University of Toronto
School of the Environment

ENV 1001: Environmental Decision-Making
Fall term, 2015

Time: Fridays lecture and discussion 10:00 – 12:00
informal discussion for those interested 12:00 – 1:00pm

Location: ES Forestry Building, Room 4001
go in Forestry entrance from Bancroft Ave., take elevator to fourth floor

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Office hours: By appointment (arrange by email or in class)

Course overview

Description

After more than fifty years of high-profile global attention to the environment—at all levels, from intergovernmental negotiations**,** to transnational environmental campaigns, to corporate commitments to sustainability and local community action—major environmental problems such as climate change and biodiversity loss are getting worse, not better. Progress has been made in some areas, such as the management of toxic substances in industrialized countries, but advances remain limited. Obviously, when it comes to protecting the environment and themselves, humans are making some good decisions and a lot of bad decisions.

Why are we collectively making so many decisions with harmful environmental outcomes? Do we have the capacity to change our choices and subsequent behaviours? And how might interdisciplinary thinking and communication help us overcome constraints and challenges in environmental decision-making situations? With reference to current examples, this course addresses these questions by investigating the processes of environmental decision-making.

We approach the course in four parts: first, we introduce environmental issues and interdisciplinary communication. Second, we spend substantial time in the course looking at theoretical perspectives on environmental decision-making, in general as well as at different scales and by different actors (individuals, organizations, and governments both domestically and internationally). Third, we present multiple tools for making decisions and considering differing interests and demands, incomplete and uncertain information, conflicting values, and options for stakeholder participation. Fourth, we discuss several case studies, and engage in a simulation activity to illustrate the processes and challenges involved in making environmental decisions in practice.

The approach

More specifically, the first half of the course is focused on theoretical perspectives on environmental decision-making, while the latter half of the course turns to tools and case studies.

In week 1, and in part of week 2, we introduce an array of environmental concerns, considering briefly the major challenges of climate change, biodiversity and habitat loss, toxics and environmental contamination, and urbanization and industrialization. Along with this survey, we open a discussion about interdisciplinarity, considering how different disciplines identify and address these environmental issues, and how these fields differ in language, methodology, approaches, and goals. This general introduction sets the stage for considering how different researchers, practitioners, and policy-makers define problems, communicate with each other across disciplines and fields, and search for solutions.

In weeks 2 through 6, we explore the theoretical literature on decision-making, drawing from organizational behaviour, psychology, sociology, and political science to understand how humans—whether as individuals, in groups, or in organizations/governments—make decisions. We consider the role of information, bias, expertise, and deliberation in decision-making, along with the rules governing decision-making processes (including questions of access, interests, and power), and also identify the constraints and trade-offs involved in deciding upon different paths of action.

In weeks 7 through 9, we focus on the tools and strategies for making decisions, especially for "wicked problems" involving incomplete information, trade-offs in values, unknown risks, and uneven distributions of costs and benefits. We examine processes including environmental assessments, consultations and deliberative processes, and standard-setting.

To make these issues more concrete and tractable, in weeks 10 through 12 (with a brief introduction to our main case study in week 1), we consider specific case studies, using the theories and tools presented throughout the course. In week 1, we briefly present an initial environmental dilemma—the management of Canadian polar bears. Week 10 involves a lecture and class discussion on this case, while week 11 challenges students to engage in a role-playing decision-making simulation to address this topic. In week 12, we end by turning to Professor Macdonald's research on climate change and Professor Neville's research on hydraulic fracturing ("fracking"), with attention to questions of distributional justice and to the consequences of decisions that are seen as unfair and invalid.

Educational objectives

Our objectives for this course are four-fold: to provide a comprehensive introductory foundation for graduate students pursuing interdisciplinary environmental studies; to offer a specific understanding of the theories of decision-making; to present the tools available for making difficult environmental choices; and to help students communicate across disciplinary boundaries.

In the first two weeks of the course, students will be introduced to an array of environmental challenges and to various disciplinary approaches to addressing these issues. Through the first assignment, where students reflect on one of the readings in light of their own discipline, we will explore different perspectives on environmental research.

