UNIVERSITY OF SASKATCHEWAN

SCHOOL OF ENVIRONMENT AND SUSTAINABILITY

FINAL PROPOSAL APPENDICES

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Prepared by:

The School of Environment and Sustainability Steering Committee

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APPENDICES

Appendix A
The Talloires Declaration

We, the presidents, rectors, and vice chancellors of universities from all regions of the world are deeply concerned about the unprecedented scale and speed of environmental pollution and degradation, and the depletion of natural resources. Local, regional, and global air and water pollution; accumulation and distribution of toxic wastes; destruction and depletion of forests, soil, and water; depletion of the ozone layer and emission of "green house" gases threaten the survival of humans and thousands of other living species, the integrity of the earth and its biodiversity, the security of nations, and the heritage of future generations. These environmental changes are caused by inequitable and unsustainable production and consumption patterns that aggravate poverty in many regions of the world. We believe that urgent actions are needed to address these fundamental problems and reverse the trends. Stabilization of human population, adoption of environmentally sound industrial and agricultural technologies, reforestation, and ecological restoration are crucial elements in creating an equitable and sustainable future for all humankind in harmony with nature. Universities have a major role in the education, research, policy formation, and information exchange necessary to make these goals possible.

Thus, university leaders must initiate and support mobilization of internal and external resources so that their institutions respond to this urgent challenge. We, therefore, agree to take the following actions:

1) Increase Awareness of Environmentally Sustainable Development
Use every opportunity to raise public, government, industry, foundation, and university awareness by openly addressing the urgent need to move toward an environmentally sustainable future.

2) Create an Institutional Culture of Sustainability
Encourage all universities to engage in education, research, policy formation, and information exchange on population, environment, and development to move toward global sustainability.

3) Educate for Environmentally Responsible Citizenship
Establish programs to produce expertise in environmental management, sustainable economic development, population, and related fields to ensure that all university graduates are environmentally literate and have the awareness and understanding to be ecologically responsible citizens.

4) Foster Environmental Literacy For All
Create programs to develop the capability of university faculty to teach environmental literacy to all undergraduate, graduate, and professional students.

5) Practice Institutional Ecology
Set an example of environmental responsibility by establishing institutional ecology policies and practices of resource conservation, recycling, waste reduction, and environmentally sound operations.

6) Involve All Stakeholders
Encourage involvement of government, foundations, and industry in supporting interdisciplinary research, education, policy formation, and information exchange in environmentally sustainable development. Expand work with community and nongovernmental organizations to assist in finding solutions to environmental problems.

7) Collaborate for Interdisciplinary Approaches
Convene university faculty and administrators with environmental practitioners to develop interdisciplinary approaches to curricula, research initiatives, operations, and outreach activities that support an environmentally sustainable future.

8) Enhance Capacity of Primary and Secondary Schools
Establish partnerships with primary and secondary schools to help develop the capacity for interdisciplinary teaching about population, environment, and sustainable development.

9) Broaden Service and Outreach Nationally and Internationally
Work with national and international organizations to promote a worldwide university effort toward a sustainable future.

10) Maintain the Movement
Establish a Secretariat and a steering committee to continue this momentum, and to inform and support each other's efforts in carrying out this declaration.

Appendix B
Growth of Employment in Environmental and Sustainability Sectors

Interdisciplinary and cross-sectoral in nature, environmental employment includes business and work activities (including employment of environmental practitioners, labourers and support staff) related to one of the following categories:

- environmental protection;
- conservation and preservation of natural resources; and
- environmental sustainability.

The environmental sector of the economy continues to experience significant growth. Between 1999 and 2003, environmental employment grew by 13.7% (from 221,000 to 251,000). During the same period, the Canadian work force experienced an 8.4% growth rate; the environmental work force grew 60% faster than the workforce as whole. Of particular importance in the planning and implementation of the new School of Environment and Sustainability is the fact that much of this growth was in the 'environmental practitioner' class (66% of environmental employment falls in this class, which is comprised of in-the-field, hands-on, professional-level jobs in industry and regulatory government areas). In 2003, 67% of people employed in the environmental sector of the economy (up from 55% in 1999) held university degrees. Increased professionalism in this expanding field in part reflects the general Canadian trend towards a demand for higher educational qualifications.[1]

As demonstrated in the table below, environmental employment cuts across traditional sectors and shows strengthening ties to other growing sectors of the economy (e.g., health):

	ENVIRONMENTAL PRACTITIONERS	SUPPORT STAFF AND LABOURERS	TOTAL ENVIRONMENTAL WORKFORCE
PRIVATE SECTOR			
Environment Industry	59,800	39,900	99,700 (40%)
Other Industries	48,100	16,200	64,300 (26%)
NGOs / Associations	19,900	11,900	31,800 (13%)
SUB-TOTAL	127,800	68,000	195,800 (78%)
PUBLIC SECTOR			
Government	21,600	8,500	30,100 (12%)
Health Care	6,600	5,100	11,700 (5%)
Education	10,000	3,400	13,400 (5%)
SUB-TOTAL	38,200	17,000	55,200 (22%)
TOTAL	166,000	85,000	251,000 (100%)

* Percentages may not total 100% due to rounding.

