KAIST BUSINESS SCHOOL
Graduate School of Green Growth

GG538: Case Studies in Green Finance

Summer 2017 Mr. Webb

Course Objectives and Philosophy:
Continued economic growth is necessary to alleviate poverty, reduce hunger, accommodate the needs of a rising world population and meet the aspirations for higher living standards among people everywhere. Economic growth entails tradeoffs. The question is whether the resultant economic development will also, on balance, be environmentally sustainable? *Green finance* may help to ensure that the answer to the aforementioned question is yes. Economic development, in general, and the creation of new, more efficient technologies, in particular, must be financed. This creates an opportunity for society to influence consumption, production, and investment decisions via financing decisions in order to promote a "*green*" agenda. Society's pursuit of a green agenda creates, in turn, new opportunities for both entrepreneurs and investors.

This course examines the nature of *green finance*, the role it can play in encouraging sustainable economic development and some of the business opportunities it creates. A broad view of green finance is taken in order to examine the impact that changes in the cost and availability of capital, loan guarantees, grants, tax breaks, subsidies, and other changes in financial incentives can have on encouraging *socially desired* consumption, production and investment decisions. This course examines the role that governments, multilateral development institutions, public-private sector partnerships, private firms and individuals can play in achieving these objectives. A number of issues are discussed including: *social costs*; the appropriateness of market mechanisms in producing green solutions; observed tradeoffs between pollution generation and wealth creation; and the potential challenges of pursuing a green agenda.

Various reports of the United Nations and other international organizations are used as a source of consensus opinions and facts as well as a starting point for class discussions. Other perspectives are both considered and encouraged. This is a case course. Active participation in class discussions is expected.

Required Cases:
Cases are available online from Harvard Business School Publishing.

1. Lodge, George C., and Cate Reavis, "U.S. Export-Import Bank and the Three Gorges Dam (A)," May 2000. 900018-PDF-ENG. 10pages.
2. Lodge, George C., and Cate Reavis, "U.S. Export-Import Bank and the Three Gorges Dam (B)," May 2000. 900018-PDF-ENG. 2 pages.
3. Vietor, Richard H.K., "Supergrid," November 2008, 707016-PDF-ENG, 26 pages.
4. Luehrman, Timothy A., and Andrew D. Regan, "Texas High Speed Rail Corp.," July 2003, 293072-PDF-ENG, 21 pages.
5. Khanna, Tarun, Sanitago Mingo and Jonathan West, "Bunge, Food, Fuel and World Markets," November 2007, 708443-PDF-ENG, 25 pages

6. Feddersen, Timothy, "U.S. Food Aid: Cash or Commodities?," January 2007, KEL34-PDF-ENG, 18 pages.
7. Bell, David E., Carin-Isabel Knoop, and Mary Shelman, "Monsanto: Helping Farmers Feed the World," April 2010, 510025-PDF-ENG, 30 pages
8. Seigel, Arthur I., Voon Siang Lee, Jialei Tian, and Ying Laura Wang, "Beijing Dream," July 2008, 208015-PDF-ENG, 29 pages.
9. Philis, James A., Davina Drabkin, Dave Hanley, "Waste Concern," June 2007, S171-PDF-ENG, 25 pages.
10. Macomber, John D., Regina Garcia-Cuellar, and Griffin H. James, "Water Shortage and Property Investing In Mexico City," May 2010. 210085-PDF-ENG, 30 pages.
11. Crossan, Mary M., and Dusya Vera, "Monsanto and the Global Water Treatment Industry," July 2000. 99M040-PDF-ENG, 21 pages.
12. Lynes, Jennifer, "Scandinavian Airlines: The Green Engine Decision," June 2009

Required Articles:

1. Coase, Ronald H., "The Problem of Social Cost," *Journal of Law and Economics* October 1960.
2. Morse, Gardiner, "On the Horizon: Six Sources of Limitless Energy?," September 2009, R0909F-ENG, 4 pages. HBR

Required Text:

1. Sperling, Daniel and Deborah Gordon, "Two Billion Cars: Driving Toward Sustainability," Oxford University Press, 2009. Several copies of this book have been placed on reserve in the KAIST Library for your convenience.

UN and Other International Organizations Reports and Brochures

A number of UN reports are used in this course as a source of consensus facts and policies and as a starting point for class discussions. These include:

1. CLIMATE CHANGE: Intergovernmental Panel on Climate Change, Climate Change 2013: The Physical Science Basis, "Summary for Policymakers," http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf See full report at: http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf
   Intergovernmental Panel on Climate Change, Climate Change 2014: Impacts, Adaptation, and Vulnerability, "Summary for Policymakers," http://ipcc-wg2.gov/AR5/images/uploads/IPCC_WG2AR5_SPM_Approved.pdf See full report at: http://www.ipcc.ch/report/ar5/wg2/
   Intergovernmental Panel on Climate Change, Climate Change 2014: Mitigation of Climate Change, "Summary for Policymakers," http://report.mitigation2014.org/spm/ipcc_wg3_ar5_summary-for-policymakers_approved.pdf See full report at: http://www.ipcc.ch/report/ar5/wg3/
2. POVERTY: United Nations, "Rethinking Poverty: Report on the World Social Situation 2010." http://www.un.org/esa/socdev/rwss/docs/2010/fullreport.pdf, 2010.
3. HUNGER: United Nations, Food and Agriculture Organization, "The State of Food Insecurity in the World, Economic Crisis: Impacts and Lessons Learned," October 2009. http://www.fao.org/docrep/012/i0876e/i0876e00.HTM.
4. POPULATION: United Nations, Department of Economic and Social Affairs, Population Division, "World Urbanization Prospects, the 2009 Revision Highlights," March 2010. http://esa.un.org/unpd/wup/Documents/WUP2009_Highlights_Final.pdf

