Sustainable Development and Environmental Policy
Syllabus

From April 6 to May 20, 2015

1 Administration

Instructor	Module	Schedule	Office Hours
Le Viet Phu phulv@fetp.edu.vn	Environmental Economics and Non-market Valuation	April 6-8 & April 20-May6	Tue & Thu 3.30-5.00pm
Rainer Asse rainer.asse@fetp.edu.vn	Rural Development in Vietnam: Issues and Challenges	May 11-13	Mon & Wed 2.00-4.00 PM
Huynh The Du duht@fetp.edu.vn	Urbanization in Vietnam: Issues and Challenges	May 18-20	Tue 2.00-4.00pm & Fri 3.30-5.00pm
Luu Quoc Phong phonglq@ueh.edu.vn	Teaching Assistant		Tue & Wed 3.00-4.30pm

2 Introduction

This course introduces students to various theories and concepts in environmental economics, sustainable development, and applications in real-world situations. A major focus will be placed on valuing environmental goods, such as clean air, water, and unique landscapes. Benefit-cost analysis requires the monetization of all relevant benefits and costs of a proposed policy or project, not merely those where the values can be derived from market transactions (Tietenberg and Lewis, 2011). As such, it is also important to monetize those environmental goods and services that are not traded in any market. The presence of market failures or the absence of certain markets for environmental goods and services gives rise to a dilemma that certain environmental capitals are valued at zero despite their enormous contribution to human welfare. While it may prove difficult, if not impossible,

to place an accurate value on certain environmental amenities, not doing so leaves us valuing them at $0. A basic question is whether valuing them at $0 will lead societies to the best policy decisions? Certainly not. A failure to account for non-market amenities certainly results in underestimation of the actual cost to the society. As a result, this will tend to justify a great deal of environmental degradation. In this section, students will learn various concepts of values, including use and non-use values, of the environment. Then we will spend time on the methods for estimation in the context of environmental and natural resources.

The urban development section focuses on characteristics of urbanization and challenges for sustainable urban development in Vietnam. A comprehensive picture will be presented before approaches and solution to deal with challenges to be introduced. In the rural development sessions we will introduce students to the critical factors in Vietnam's economic development in terms of Vietnam's responses to rural livelihood challenges and environmental sustainability. At conclusion of this module, students will be able to identify key rural development challenges and the strategies constructed by Vietnamese society and the government of Vietnam to address these challenges.

3   Course Structure and Materials

So what are values of the environment? We must recognize that the environment may have a value that goes beyond its direct usefulness to humans, i.e. we must be able to quantify "non-use" values as well as the more traditional "use" values. To remind readers, the total value of goods and services consists of use value, option value, and non-use values such as bequest value and existence value. Use values are values derived from the consumption such as petrol for cars or motorbikes. Option values are values for an option to use something in the future. This environmental concept is specifically applicable to irreversible natural capitals such as unique landscapes or exhaustible natural resources. Once the landscape has been developed, the process is irreversible, or practically so. Since the future is uncertain, then there is some value attached to having an option for development in the future, unlike development now that forecloses future potential uses. The third category is non-use value or values derived from the existence of an environmental object such as the Moon, despite the fact that there is essentially no value ever obtained from it.

How is environmental valuation accomplished? The objective of environmental valuation is to measure "willingness to pay" for a given environmental good and service. A traditional approach would be to rely on a market to measure the total consumer surplus which is the area under the demand curve above market price. This could be relatively straightforward if the market for such goods or services exists. However, for non-market goods and services, estimating WTP requires

inferences from observations of related goods or services, and surveys. In this short introduction to non-market valuation module, we familiarize the students with three main methods used to approximate WTP: direct measurements of environmental cost, revealed preferences, and stated preferences or contingent valuation.