[1] Canadian Council for Human Resources in the Environment Industry, 2004 Environmental Labour Market (ELM) Report, http://www.eco.ca/portal/default.aspx?lang=0

The region comprised of the prairies (Manitoba, Saskatchewan, Alberta), Nunavut and the Northwest Territories has the second largest proportion of environmental practitioners in Canada (24% in 2003). British Columbia and the Yukon have an additional 16% of all practitioners.

A Private Sector Perspective

Environmental companies are an important aspect of the western region's economic growth. The Western Canadian environmental market is valued at over $8.8 billion. In 2003, Saskatchewan's list of environmental industry participants included 179 companies and practitioners, 25 government organizations (federal, provincial and municipal departments, agencies and Crown Corporations) and 12 associations. The sector is characterized as being populated by small, active, financially stable and highly competitive firms.[2]

New infrastructure such as the International Test Centre for CO_2 Capture in Regina and the Canadian Light Source in Saskatoon are expected to help bolster the growth of the environmental industry in Saskatchewan. Other initiatives to develop complementary environmental infrastructure (e.g., Institute for Energy, Environment and the Economy at the University of Calgary) are occurring in other western provinces.

The strengths of Western Canada's environmental sector lie in the following areas:

- Air quality monitoring
- Alternative energies
- Environmental consulting
- Oil and gas industry solutions
- Remediation
- Solid waste management
- Water and wastewater management.[3]

The environmental sector is expected to continue to develop at a fast pace. There is growing consumer demand for responsible corporate environmental stewardship, acknowledgement for the principles of sustainable growth, and legislative initiatives to protect the environment and conserve natural resources.[4] In addition, human health issues have clearly emerged as a driver of further development of the environmental sector.

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2 Saskatchewan Advanced Technology Association, State of the Saskatchewan Technology Industry, (November 2005).

3 Industry Canada, http://strategis.ic.gc.ca/epic/internet/inea-ae.nsf/en/ea02183e.html

4 Canadian Council for Human Resources in the Environment Industry, 2004 Environmental Labour Market (ELM) Report, http://www.eco.ca/portal/default.aspx?lang=0

Appendix C
University of Saskatchewan: Undergraduate Programs in Environment

Regular Session Undergrad Head Count by College, Sub College and Major
Includes All Full-Time and Part-Time Students and All Program Years[5]

College	Major/Program	2000/ 2001	2001/ 2002	2002/ 2003	2003/ 2004	2004/ 2005
Agriculture & Bioresources	Environmental Science	42	31	14	14	17
Agriculture & Bioresources	Rangeland Resources	6	3	5	7	8
Arts & Science	Environmental Earth Sciences	14	18	18	19	13
Arts & Science	Land Use & Environmental Studies	44	36	42	37	54
Arts & Science	Toxicology	-	-	4	11	42
Engineering*	Agricultural & Bioresource Engineering*					
TOTAL		**106**	**88**	**83**	**88**	**134**

* The Agricultural and Bioresource Engineering (ABE) program in the College of Engineering offers three streams. One stream – Natural Resources Engineering – focuses primarily on environmental issues. The University currently does not track enrolment by stream and consequently, numbers are not available. In addition, a number of other undergraduate programs in Engineering feature significant environmental content. The College of Engineering, recognizing the increasing importance of environmental considerations in all aspects of human activity, forecasts a growing demand for an undergraduate degree in environmental sciences or environmental studies as part of a dual-degree program or as a significant part of current programs.

[5] University of Saskatchewan Institutional Analysis. 2006. "Regular Session Undergraduate Student Head Count by College, Sub College and Major." http://athena.usask.ca/cgi-bin/sasweb/broker?_service=prod&_program=sb.sect2_ug_coll_derived_maj.sas&_entry=unused&wsnapshot=Oct 15 February 2007.

Appendix D
Selected Graduate Environmental Programs at Other Canadian Universities

School for Resource and Environmental Studies, Dalhousie University

http://sres.management.dal.ca/

Substantive Focus:

Research Goals:

- To provide a supportive and collegial setting for the conduct of scholarly research.
- To identify and pursue important resource and environmental questions and areas of research using the School's network.
- To involve students in research projects locally, regionally, and internationally.
- To translate results into creative and practical tools for change in thought and behaviour.
- To communicate research results within the School and beyond to other academic communities and government and non-governmental institutions.
- To create new partnerships for innovative, interdisciplinary research between SRES and other Dalhousie units, as well as between SRES and the external academic and research community.
- To encourage collaborative and comparative research with international partners.

Number of faculty:

- **Full-time:** 6
- **Cross-appointed:** 11
- **Adjuncts:** 26

Mission statement: SRES is the centre for scholarship in natural resources and environment at Dalhousie University. It is a leading institution in capacity-building for environmental and resource management in Canada and abroad. At the core of the School are two interdisciplinary graduate-level programs. The programs emphasize rigorous inquiry and ethical practice as the foundation for responsible environment and resource management in support of sustainable development. The focus is on addressing causes, rather than symptoms, of environmental and resources problems.

