EVDS 624 IMPACT ASSESSMENT AND RISK MANAGEMENT H (3-0)

PF 3160 Mon Wed 11:00 - 12:20 Winter 2012

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CALENDAR DESCRIPTION

Environmental Impact Assessment (EIA) is the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to making major decisions, and policies or other formal commitments. In this course, approaches to biophysical and social impact (including health) assessment are addressed. Through a series of assigned readings, discussion seminars, and assignments, and discourse with EIA practitioners and regulatory authorities, the course will examine theory, concepts, current issues and practices in regional strategic environmental assessment, cumulative effects assessment and management, environmental impact assessment, assessment methods, and mitigation practices. Relevant federal and various provincial laws, regulations and policies, policies and procedures are critically addressed.

INTRODUCTION

Environmental Impact assessment (EIA) employs widely used tools for designing developments wisely and for informing regulatory reviews and project approvals. EIA originated as a tool to identify significant negative effects of development, and to mitigate those effects through project planning and design. It has been described as one of the most successful policy innovations of the 20th Century. One criticism is that in theory EIA is about protecting societal and environmental values and providing for sustainability, but in practice it is about development project approval (Duinker and Greig 2007). The issuing of a report only to satisfy regulatory compliance for impact assessment is typically not an effective way to practice EIA (IAIA 2010). Cumulative effects management systems (CEMS) and Regional Strategic Environmental Assessment (RSEA) are recent and evolving innovations for governing the incremental effects of development relative to pre-defined outcomes, reference states, and thresholds with scaled interventions (CCME 2009, Johnson et al. 2011). The assessment of options and public consultation are central to good EIA practice. In addition, successful EIAs employ mitigation, monitoring and evaluation, and accountability systems to assure compliance and that requirements are implemented, and that desired outcomes are achieved. EIA methods are based in the physical, natural, and social sciences, which together are employed to assess effects of past, present, or future consequences of human activities and possible decisions. Management options that avoid, minimize or mitigate effects of development are integral to good impact assessments.

Cumulative environmental assessment (CEA) determines the capacity of the environment and ecosystems to support the effects of a combination of activities. CEA can be used to measure effects of activities on air, land, water and biodiversity relative to desired outcomes and thresholds defined in RSEAs. Relevant to this course, the evolving

governance of land use in Alberta employs both CEMS and RSEA approaches that will address the potential impacts of all activities and carrying capacity at a regional scale.

In this course, approaches to biophysical and social impact assessment will be reviewed, emphasizing environmental impact assessment in the context of Alberta's CEMS and RSEA. Learning will be achieved through seminars and discussion of literature and professional practice emphasizing involving critical review of theory and applications. Current federal and provincial impact assessment legislation, policies and IA procedures will be addressed in discussion with representatives of regulatory agencies and practitioners.

OBJECTIVES

The goal of the course is to provide a theoretical and practical understanding of impact assessment and management, applications and limitations, emphasizing environmental governance. Learning objectives are to:

- appreciate the purpose and role of EIA (including CEA) in decision-making processes;
- understand the strengths and weaknesses of EIA as a planning tool;
- understand the technical, social and political limitations of EIA;
- consider the relationships between EIA and regional planning;
- understand the role of strategic assessment of policies, plans & programs (SEA),
- appreciate the regulatory procedures that apply to CEA and EIA nationally and in Alberta;
- gain awareness of various methods for estimating and managing environmental and social impacts;
- understand the purpose of follow-up procedures (monitoring and evaluation), the options for designing them, compliance assurance, and accountability systems.
- learn about the development and implementation of CEMS and RSEA in Alberta

TEACHING APPROACH

Brief seminars and discussions and are employed in inquiry-focused explorations of SEA, CEA and EIA theory, practice and environmental governance. Emphasis is placed on learning through reflective discourse among instructors, students, regulators and practitioners.