The most straightforward method for non-economists would be to directly measure the damages caused by the destruction of an environment. For example, we can directly measure healthcare cost and live losses from air pollution caused by a local coal-fired power plant. We utilize a dose-response approach: the risk of exposure to toxic air pollutants (dose) multiplied by risk of developing diseases/deaths (response) multiplied by the population affected multiplied by average cost of treatment. However, this method is severely limited to certain cases where measureable impacts and cost are available. In the absence of these direct measurements, more complicated methods using revealed preferences can apply to situations where indirect observations of related markets are available. These include travel-cost method (TCM) and hedonic valuation. In travel-cost method, we use observations of visits to sites affected by environmental changes to infer changes in attractiveness of the site, therefore the damage to the environment. For hedonic valuation, the market price of a residential house is affected by attributes of the house such as the number of bedrooms, furniture, ease of access to transport services, and the presence and proximity to pollution sources or environmental amenities/disamenities. Regression models are then used to estimate how these attributes capitalize into the value of the house. Lower house values due to the presence and proximity to a pollution source can be proxy for environmental damage or disamenity. Stated preference method or "contingent valuation" utilizes surveys and questionnaires to elicit willingness to pay for an environmental improvement or for avoiding an environmental loss. Respondents are given choices based on a hypothetical market. The answers will then be used to construct an upper bound of the willingness to pay, or lower bound of the willingness to accept an environmental outcome.

4   Course Objectives and Requirements

Sustainable development and environmental policy is a technically demanding course. Students will have an opportunity to learn and enhance various skills already obtained from other courses, especially microeconomics and econometrics, then apply those knowledge in real-world situation. Students are required to have a solid understanding of microeconomic concepts such as consumer surplus and welfare measures, equivalent variations and compensation variations. Econometric background includes ordinary least squares and logistic regressions, although experience with discrete choice modeling would be highly recommended. Furthermore, the course will emphasize the use and

display of spatial data in environmental studies, such as land use data, hydrological and terrain models, and spatial dimensions of socio-economic data such as housing price, location and distance from pollution sources to the sites being studied. In the end, students are expected to have the knowledge and skills necessary to read and understand environmental valuation methods used in project appraisals. Those wishing to conduct their master's theses in environmental issues are particularly encouraged.

5   Reading Materials

Environmental Policy and Non-market Valuation

- Field, Barry and Nancy Olewiler 2011 (Chapter 6, 7, 8). Environmental Economics, McGraw-Hill Ryerson Higher Education, ISBN-10: 0070989982.

- Hussen, Ahmed 2004 (Chapter 4, 5, 6). Principles of Environmental Economics, Routledge London 2nd Edition, ISBN ISBN 0-203-57050-2.

- Perkins, Dwight, Steven Radelet and David Lindauer 2006 (Chapter 20). Economics of Development, New York: WW Norton and Company, 2006 (6th edition).

- Perman, Roger, Yue Ma, James McGilvray, and Michael Common, 2003 (Chapter 12). Natural Resource and Environmental Economics, Pearson Education Limited, ISBN 0273655590 (3rd edition).

- Tietenberg, Tom and Lynne Lewis 2011 (Chapter 4). Environmental and Natural Resource Economics, Pearson Education Inc., New Jersey, ISBN: 0131392573 (9th edition).

Rural Development in Vietnam: Issues and Challenges

- Fortier, F. and Thi Thu Trang, T. (2013), Agricultural Modernization and Climate Change in Vietnam's Post-Socialist Transition. Development and Change, 44: 81-99.

- Jan Rudengren, Nguyen Thi Lan Huong and Anna von Wachenfelt. Rural Development Policies in Vietnam Transitioning from Central Planning to a Market Economy - STOCKHOLM PAPER, April 2012, pp. 27

Issues and Challenges in Urbanization in Vietnam

- World Bank (2011). Vietnam Urbanization Review: Technical Assistance Report

- Du Huynh (2012). The Transformation of Ho Chi Minh City: Issues in Managing Growth, Doctor of Design Dissertation at Harvard University, Ch 1, 2, 3, 6.

6   Evaluation and Assessments

This course is designed to bring environmental economics and practical applications together through a set of real-world problems. As a result, the ultimate assessment criteria would be for students to demonstrate the ability to navigate through technical terminologies, grasp an understanding of the framework used for environmental valuation, and be able to apply that knowledge to a specific situation that they find interesting. Student performance will be evaluated based on homeworks and an essay at the end of the course. In addition, introduction to the GIS system and spatial data will be given throughout the course. The course will require the use of specialized software packages including Stata and ArcGIS.