SRES draws its strength from a core faculty supported by an extensive network of other Dalhousie faculty, adjunct professors, research associates, students, alumni, and project partners. This is a dynamic scholarly community with diverse skills, interests and experiences in natural and social sciences, and in problem-solving approaches for environmental and resource management and policy.

Vision statement: Change is a salient characteristic of bio-physical, social, economic and political systems. However, environmental changes associated with many human activities are threatening communities, nations and even the planet itself. Significant environmental security threats include climate change, depletion of the ozone layer, long-range transport of air pollutants, contamination and depletion of freshwater and marine resources, deforestation, soil degradation and desertification, loss of biological diversity, mismanagement of chemicals and wastes, overpopulation, rural decline and urban decay. Paradigm shifts are necessary if we hope to encourage sustainable development and practices which reduce these threats. The School is committed to enhancing environmental security in the broadest sense. The School is thus dedicated to maintaining the integrity of ecosystem functions and processes by focusing on understanding human uses and interactions with the environment. SRES believes that learning to predict and manage change through people and institutions is vital if we are to ensure environmental security at present and in the future.

Graduate programs:

- Master of Environmental Studies (MES)
  - Required Courses: ENVI5003.03, ENVI5035.03, ENVI5007.03, ENVI5009.00
  - Elective Courses: students are required to select three elective courses which support thesis research.
  - Thesis
- Master of Resource and Environmental Management (MREM)
  - Required Courses: ENVI5003.03, ENVI5504.03, ENVI5507.03, ENVI5505.03, ENVI5500.03, ENVI5205.03, ENVI5480.03
  - Elective Courses: students are required to select four elective courses, at least one of which must be taken from courses offered in the Schools of Public Administration, Business Administration, Library and Information Studies or Marine Affairs
  - Internship Work Term
  - Project
- Interdisciplinary Ph.D.: SRES does not offer a Ph.D. program, but students may enroll in the interdisciplinary Ph.D. program if they wish to complete a program involving two or more departments.

Courses offered:
Not all courses are offered every year.

- ENVI5001.03 Environmental Impact Assessment
- ENVI5002.03 Environmental Studies Joint Project
- ENVI5003.03 Emerging Issues in Sustainability
- ENVI5004.03 Management of Chemicals & Wastes
- ENVI5006.03 Environmental Toxicology
- ENVI5007.03 Research Methods II
- ENVI5003.03 Nature Conservation
- ENVI5009X/Y.03 Graduate Seminar in Resource and Environmental Studies
- ENVI5010.03 (CH&E6001) Introduction to Environmental and Occupational Health
- ENVI5021.03 Fisheries Management and Development
- ENVI5030.03 Managing for Sustainable Development
- ENVI5031.03 Environmental/Ecological Economics
- ENVI5035.03 Research Methods in Resource and Environmental Studies
- ENVI5038.03 Public Involvement in Resource and Environmental Management
- ENVI5039.03 Indigenous Peoples and Natural Resource Issues
- ENVI5041.03 Environmental Education (Special Topics)
- ENVI5044.03 Industrial Ecology Seminar
- ENVI5047.03 Biodiversity Conservation System Design and Management (Protected Areas Management)
- ENVI5048/49.03 Independent Readings
- ENVI5110.03 (ECON5516) Resource Economics
- ENVI5120.03 (BIOL5060) Environmental Ecology
- ENVI5180.03 (SOSA3220) Coastal Communities in the North Atlantic
- ENVI5204.03 (LAWS2041; MARA5009) Coastal Zone Management
- ENVI5205.03 Resource and Environmental Law
- ENVI5480.03 Environmental Ethics
- ENVI5500.03 Socio-Political Dimensions of Resource and Environmental Management
- ENVI5501.03 The MREM Internship
- ENVI5502.03 Natural History of the Earth (Ecological Science for Resource and Environmental Management)
- ENVI5503.03 Social Foundations of Resource and Environmental Management
- ENVI5504.03 Management of Resources and the Environment
- ENVI5505 Biophysical Dimensions of Resource and Environmental Management
- ENVI5507 Environmental Informatics
- ENVI5508 Project Report in Resource and Environmental Management
- ENVI5601.03 Management of the Marine Environment
- ENVI5818.03 (BUSI6813) Management and the Natural Environment: An International Perspective
- ENVI5819.03 (BUSI6816) Environmental Management Systems for Business
- ENVI9000.00 Master's Thesis

Number of new enrollees each year: 12 in the MES program

McGill School of Environment

http://www.mcgill.ca/mse/

Number of faculty:
Part-time: 17 faculty jointly appointed with other departments
Associate: 83

Mission statement: To provide an exciting and rigorous program that allows for intellectual growth in the comprehension of environmental systems or components of the environment; to impart to students an understanding of current environmental concerns; to help students gain an understanding of the complexity and conflicts that underlie most environmental problems; to give students an opportunity to apply their knowledge in the analysis of specific, contemporary issues.