In the second week, and through the rest of the first half of the course, readings, lectures, and discussions will be focused on the theoretical underpinnings of environmental decision making at multiple scales. Through the second assignment, students will have the chance to

investigate their own decision-making processes, and to reflect on their choices in light of the theories they are learning. In this assignment, students will also consider how their disciplinary training influences their decision-making. In the third assignment, students will have the chance to directly analyze theories of decision-making.

Students will learn about the tools involved in environmental decision-making through lectures, readings, and an in-class simulation. In the latter, students will have the opportunity to engage in an environmental decision-making process with their classmates. The fourth assignment allows students to assess the tools of environmental decision-making, while the fifth assignment prepares students for the simulation.

Finally, throughout the course, in both classes and written assignments, students will be challenged to improve their communication skills across disciplines. For valid reasons, experts in each field speak to other experts in the same field by means of a specialized language based on common conceptualizations and using specialized technical terms. This produces increased efficiency and clarity within each discipline but also produces major problems for disciplines working together. Throughout the course, students will be asked to share insights from their fields of study, listen to perspectives from disciplines other than their own, and communicate in language that translates disciplinary-specific terminology and avoids jargon. Students will thereby learn more about how those from different disciplines can work together on environmental issues.

The final assignment will bring together these four components in a summary analysis paper. At the end of the course, we anticipate students will have an increased understanding of: 1) how to identify and understand the complexities of decision-making by individuals, groups, organizations, and governments; 2) how different disciplines and fields define environmental problems and approach decision-making; 3) how, in practice, to go about making difficult environmental decisions; and 4) how to use the languages and tools from different disciplines to engage in more inclusive and effective decision-making processes. In this course, we intend for students to recognize that the elements that constitute "good" environmental decisions and "effective" environmental decision-making processes are by no means self-evident; this will be a major theme of class discussions.

A note on definitions

In this course, we define environmental decision-making as: 1) selection from a set of alternatives of an action with environmental consequences (where the decision is either directly intended to protect the environment, or is intended to achieve another purpose but has implications for ecological well-being) and; 2) the implementation of that decision. In concert with this, we also highlight two key features of decision-makers, where this actor: 1) is an individual, group, or organization that has agency (has some, if incomplete, autonomy and can affect the outcome); and 2) has a direct voice (though not always the only voice) in determining which choice is made (in contrast to stakeholders, which refers to actors affected by the decision, not all of whom have a say in the decision-making process). Identifying decision-makers can be challenging, particularly when there are social and political reasons that powerful voices may want to remain unseen.

The course subject includes environmental decisions made by individuals, groups, business firms, NGOs, and governments. For the latter, government decisions, we consider policy, program design, and regulatory approvals decisions, at both domestic and international levels. Throughout the course we examine descriptive models of how environmental decision-

making *is* done, influenced by such things as interest and power, as well as prescriptive (normative) models for how environmental decision-making *could* or *should* be done. (Recognizing that the concept of a "good" environmental decision is contested.)

Course format

The course is offered in twelve two-hour classes, each with lecture and seminar discussion. The third hour of each class is reserved for informal discussion with instructors for those interested.

Readings

The course reader (a CSPI course pack) is available for purchase at the University of Toronto Bookstore. The reader only contains readings which are not available electronically. One copy is on short-term loan at the Noranda Library, 5 Bancroft Ave (2nd floor). The required readings which are available online will be posted as links on our Portal site.

Portal Site

We will maintain a course Portal site where you can obtain posted lecture notes, links to course readings and any course announcements. Please check in frequently with this site.

Assignments

Assignment	*Due date*	*Mark*
1) Interdisciplinary reflection and communication	to be set	10%
2) Analysis of your own environmental decision	Oct. 2	15%
3) Theory assignment	Oct. 30	20%
4) Tools assignment	Nov. 20	20%
5) Role play position paper (group mark)	Nov. 25	5%
6) Summary analysis	Dec. 4	30%

Assignment descriptions

1) Interdisciplinary reflection and communication
750 words maximum

In this assignment, students will post a discussion paper to Blackboard reflecting on the course readings of a given week. In formal academic style, with citations as needed, the assignment will discuss and analyze:

1) if and how the readings posed interdisciplinary communication challenges;
2) if and how the student's own discipline might approach subjects of those readings; and
3) how one might compare the student's own discipline and that reflected in the readings, in terms of assumptions, methods, language, or other things

Each student will be assigned a due date of the Tuesday before class, from weeks #3 to #12, excluding class #11 (role-play exercise). The assignment is to be posted to Blackboard by the end of day Tuesday before the Friday class. Instructors and students will review all assignments each week in preparation for brief discussion in class of the interdisciplinary communication challenges raised in the assignments.