CONTENT: TOPIC AREAS

1. Historical foundations of EIA, definitions, and types of EIA
2. EIA legislation provincially, federally, and international
3. The purpose and role of EIA in the decision-making process.
4. Strengths and limitations of EIA as a planning tool.
5. Administrative, regulatory and technical procedures
    - Scoping and terms of reference
    - Methods and use of baseline studies
    - Methods for assessing impacts

- Significance of impacts
- Formats for reporting impact assessments
- Impact management - the mitigation hierarchy
- Monitoring and evaluation
- Application of follow up studies
- The unique question of cumulative effects in project IA
- EIA report review and decision-making

6. Criticisms and innovations in EIA practice, including the evolving roles of CEMS and RSEA and their implications for EIA practice.

MEANS OF EVALUATION

The course evaluation will be based on student presentations, facilitation of reflective discussions, and a term paper. There will be no final examination. The learning model relies on active learning and participation in discussions. Consequently students are expected to attend all scheduled classes.

Assignment #1: Student presentation and facilitation of class discussions on an assigned topic	25%
Assignment #2: Individual presentation of term paper topic	25%
Assignment #3: Individual term paper - written document	50%

Students must obtain a passing grade in all evaluative components of the course to be eligible for a passing grade.

Presentation and facilitation of a discussion on an assigned topic (25%)
Students will present a 20 -25-minute seminar on an assigned topic then facilitate a class discussion of the topic and assigned readings. Readings must be assigned during the class preceding the seminar or earlier. Presentations will be evaluated on the following criteria: applicability of readings and references, thoroughness of content, logic and organization, visual effectiveness and quality of presented materials, and presentation style (vocal clarity, posture, eye contact with audience).

Presentation of a term paper topic (25%)
Students will present their term paper topic during 12 to 15 minutes. Presentations will be evaluated on the following criteria: thoroughness of content, logic and organization, visual effectiveness and quality of presented materials, and presentation style (vocal clarity, posture, eye contact with audience).

Term paper (50%)
Each student will submit a 3000 to 3500 word review paper on a topic selected from a list of suggested topics, or on a topic of their choice approved by the instructors. The paper must follow provided guidelines. The paper must be submitted as an MS-Word 97-2004 formatted file to the course Blackboard dropbox by a date and time prescribed in the assignment guidelines document. A review paper is a synthesis of primary sources

(mainly research papers published in academic journals) on a given topic. A review paper demonstrates that the writer has an understanding of the literature, describes contrasting perspectives hypotheses or normative views, and may formulate an insightful synthesis. The writer does not present new research. A review paper synthesizes information from the primary 'peer reviewed' literature, and from other sources to a lesser extent (e.g. gray literature and government documents), to produce a coherent argument about a topic.
A key aspect of a review paper is that it provides evidence for particular points of view, disagreements, contrasting perspectives, hypotheses or normative views, and provides critical reflective comments on the topic. Thus, a large focus of your paper should be a description of the information (evidence) that supports or refutes published points of view and supporting evidence for your comments. Term papers will be graded on the following criteria: use of the literature, range and depth of content, logic and synthesis, grammar, and format.

READINGS

Many of the following papers and publications either bear directly on the tasks that you will be undertaking in this course or may be relevant to your academic and professional interests. Web-based materials may be accessed directly by students. Required readings may be assigned in advance of specific classes.

Baxter, W. W.A. Ross and H. Spaling. 2001. Improving the practice of cumulative effects assessment in Canada. Impact Assessment and Project Appraisal 19:253-262.

Canadian Council of Ministers of the Environment. 20009. Regional strategic environmental assessment in Canada: Principles and guidance. Canadian Council of Ministers of the Environment, Winnipeg, Manitoba. Website: www.ccme.ca

Dena Taylor, Health Sciences Writing Centre, University of Toronto: http://www.writing.utoronto.ca/advice/specific-types-of-writing/literature-review

Dube, M.G. 2003. Cumulative effect assessment in Canada: a regional framework for aquatic ecosystems. Environmental Impact Assessment Review 23: 723-745.