5. SUSTAINABLE DEVELOPMENT: United Nations Environment Programme (UNEP), International Panel for Sustainable Resource Management, "Assessing the Environmental Impacts of Production and Consumption, June 2010 http://www.unep.org/resourcepanel/documents/pdf/PriorityProductsAndMaterials_Report_Full.pdf.
6. FOOD COMPOSITION: United Nations, Food and Agriculture Organization, "Livestock's Long Shadow," Environmental Issues and Options, 2006. http://www.fao.org/docrep/010/a0701e/a0701e00.HTM.
7. WATER: United Nations Educational, Scientific, and Cultural Organization, World Water Development Report 3, Case Studies Volume: "Facing the Challenges," 2009. http://www.unesco.org/water/wwap/wwdr/wwdr3/case_studies/pdf/WWDR3_Case Study_Volume.pdf
8. MOBILITY: World Energy Council, "Transport Technologies and Policy Scenarios to 2050, Executive Summary," October 2007. http://www.worldenergy.org/documents/transportation_study_executive_summary_online.pdf and http://www.worldenergy.org/publications/809.asp
9. ENERGY: World Energy Council, "Deciding the Future: Energy Policy Scenarios to 2050," 2007. http://www.worldenergy.org/documents/scenarios_study_es_online.pdf
10. ENERGY: World Energy Council, "Survey of Energy Resources Interim Update 2009," 2009. http://www.worldenergy.org/documents/ser_interim_update_2009_final.pdf
11. ENERGY: World Energy Council, "World Energy and Climate Policy: 2009 Assessment, Executive Summary, 2009. http://www.worldenergy.org/documents/aepp_es_v24_print.pdf
12. HOUSING and URBANIZATION: UN Habitat, "Climate Change Strategy: 2010-2013," 2009. http://www.unhabitat.org/downloads/docs/7624_77812_StrategyBrochureDesign.pdf
13. SUSTAINABLE DEVELOPMENT GOALS: Adopted by the UN on September 25, 2015. http://www.undp.org/content/undp/en/home/presscenter/pressreleases/2015/09/24/undp-welcomes-adoption-of-sustainable-development-goals-by-world-leaders.html
14. SUSTAINABLE DEVELOPMENT GOALS: "UNDP Support to the Implementation of the 2030 Agenda for Sustainable Development, Goal 1, Poverty Reduction" January 2016. http://www.undp.org/content/undp/en/home/librarypage/sustainable-development-goals/undp-support-to-the-implementation-of-the-2030-agenda/

Grading Policy:

This is a case course and, as such, there is an expectation of active class participation. Please be prepared to discuss each case. You will be asked to submit a write-up on one or more cases during the term. Questions will be posted in advance. Your final grade will be determined by your performance on the final exam and term paper (60%); case write-up(s), any other class assignments; and class participation (40%).

The term paper entails writing a memo advocating investment in either a publicly traded firm or a commodity that you think will benefit from a societal focus on a green agenda or will be hurt by it. That is, you can advocate a long or short position. The term paper should be a minimum of three pages and a maximum of 5 pages in length. The term paper is due On July 20th. Both the term paper and the case write-up(s) are team projects. Please form teams of two members for these projects.

Office Hours:

My office hours are 12:00 p.m. to 1:00 p.m. on most class days. Other times are available with

an appointment. My e-mail address is: riw4j@virginia.edu.

Special Note on Class Meeting Locations:
The class will meet from 8:30 a.m. to 11:30 a.m. However, a separate meeting day and time may be arranged for the July 10th class. In addition, there may be one or more special class sessions outside of the regularly scheduled days to accommodate guest speakers. If a special class session is held a regularly scheduled class will be canceled to compensate for the special class session. The schedule below may be rearranged to accommodate guest speakers.

Schedule of Assignments

DATE	TOPIC	ASSIGNMENT
June 26	Introduction to Green Finance	The Problem of Social Cost **Text:** Chapter 1
26	Investing in Infrastructure –Hydro electric power	**Cases 1 and 2:** The U.S. Export Import Bank and the Three Gorges Dam (A) and (B)
28	Investing in Infrastructure—Wind Energy	**Case 3:** Supergrid
28	Mobility and Green Technology	**Text:** Chapters 2, 8, and 9
July 3	Investing in Infrastructure—Transportation	**Case 4:** Texas High Speed Rail Corp.
3	Food versus Fuel	**Case 5:** Bunge, Food, Fuel and World Markets,
5	Food Aid Policy	**Case 6**: U.S. Food Aid: Cash or Commodities
5	Are We in a Second Green Revolution?	**Case 7:** Monsanto Helping Farmers Feed the World
10	Urbanization and Housing *	**Case 8:** Beijing Dream
10	Waste as a Resource*	**Case 9**: Waste Concern
12	Water Shortages?	**Case 10:** Water Shortage and Property Investing In Mexico City
12	Clean Water	**Case 11:** Monsanto and the Global Water Treatment Industry
19	Green Capital Budgeting Decisions	**Case 12:** Scandinavian Airlines: The Green Engine Decision
19	Green Investing and Exam Review	"On the Horizon: Six Sources of Limitless Energy" Text: Chapter 4
21	Current Issues in Energy Policy	Videoconference with Ms. Deborah Gordon of the Carnegie Endowment--- IPCC Climate Change 2014: Impacts, Adaptation, and Vulnerability, "Summary for Policymakers,"
21	Final Exam	

* Class session may be rescheduled.