2) Analysis of your own environmental decision making
1,000 words maximum
In formal academic style, with citations as needed, describe and provide an analysis of an individual environmental decision you have recently made. In this paper, you will explain how and why you made the decision, explaining: 1) your objective, 2) the criteria/methods you used to compare alternative actions, 3) your values (and those of others around you), and 4) available empirical knowledge as you made the decision. Following this description, you should evaluate the effectiveness of your implementation of the decision.

Along with a description and analysis of your decision-making process and outcome, this paper should include specific reflection on how your disciplinary training may have affected your understanding of the environmental issue you addressed, or how looking at the problem through your disciplinary lens might have led you to different decisions. We realize you might not usually apply your disciplinary perspective to your personal life, but ask you to do so in this case. Please draw upon concepts addressed in the course, and include a few citations through to the September 25 class.

3) Theory assignment
1,500 words maximum
For this assignment, you will explore the theoretical literature on environmental decision-making. Please take as your subject environmental decision making at one of the following levels: individual, organizational (eg, the business corporation), governments at the domestic level, or governments at the international level. Using relevant required readings, supplemented by other applicable readings, present your analysis of how we can best understand environmental decision making by that actor. Use formal academic style, with citations as needed.

4) Tools assignment
1,500 words maximum
Take as your subject one of the tools for environmental decision making presented in the Oct. 30, Nov. 6 and Nov. 13 classes. Please write on how that tools might be used in the most effective, efficient and fair way for protection of Canadian arctic polar bear populations. Use formal academic style, with citations as needed.

5) Stakeholder position paper on a management regime for Nunavut's polar bears
Group assignment, 750 words maximum

On November 27, the class will conduct a role-playing exercise to address the challenge of polar bear population management in Nunavut. Stakeholders will include groups such as: Inuit communities; hunting associations; governments of Nunavut and Canada; academic (western) scientists; traditional knowledge holders; environmental activists; and others. The class will be divided into groups, each group representing one of these actors. In preparation for the role playing, and building on the individual papers written the previous week, each group will generate a short paper setting out the actor's position prior the simulation.

The papers will be posted on the course website on Nov. 25, prior to to the Nov. 27 class, so that we all have an understanding of the spectrum of positions involved in the decision making process. The position paper should briefly state the actor's interest in the issue, their view of the most important scientific facts, their view of other facts relevant to the issue (economics, development, politics, legal rights, etc.), the values which are most important to the

actor, and the actor's preferred recommendation. Use a professional (not academic) style of writing and do not provide citations.

The grade for this group assignment will be the same for each member of the group.

6) Summary analysis paper
3,000 words maximum

The subject of the assignment is current understanding of environmental decision making, both from an academic, theoretical perspective and as as it helps informed the applied use of tools for environmental decision making. Use formal academic style, with citations as needed. The paper should address these two research questions.

1) How can we best conceptualize environmental decision-making by individuals, firms and governments?

2) What are the implications of that conceptualization for design of tools used for environmental decision-making?

The paper should begin with an introduction setting out the subject, purpose and format. It should end with a conclusion giving a summary and connecting analysis provided in response to each research question.

Note – More detailed assignment instructions will be provided for all assignments.