Name of graduate program: No graduate program per se; all faculty are cross-appointed so they can supervise graduate students.

Courses offered:
Some graduate level courses are offered on an irregular basis:

- ENVR 580 Topics in Environment 3
- ENVR 610 Foundations in Environmental Policy
- ENVR 611 Economy of Nature
- ENVR 612 Tropical Environmental Issues
- ENVR 680 Topics in Environment 4
- NRSC 540 Socio-cultural Issues in Water
- URBP 506 Environmental Policy and Planning

Centre for Environment, University of Toronto

www.environment.utoronto.ca

Number of faculty:

Appointed or Administrative Faculty: 10
Full Members, Graduate Faculty: 80
Associate Members, Graduate Faculty: 25

Name of graduate programs:

- Collaborative Graduate Program in Environmental Studies
- Collaborative Graduate Program in Environment and Health
- Master of Environmental Science Professional Program
- Certificate in Environmental Management
- Advanced Certificate in Environmental Management
- Certificate in GIS for Environmental Management

Courses offered:

Collaborative Programs
Core Courses:

- ENV1001H Environmental Decision-Making
- ENV4001H Seminars in Environment and Health

Other Courses:

- ENV1002H Environmental Management Case Studies
- ENV1410H Analytical Environmental Chemistry
- ENV1444H Capitalist Nature
- ENV1701H Environmental Law
- ENV1703H Water Resources Management
- ENV1704H Environmental Risk Analysis and Management
- ENV1706H Natural Hazards and Natural Disasters
- ENV1707H Environmental Finance Risk Management and Business Opportunities
- ENV2000H Independent Study
- ENV2002H Special Topics: Environmental Studies
- ENV3000H Special Topics: Environment and Health
- JEI1901H Technology, Society & Environment
- JGE1212H Contaminants in the Environment
- JGE1413H Environmental Assessment
- JNC2503H Environmental Pathways
- JPV1201H Politics, Bureaucracy and the Environment
- JVP2147H Environmental Philosophy

Master of Environmental Science Professional Program
Courses:

- ENV1100H Advanced Seminar in Environmental Science
- ENV1101Y Research Paper in Environmental Science
- ENV1102H Analytical Chemistry for Geoscientists
- ENV1103H Air and Water Quality Sampling and Monitoring
- ENV1104H Methods for the Detection of Pathogens
- ENV1105H Soil Contamination Chemistry
- ENV1106H Geology and Geophysics of the Shallow Subsurface
- ENV1107H Remediation Models
- ENV1108H Environmental Science Field Camp
- ENV1109H Advanced Techniques in Geographic Information Systems
- ENV1110H Sediment and Contaminant Transport in Aquatic Systems
- ENV1111H Freshwater Ecology and Biomonitoring
- ENV1112H Boundary Layer Climates and Contaminant Fate
- ENV1113H Groundwater Hydrochemistry and Contaminant Transport
- ENV1114H Directed Readings in Environmental Science I
- ENV1115H Directed Readings in Environmental Science II
- ENV1116H Internship Placement
- ENV1117H Climate Change Impact Assessment

- ENV1118H Fundamentals of Ecological Modelling
- ENV1704H Environmental Risk Analysis and Management

Department of Environment and Resource Studies, Faculty of Environmental Studies, University of Waterloo

www.fes.uwaterloo.ca/ers/index.html

Substantive Focus:

- Spatial data handling;
- Heritage resources;
- Atmospheric variability, impacts, and adaptation;
- Ecosystems and applied ecology;
- Integrated resource management;
- International development;
- Sustainable local economic development;
- Urban and community dynamics;
- Urban and ecological design; and,
- Wetlands and water research.

Number of faculty:

Full-time: 14
Cross-appointments: 4
Adjuncts: 6

Mission statement: We are interested in sustainability and the ethics of solving environmental and resource problems, using techniques and ideas from many disciplines - ecology, environmental governance, energy, water, and waste management, media, and environmental assessment. Our research and our people help solve environment and resource problems. ERS offers a student-centered learning environment: Small class sizes, one-on-one learning with professors via projects and theses - topics that are chosen on the basis of your interests as a student and the demands of society.

Name of graduate program:

- Master of Environmental Studies
  - ERS 669, ERS 670, and ERS 680
  - Completion of two one-term elective courses; maintenance of an academic average of at least 75%
  - Master's Thesis

Courses offered:

- ERS 604 Advanced Topics in Global Environmental Governance
- ERS 605 Ecosystem Perspectives and Analysis
- ERS 606 Governing Global Food and Agriculture
- ERS 610 Public Administration of the Environment & Natural Resources
- ERS 615 Community Economic Development
- ERS 618 Sustainable Energy Systems
- ERS 619 Energy and Sustainability
- ERS 630 Waste Management
- ERS 660 Perspectives in Resource and Environmental Management
- ERS 669 Team Research Project
- ERS 670 MES Thesis Development
- ERS 674 Special Topics in Environmental and Resource Studies
- ERS 675 Special Readings and Seminars on Selected Topics in Environment and Resource Studies
- ERS 680 Implications of a Sustainable Society for ERS

