEMBA, and EMBA programs. In 2002, he received the George L. Robbins assistant professor teaching award. He was recently appointed Associate Dean for the MBA program at the Anderson School.

He has published in academic and business journals in several countries, including *Sloan Management Review, California Management Review, Operations Research, Management Science, European Journal of Operational Research, the Journal of the Operational Research Society, Environmental and Resource Economics, L'Impresa* and *L'Impresa Ambiente (Italy), Estrategia Financiera (Spain), Bedrijfskunde (The Netherlands),* and *Het Ingenieursblad (Belgium)*. Dr. Corbett is an associate editor of *Operations Research*, former associate editor of *Management Science*, area editor and guest editor of a double special issue on Environmental Management and Operations for *Production and Operations Management*, a member of the editorial board of *Manufacturing and Service Operations Management*, and frequently acts as referee for a wide range of journals.

Before joining the Anderson School, Dr. Corbett was Visiting Scholar at the Owen Graduate School of Management at Vanderbilt University. He has presented seminars and taught guest classes at universities worldwide, including a version of his Business and Environment elective in the MBA program at Pontificia Universidad Catolica in Santiago, Chile.

Dr. Corbett is a citizen of the United Kingdom and of the Netherlands, has lived in France for 5 years, and is currently a resident alien in the United States.