Class topics and required readings

Week 1. 18 Sept
Course introduction: 1) syllabus, format, assignments; 2) introduction to environmental challenges, decision making, and interdisciplinarity; 3) brief introduction of the Nunavut polar bear case study

Nitta, Keith (last updated Jan. 24, 2014). "Decision making." Encyclopedia Britannica online. http://www.britannica.com/topic/decision-making

Sherren, Reg (2014). "Polar bears: Threatened species or political pawn?" *CBC,* September 2, 2014, http://www.cbc.ca/news/technology/polar-bears-threatened-species-or-political-pawn-1.2753645

Week 2. 25 Sept
Interdisciplinarity and theory: 1) interdisciplinary communication and environmental challenges; 2) further discussion of decision making

GEO-5 (2014). Global Environment Outlook: Part 1 – State and Trends of the Environment. United Nations Environment Programme. http://www.unep.org/geo/pdfs/geo5/GEO5_report_C1.pdf

Repko, Allen F. et al (2014). Chapter 1: "Interdisciplinary studies in the real world," and Chapter 2: "Interdisciplinary studies defined." In Introduction to Interdisciplinary Studies, London: Sage. pp. 3-46. (In course reader).

Wear, D.N. (1999). Challenges to interdisciplinary discourse. *Ecosystems*, 2: 299-301. (Access online via library resources).

Week 3. 2 Oct
Theory: 1) environmental decision-making; 2) individual decision-making

Moran, Emilio F. (2010). Chapter 7: "Environmental Decision Making." In Environmental Social Science: Human-Environment Interactions and Sustainability, Chichester, UK: Wiley-Blackwell. pp. 127-142. (In course reader).

Adger, W Neil, Katrina Brown, Jenny Fairbrass, Andrew Jordan, Jouni Paavola, Sergio Rosendo, and Gill Seyfang (2003). Governance for sustainability: towards a `thick' analysis of environmental decisionmaking. *Environment and Planning A*, 35: 1095-1110. (Access online via library resources).

Gazzaniga, Michael S., Todd F. Heatherton, Steven J. Heine, Daniel C. McIntyre (2007). "How Do We Make Decisions and Solve Problems?" In Psychological Science, New York: W.W. Norton. pp. 305 – 312. (In course reader).

Week 4. 9 Oct
Theory: 1) organizational decision-making; 2) environmental decision-making by business corporations

Hatch, Mary Jo (1997). "Organizational Decision Making." In Organization Theory: Modern, Symbolic and Postmodern Perspectives, Oxford: Oxford University Press. pp. 270 – 281. (In course reader).

Hoffman, Andrew J. (2001). Chapter 1: "A Road Map of Corporate Environmentalism." and Chapter 2: "A Framework for Analyzing Institutional Processes." In From Heresy to Dogma: An Institutional History of Corporate Environmentalism, Stanford: Stanford University Press. pp. 3-43. (In course reader).

Week 5. 16 Oct
Theory: Domestic environmental decision-making by governments

Roberts, Jane (2011, second edition). Chapter 6: "Environmental policy making in government." In Environmental Policy, New York: Routledge. pp. 145-174. (In course reader).

Canada West Foundation: "Keeping Pace: Improving Environmental Decision-Making in Canada," http://cwf.ca/pdf-docs/publications/KeepingPace_May2012_web.pdf

Week 6. 23 Oct
Theory: International environmental decision-making by governments (negotiating and implementing multilateral environmental agreements)

Speth, James Gustave and Peter M. Haas (2006). Chapter 3: "From Stockholm to Johannesburg: First Attempt at Global Environmental Governance." In Global Environmental Governance, Washington: Island Press. pp. 52- 81. (In course reader).

Chasek, Pamela S., David L. Downie and Janet Welsh Brown (2010). Chapter 2: "Actors in the Environmental Arena." In Global Environmental Politics, Philadelphia: Westview Press. pp. 53 – 115. (In course reader).

Najam, Adil (2005). Chapter 12: "The View from the South: Developing Countries in Global Environmental Politics." In Regina S. Axelrod, David Leonard Downie and Norman J. Vig, eds., The Global Environment: Institutions, Law and Policy, Washington, D.C.: QC Press. pp. 225-243. (In course reader).

Week 7. 30 Oct
Tools: Environmental assessment.

Muldoon Paul, Alastair Lucas, Robert B. Gibson, Peter Pickfield and Julie Williams (2015). Chapter 10: "Environmental Assessment." In An Introduction to Environmental Law and Policy, Toronto: Emond Montgomery. pp. 223-248. (In course reader).