Faculty of Environmental Studies, York University

www.yorku.ca/fes/index.asp

Substantive Focus:

- Bioregionalism, community development and food
- Computer applications
- Ecology and environmental science
- Economics, business and the environment
- Environmental and cultural studies
- Education
- Gender and environments
- Globalization and international development
- Health and environments
- Organizational change
- Planning and urban restructuring
- Politics, law and policy
- Sustainability

Number of faculty:

Full-time: 39
Joint-Appointed and Seconded: 3

Mission statement: To provide unsurpassed opportunities for interdisciplinary teaching, learning and researching about natural, built, social, and organizational environments. Deliberately broad in scope, this range of studies ensures that students have the flexibility and skills to respond to evolving environmental priorities.

Name of graduate program:

- Master in Environmental Studies
  - Each student develops a unique plan of study which describes the student's chosen area of concentration
  - ENVS 5101 is the only required course
  - A thesis, major paper, or major project is required
  - The program is divided into three components:
    - MES I – preparation of initial Plan of Study; course work
    - MES II – focus on mastery of area of concentration
    - MES III – completion of thesis, major paper or major project
- Ph.D. in Environmental Studies
  - Each student proceeds through the Program Plan, Comprehensive Examination and Dissertation phases
  - ENVS 8102 is the only required course

Courses offered:

- ENVS 5010 Bioregional Field Course
- ENVS 5011 Food, Land and Culture
- ENVS 5016 Protected Area Management
- ENVS 5021 Urban Development Processes
- ENVS 5023 Global Cities
- ENVS 5025 Urban Sustainability
- ENVS 5068 Global Justice, Humanitarianism & the Environment
- ENVS 5073 New Social Movements
- ENVS 5080 Internet-Distributed GIS for Public Engagement
- ENVS 5101 Approaches to Environmental Studies
- ENVS 5103 Nature and Society
- ENVS 5106 Feminist Perspectives in Environmental Studies
- ENVS 5108 Methodology in Environmental Studies
- ENVS 5112 Ecology in Environmental Studies
- ENVS 5113 Business Strategies for Sustainability
- ENVS 5119 Resource Management
- ENVS 5121 Introduction to Planning
- ENVS 5123 Environment and Behaviour
- ENVS 5124 Development Studies
- ENVS 5150 Perspectives on Green Business
- ENVS 5161 Local Government Organization and Operation
- ENVS 5163 Policy Analysis for Environmental Issues
- ENVS 5164 Environmental Economics
- ENVS 5475 Space, Place & Capitalism
- ENVS 5599 Readings in Environmental Studies
- ENVS 5699 Field Experience
- ENVS 6101A Thinking and Acting Like a Region
- ENVS 6152 Reshaping Research with Aboriginal Peoples
- ENVS 6153 Native/Canadian Relations
- ENVS 6154 Environmental Themes in Storytelling and First Nations Tradition
- ENVS 6155 Program Implementation
- ENVS 6156 Critical Theories of International Development
- ENVS 6157 Non-Profit Organizations: If Not For Profit, For What?
- ENVS 6158 Function, Law & Structure of Non-Profit Organizations
- ENVS 6162 International Environmental Law
- ENVS 6163 Science, Policy, and the Legal Process
- ENVS 6164 Environmental Law
- ENVS 6165 Land Use Planning Law
- ENVS 6166 Communications Law
- ENVS 6170 Gender and Public Policy
- ENVS 6173 Politics and Planning
- ENVS 6174 Environmental Politics
- ENVS 6175 Global Environmental Politics
- ENVS 6180 Applied Research Methods: Policy and Regulatory Studies
- ENVS 6182 Applied Research Methods: Quantitative Methods
- ENVS 6183 Applied Research Methods: Qualitative Methods
- ENVS 6186 Theory and Methods of Impact Assessment
- ENVS 6188 Remote Sensing and Image Processing for Geographical Analysis and Environmental Monitoring