Duinker, P. and L. Greig. 2007. The importance of cumulative effects assessment in Canada: Ailments and ideas for redeployment. Environmental Management 37: 153-161.

Hanna, K. 2009. Environmental Impact Assessment: Practice and Participation. 2nd edition. Oxford University Press.

Hegmann, G., C. Cocklin, R. Creasey, S. Dupuis, A. Kennedy, L. Kingsley, W. Ross., H. Spaling and D. Stalker. 1999. Cumulative effects assessment practitioners guide. Prepared for Canadian Environmental Assessment Agency. http://www.ceaa.gc.ca/013/0001/0004/index_e.htm

Hegmann, G. and G.A (Tony) Yarranton. 2011. Alchemy to reason: Effective use of cumulative effects assessment in resource management. Environmental impact assessment review 31: 483-490.

International Association of Impact Assessment and Institute of Impact Assessment. 1999. Principles of environmental impact assessment best practice. http://www.iaia.org/publicdocuments/special-publications/Principles%20of%20IA_web.pdf

Johnson, D., K. LaLonde. M. McEachern, J. Kenney, G. Mendoza, A. Buffin, and K. Rich. Improving cumulative effects assessment in Alberta: Regional strategic assessment. Environmental Impact Assessment Review doi:10.1016/j.eiar.2011.01.010

Learning Commons University of Guelph: http://www.lib.uoguelph.ca/assistance/writing_services/components/documents/lit_review.pdf

Lockie, S.L. 2001. SIA in review: setting the agenda for impact assessment in the 21st Century. Impact Assessment and Project Appraisal 19: 277-287.

Morrison-Saunders, A., J. Arts, J. Baker and P. Caldwell. 2001. Roles and stakes in environmental impact assessment follow-up. Impact Assessment and Project Appraisal 19: 289-296.

Noble, B.F. 2003. Regional cumulative effects assessment: towards a strategic framework. Research and Development Monograph Series Catalog No. En105-3/32-2005E-HTML ISBN 0-662-39666-9Regional

Noble, B. 2010. Cumulative environmental effects and the tyranny of small decisions: Towards meaningful cumulative effects assessment and management. Natural Resources & Environmental Studies Institute. Occasional Paper Series No. 8 - December 2010. University of Northern British Columbia, Prince George, B.C., Canada.

Therivel, R. and B. Ross. 2007. Cumulative effects assessment: Does scale matter? Environmental Impact Assessment Review ...

Notes:

1. Written work, term assignments and other course related work may only be submitted by e-mail if prior permission to do so has been obtained from the course instructor.

2. It is the student's responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 220-8237. Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than fourteen (14) days after the start of this course.

3. Plagiarism - Plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Most commonly plagiarism exists when:(a) the work submitted or presented was done, in whole or in part, by an individual other than the one submitting or presenting the work (this includes having another impersonate the student or otherwise substituting the work of another for one's own in an examination or test),(b) parts of the work are taken from another source without reference to the original author,(c) the whole work (e.g., an essay) is copied from another source, and/or,(d) a student submits or presents work in one course which has also been submitted in another course(although it may be completely original with that student) without the knowledge of or prior agreement of the instructor involved. While it is recognized that scholarly work often involves reference to the ideas, data and conclusions of other scholars, intellectual honesty requires that such references be explicitly and clearly noted. Plagiarism is an extremely serious academic offence. It is recognized that clause (d) does not prevent a graduate student incorporating work previously done by him or her in a thesis. Any suspicion of plagiarism will be reported to the Dean, and dealt with as per the regulations in the University of Calgary Graduate Calendar.

4. The Blackboard learning support system used at the University of Calgary is employed in this course. When you access the site you will find course documents and recommended readings, including a selection of relevant URLs.