Lambrecht, Kirk N. (2013). Chapter 1: "Relationships in the Policy Development Process." In Aboriginal Consultation, Environmental Assessment, and Regulatory Review in Canada, Regina: University of Regina Press. pp. 1-14. (In course reader).

Week 8. 6 Nov
Tools: consultation, participation, and deliberative decision-making

Niemeyer, S. (2013). Democracy and climate change: what can deliberative democracy contribute? *Australian Journal of Politics and History*, 59(3): 429-448. (Access online via library resources).

Bixler, R. Patrick, Jampel Dell'Angelo, Orleans Mfune, and Hassan Roba. (2015). The political ecology of participatory conservation: institutions and discourse. *Journal of Political Ecology*, 22: 164-182. (Access online via library resources).

Week 9. 13 Nov
Tools: a survey of other decision-making tools (e.g., regulatory standard-setting; cost-benefit analysis; risk assessment, management and communication, life-cycle assessment, and corporate sustainability reporting)

Harding et al. (2009). Chapter 8: "Tools for Environmental Decision Making." In: Environmental Decision-Making: Exploring Complexity and Context, Federation Pr. 193-224. (In course reader).

English, Mary R. et al (1999). Chapter 1: "Overview." In Virginia H. Dales and Mary R. English, eds. Tools to Aid Environmental Decision Making, New York: Springer-Verlag. pp. 1-31. (In course reader).

Week 10. 20 Nov
Case study: Conflicting perspectives on polar bear politics

Joint Secretariat. (2015). Introduction (pp. 1-7) and Conclusion (pp. 211-216) in Inuvialuit and Nanuq: a polar bear traditional knowledge study. Joint Secretariat, Inuvialuit Settlement Region. http://www.wmacns.ca/pdfs/394_polar-bear-tk-report-low-res.pdf

Derocher, A.E., Aars, J., Amstrup, S.C., Cutting, A., Lunn, N.J., Molnar, P.K., Obbard, M.E., Stirling, I., Thiemann, G.W., Vongraven, D., Wiig, O., & York, G. (2013). Rapid ecosystem change and polar bear conservation. *Conservation Letters*, 6(5): 368-375. (Access online via library resources).

Parsons, E. C. M., & Cornick, L. A. (2011). Sweeping scientific data under a polar bear skin rug: The IUCN and the proposed listing of polar bears under CITES Appendix I. *Marine Policy*, 35(5), 729-731. (Access online via library resources).

Week 11. 27 Nov

Role play exercise: Managing Nunavut's polar bear population

Peacock, E., Derocher, A. E., Thiemann, G. W., & Stirling, I. (2011). Conservation and management of Canada's polar bears (*Ursus maritimus*) in a changing Arctic. *Canadian Journal of Zoology*, 89(5), 371-385. (Access online via library resources).

Note: this review is part of the virtual symposium "Flagship Species–Flagship Problems" that deals with the ecology, biodiversity and management issues, and climate impacts on species at risk and of Canadian importance, including the polar bear (*Ursus maritimus*), Atlantic cod (*Gadus morhua*), Piping plover (*Charadrius melodus*), and caribou (*Rangifer tarandus*).

Clark, D. A., Meek, C., Cheechoo, J., Clark, S., Lee Foote, A., Lee, D., & York, G. (2013). Polar bears and CITES: A rejoinder to Parsons and Cornick. *Marine Policy*, 38: 365-368. (Access online via library resources).

Week 12. 4 Dec

Case studies: 1) climate change and distributional equity; a look into Prof. Macdonald's research, 2) hydraulic fracturing and post-decision protests: a look into Professor Neville's research

Neville, K.J., & Weinthal, E. (2015). Multiplying mistrust: Consultation, expertise, and a social license for fracking. Unpublished paper. (To be posted on Blackboard).

Macdonald, Douglas and David Houle (2015). "Political implications of the distributive effects of Canadian climate-change policy." Draft. Revised iteration of paper presented at annual conference of the Canadian Political Science Association, Edmonton, 2012. Unpublished paper. (To be posted on Blackboard).