- ENVS 6102 Transitions in Environmental Studies
- ENVS 6108 Landscape Ecology in Planning
- ENVS 6110 Environmental Ethics
- ENVS 6112 Biological Conservation
- ENVS 6114 Sustainable Development for Canada
- ENVS 6115 Ecological Economics
- ENVS 6116 Resource Management Law
- ENVS 6117 Ecology in Third World Development
- ENVS 6118 Applied Ecology
- ENVS 6119 Ecological Restoration
- ENVS 6120 Public Involvement and Planning
- ENVS 6122 Rural Planning
- ENVS 6123 Ecological Approaches to Urban Design
- ENVS 6124 Urban Regional Planning
- ENVS 6125 Recreation and Tourism: Planning and Management
- ENVS 6126 Community Planning and Housing
- ENVS 6127 Community Organizing & Development: Theory & Action
- ENVS 6129 Social Policy and Planning
- ENVS 6130 Planning Theory
- ENVS 6131 Environmental Planning
- ENVS 6132 Environmental Design
- ENVS 6133 Plurality and Planning
- ENVS 6136 Health and Environment
- ENVS 6137 Women and Development
- ENVS 6139 Historical Perspectives on Women and Nature
- ENVS 6140 Environmental Education
- ENVS 6141 Education, Sustainability and the Ecological Crisis
- ENVS 6143 Political Communication and Environmental Issues
- ENVS 6144 Action Learning
- ENVS 6145 Employee Involvement: Strategies and Dilemmas
- ENVS 6147 Humanitarian Crises
- ENVS 6148 Environmental Negotiation and Mediation
- ENVS 6149 Culture and the Environment
- ENVS 6150 Popular Education for Social Change Part I: Theory & Practice
- ENVS 6151 Popular Education for Social Change Part II: Practice & Theory
- ENVS 6189 GIS Applications in Planning and Resource Management
- ENVS 6190 Case Studies in Environmental Management
- ENVS 6191 Management Practices for Sustainable Business
- ENVS 6275 International Political Economy and Ecology Summer School
- ENVS 6281 Consulting Skills
- ENVS 6291 Facilitation in Environmental Studies
- ENVS 6321 Environmental Planning and Design Workshop
- ENVS 6324 Planning Practice Workshop
- ENVS 6325 Critical Urban Planning Workshop
- ENVS 6330 Bioregional Planning Workshop
- ENVS 6331 Planning in Toronto Workshop
- ENVS 6348 Cultural Production Workshop: Performance
- ENVS 6349 Cultural Production Workshop: Image
- ENVS 6399A Costa Rica Field Course
- ENVS 6401 Natural Disasters: An Unnatural Phenomenon
- ENVS 6460 Communication and the Public Interest
- ENVS 6481 Activist Video Making
- ENVS 6560 Readings in Public Policy
- ENVS 6599 Individual Directed Study
- ENVS 6599D Energy Strategies for Sustainable Development
- ENVS 6599E Science of Pollution
- ENVS 6599L Great Planning Disasters
- ENVS 6699 Field Experience
- ENVS 7149 Advanced Topics in Culture and Environment
- ENVS 7189 Advance Geographical Information Systems
- ENVS 7599 Individual Directed Study
- ENVS 7699 Field Experience
- ENVS 7799 MES Major Project Independent Work
- ENVS 7899 MES Major Paper Independent Work
- ENVS 7999 MES Thesis Research
- ENVS 8102 Ph.D. Research Seminar
- ENVS 8599 Individual Ph.D. Research

Natural Resources Institute, University of Manitoba

umanitoba.ca/institutes/natural_resources/

Substantive Focus:

- a broad and distinctive view of management that encompasses planning, policy making, decision making, implementation and evaluation;
- a focus on sustainable resource and environmental management, and the integrity of social-ecological systems;
- community-focused and participatory approaches to resource and environmental management;

- holistic, interdisciplinary and collaborative approaches, including an examination of ethics, equity and social justice;
- integration of theory and practice; and,
- linking knowledge with real-world problems to respond to emerging societal needs.

Number of faculty:
Full-time: 8
Cross-appointed: 2
Adjuncts: 13

Mission statement: To create, preserve, communicate and apply interdisciplinary knowledge in areas of resource and environmental management, and thereby contribute to the well-being of the people of Manitoba, Canada, and the World.

Name of graduate program:
- Master of Natural Resources Management
  - Students develop a study plan in consultation with a faculty advisor
  - 15 credit hours of required courses (56.722, 56.723, 56.724, 56.725, and 56.726)
  - A minimum of 15 credit hours of elective courses
  - A thesis
- Ph.D. in Natural Resources and Environmental Management
  - A minimum of 12 and a maximum of 21 credit hours of course work at the 700 level of above
  - A minimum of 6 credit hours within the Natural Resources Institute, including 56.7XX Ph.D. Thesis Research Seminar
  - A thesis

Courses offered:
- 056.707 Readings in Natural Resources Management 1
- 056.708 Readings in Natural Resources Management 2
- 056.716 Projects in Natural Resources Management 1
- 056.717 Projects in Natural Resources Management 2
- 056.719 Natural Resources Administration and Law
- 056.720 The Role of Information Management in Sustainable Resource Use
- 056.722 Social Aspects of Resource and Environmental Management
- 056.723 Ecological Principles of Resource and Environmental Management
- 056.724 Resource and Environmental Management Processes
- 056.725 Resource and Environmental Management Tools
- 056.726 Thesis Research Seminar
- 056.729 Environmental Assessment
- 056.731 Ph.D. Thesis Research Seminar
- 056.733 Water Resources: Analysis, Planning and Management
- 056.734 Environmental Justice and Ecosystem Health

Number of graduates each year: ~13

Faculty of Environmental Design, University of Calgary
Environmental Science Program
www.ucalgary.ca/UofC/faculties/EV/programs/es/index.htm

Substantive Focus: The program is currently focusing on regional and landscape scale environmental assessment and sustainable land use planning and management informed by the concepts, theories and practices of applied landscape ecology, wildlife and plant community disturbance ecology, conservation biology, restoration ecology, ecosystem-based management, impact assessment and management, environmental planning and management systems, and environmental law.