Grading Policy

Class participation	20%
2-3 problem sets	40%
Final take-home exam including a short essay or a policy memo	40%

Students are encouraged to form study groups to discuss the lectures and materials. However, each member of a group must write his/her own homework separately and clearly indicates the name of each member. Homework must be submitted by 8:20am on the due date. Late submissions will not be graded. Students are strictly prohibited from communicating with others over exam materials during the exam period. Requests for regrading must be made in writing, and include a full explanation why you think your paper should be regraded.

7   Academic Honesty and Class Conducts

Participants are required to strictly follow the rules and regulations at the Fulbright school as stipulated in the Student Handbook Guidelines. These include, but are not limited to:

- Students are expected to attend class regularly and required to read the assigned readings before the class.

- If any student encounters any problem or has any question, please make sure to seek help from the teaching team as soon as possible.

- Asking questions in class! Whatever remained unclear to you may be felt the same by other classmates. Some would be grateful if you raise your voice.

- No electronic use (cellphone, laptop) is allowed in class, except in sections specifically required by the instructor. Cellphone ringings or laptops tend to distract not only the direct users but also others in the class. So there is a negative externality!

- Adhere to public etiquette while in class. Be polite and respectful to the instructor and class-mates. Limit side talks to the minimum.

8   Lecture Schedule

Week/Day	Lecture	Instructor/Topic
Week 1		**Le Viet Phu**
Apr 6	1	Introduction to Sustainable Development and Environmental Policy
Apr 8	2	Environmental Policy Instruments
Week 2		**Le Viet Phu**
April 20	3	Introduction to Environmental Valuations
April 22	4	Hedonic Valuation and Applications of GIS in Environmental Studies
Week 3		**Le Viet Phu**
May 4	5	Travel Cost Methods and Choice Modeling
May 6	6	Contingent Valuation Modeling
Week 4		**Rainer Asse**
May 11	7	Agricultural Modernization and Climate Change in Vietnam
May 13	8	Rural Development Policies in Vietnam
Week 5		**Huynh The Du**
May 18	9	Characteristics and Challenges for Sustainable Urban Development in Vietnam
May 20	10	Dealing with Challenges for Sustainable Urban Development in Vietnam

9 List of Lecture, Required Readings, and Optional Materials

Week 1: Introduction to Sustainable Development and Environmental Policy

- Lecture 1: Introduction to Sustainable Development and Environmental Policy

  1. Perkins et al 2006, Chapter 20
  2. Optional:

- Lecture 2: Environmental Policy Instruments

  1. Hussen 2004, Chapter 4, 5, 6
  2. Optional:

Week 2-3: Environmental Valuation

- Lecture 3: Introduction to Environmental Valuation

  1. Tietenberg and Lewis 2011, Chapter 4
  2. Field and Olewiler 2011, Chapter 6
  3. Optional:

- Lecture 4: Hedonic Valuation and Applications of GIS in Environmental Studies

  1. Field and Olewiler 2011, Chapter 7,8
  2. Perman et al 2003, Chapter 12
  3. Optional:

- Lecture 5: Travel Cost Methods and Choice Modeling

  1. Field and Olewiler 2011, Chapter 7,8
  2. Perman et al 2003, Chapter 12
  3. Optional:

- Lecture 6: Contingent Valuation Modeling

1. Field and Olewiler 2011, Chapter 7,8

2. Perman et al 2003, Chapter 12

3. Optional:

Week 4: Rural Development in Vietnam

- Lecture 7: Agricultural Modernization and Climate Change in Vietnam

  1. Fortier and Thi Thu Trang 2013

- Lecture 8: Rural Development Policies in Vietnam

  1. Rudengren et al 2012

Week 5: Issues and Challenges in Urban Development

- Lecture 9: Characteristics and Challenges for Sustainable Urban Development in Vietnam

  1. Du Huynh 2012, Chapter 1, 2
  2. World Bank 2011

- Lecture 10: Dealing with Challenges for Sustainable Urban Development in Vietnam

  1. Du Huynh 2012, Chapter 3, 6
  2. World Bank 2011