The Environmental Science Program has three core areas of program concentration:
- corporate and urban environmental management;
- assessment and management of environmental impacts; and,
- ecosystem and natural resource management.

Number of faculty:
Full-time: 6
Adjuncts: 40

Mission statement:
The mission of the Environmental Science Program is to:

- provide high quality interdisciplinary graduate education, soundly based on excellence in the social and natural sciences, giving graduates the intellectual and executive ability to practice professional environmental science;
- advance the professional practice of environmental science through applied interdisciplinary research, in partnership with governments, industry, organizations, communities and individuals;
- develop effective linkages among sciences, policy and management;
- advance scholarly research and professional practice in the public interest;
- contribute to the academic priorities and strategic directions of the University of Calgary.

Name of graduate programs:

- Master of Environmental Design (Environmental Science)
  - Core courses required are EVDS 604, 609, and 702
  - Two electives are required in the student's chosen area of program concentration
  - Students must demonstrate numerical and computer literacy by courses taken prior to admission, or they must take EVDS 627 or EVDS 667
  - A Master's Degree Project (which is defended)
- Ph.D. in Environmental Design
  - EVDS 711, EVDS 702, and at least one other half-course
  - Additional course work may be required as recommended by the student's supervisor
  - A candidacy examination and a dissertation are required

Number of courses offered:
Please note that these are courses for the Environmental Science option only. The Faculty of Environmental Design also offers options in Architecture, Environmental Design, Industrial Design, Planning, and Urban Design.

Core Courses

- EVDS 604 Conceptual Basis of Environmental Design
- EVDS 609 Environmental Design Practice
- EVDS 702 Advanced Environmental Design Practice
- EVDS 711 Theoretical Basis for Interdisciplinary Intervention and Design

Courses for Environmental Science option:

- EVDS 606 Introduction to Environmental Science
- EVDS 607 Sustainable Development
- EVDS 619 Ecological Design
- EVDS 641 Applications of Plant Ecology to Environmental Management
- EVDS 649 Impact Assessment
- EVDS 659 The Ecology of the Canadian West Coast - A Field Course
- EVDS 661 Ecosystem Management and Planning
- EVDS 673 Wildlife Management Planning
- EVDS 683.59 Transboundary Environmental Issues
- EVDS 707 Ecological Management in Land Use Planning
- EVDS 725 Topics in Wildlife Management and Resource Development
- EVDS 747 Management in Environmental Science
- EVDS 749 Water Management

School of Resource and Environmental Management, Simon Fraser University
http://www.rem.sfu.ca/

Substantive Focus:

- Cultural resource management;
- Ecology;
- Ecological economics;
- Energy and materials sustainability;
- Environment and development;
- Landscape ecology;
- Outdoor recreation management;
- Planning theory;
- Protected area planning;
- Regional and community planning;

- Environmental impact assessment;
- Environmental law;
- Environmental toxicology;
- Fisheries;
- Forest ecology;
- Conservation and management;
- GIS in environmental management;
- Resource/environmental economics;
- Resource planning;
- Risk assessment;
- Sustainable tourism development;
- Tourism;
- Water resource planning; and,
- Watershed hydrology.

Number of faculty:

Full-time: 13.25
Associates: 4
Adjuncts: 37

Mission statement: Our mission is to improve sustainable resource and environmental practices by advancing, applying, and disseminating relevant knowledge and expertise to meet that objective.

Name of graduate program:

- Master of Natural Resources Management:
  - Six required courses (REM 601; REM 611; REM 621; REM 631; REM 801 and either REM 642 or REM 644)
  - Six elective courses
  - Research Project
  - Field Resource Management Workshop
  - A MRM (Planning) option is also available
- Ph.D. in Resource and Environmental Management:
  - Six required courses (REM 611, REM 621, REM 698, REM 899, REM 802 and one of REM 602, REM 642 or REM 644)
  - Additional electives may be taken
  - Thesis

Courses offered:

- REM 601-5 The Social Science of Natural Resources Management
- REM 602-5 Resource and Environmental Planning: Advanced Seminar
- REM 610-5 Applied Environmental Toxicology and Environmental Management of Contaminants
- REM 611-5 Population and Community Ecology
- REM 612-5 Simulation Modelling in Natural Resource Management
- REM 613-5 Methods in Fisheries Assessment
- REM 621-5 Ecological Economics
- REM 625-5 Risk Assessment and Decision Analysis for Management of Natural Resources
- REM 631-5 River Basin Analysis, Planning, and Management
- REM 636-5 Applications of GIS in Resource and Environmental Management
- REM 641-5 Law and Resources
- REM 642-5 Regional Planning
- REM 643-5 Environmental Conflict and Dispute Resolution
- REM 644-5 Public Policy Analysis and Administration
- REM 646-5 Environmental and Social Impact Assessment and Environmental Management Systems
- REM 647-5 Parks and Outdoor Recreation Planning
- REM 648-5 The Tourism System
- REM 651-5 Project Evaluation and Non-Marker Valuation Methods
- REM 652-5 Community Tourism Planning and Development
- REM 655-5 Water Planning and Management
- REM 658-5 Energy and Materials Modelling
- REM 660-5 Special Topics in Resource Management: Advanced Methods in Fisheries Stock Assessment
- REM 661-5 Special Topics in Resource Management: Environment and Development
- REM 662-5 Special Topics in Resource Management: Evaluation of Management Strategies for Living Resources
- REM 663-5 Special Topics in Resource Management: First Nations and Co-Management of Natural Resources
- REM 644-5 Directed Studies
- REM 670-5 Introduction to Forestry
- REM 671-5 Forest Ecology
- REM 690-0 Practicum I
- REM 691-0 Practicum II
- REM 698-3 Field Resource Management Workshop
- REM 699-10 Research Project
- REM 801-5 Principles of Research Methods and Design in Resource and Environmental Management
- REM 802-5 Research Approaches for REM Ph.D.

- REM 649-5 Tourism Planning and Policy
- REM 650-5 Energy and Materials Management and Policy

Students

- REM 899 Ph.D. Thesis

School of Environmental Studies, University of Victoria
http://web.uvic.ca/enweb/

Substantive Focus:
- Established research areas:
  - Sustainable Communities: political ecology, urban sustainability, green governance, globalization and the local;
  - Ecological Restoration: principles, concepts and practices; and,
  - Ethnoecology: traditional ecological knowledge and ethnobotany.
- Emerging research areas:
  - Integral Ecology: a systems approach to the study of social and biophysical systems;
  - Environmental protection, sustainable resource use and public policy; and,
  - Environmental history, and landscape change.

Number of faculty:
Full-time: 8
Visiting, Adjunct, and Cross-listed: 13

Name of graduate program:
The School has no formal graduate program, but accommodates graduate students either as interdisciplinary or by special arrangement.
- Master of Arts/Master of Science in Environmental Studies

Courses offered:
- ES 580 Directed Studies (Graduate)
- ES 599 M.A. or M.Sc. Thesis (Graduate)

Institute for Resources, Environment and Sustainability, University of British Columbia
http://www.ires.ubc.ca/

Substantive Focus:
- Three major domains:
  - Water, ecosystems, and communities;
  - Energy, technology, health and society; and,
  - Local and global environmental change.

Number of faculty:
Full-time: 14
Adjuncts: 9
Associates: 29

Mission statement: to work to foster sustainable futures through integrated research and learning about the linkages among human and natural systems, to support decision-making for local to global scales.

Name of graduate program:
- Master of Art/Master of Science
  - Thesis-based program (thesis comprises 12 credits)
  - Remaining 24 credits consists of course work – 12 credits must be from core courses; the others are considered electives
- Ph.D.
  - RMES 501, RMES 502 are only required courses; supervisor may advise regarding others
  - Thesis is required

Courses offered:

- RMES 500A Quantitative Reasoning and Statistics for Planning
- RMES 500E Energy Systems
- RMES 500F Human Dimensions of Biological Conservation
- RMES 500H Impact Analysis
- RMES 500J Decision Insights for Planning and Policy Analysis
- RMES 500K Ecosystem Services
- RMES 500M Beyond Kyoto
- RMES 500N Coastal Zone Management
- RMES 500P Science, Society, and Law in Aquatic Policy
- RMES 500Q Applied Anthropology (Focus on Natural Resources)
- RMES 500X Hazard Mitigation
- RMES 501 History and Philosophy of Environmental Thought
- RMES 502 Graduate Seminar Series
- RMES 515 Integrated Watershed Management
- RMES 516 Urban Watershed Management
- RMES 517 Agricultural Watershed Management
- RMES 518 Water and International Development
- RMES 520 Climate Change in the 21st Century
- RMES 530 Science, Policy and Values in Risk and Resource Management
- RMES 542 Integrated Assessment
- RMES 550 Environmental Policy Analysis
- RMES 586 Fish Conservation and Management
- RMES 599 Master's Thesis
- RMES 699 Ph.D. Thesis

Appendix E
Results of Student Survey

The School of Environment & Sustainability Survey

In order to receive student feedback regarding the three graduate programs proposed for the School of Environment & Sustainability (M.A.E.P., M.Env., and Ph.D.), an online survey was conducted via the University of Saskatchewan PAWS Portal from 15 February 2007 to 22 February 2007. Targeted groups included fourth-year undergraduate students and graduate students. One hundred seventy-three responses were received.

The School of Environment & Sustainability Steering Committee would like to thank Kelly McInnes, Registrar; Medbh English, Communications Officer (PAWS); and Kevin Lowey and Simone Knapp, Information Technology Services Division, for their assistance with this survey.

Survey results are summarized below.

The School of Environment & Sustainability

The University of Saskatchewan is proposing to develop a School of Environment & Sustainability, with established research areas and new graduate programs. We would value your opinion on how the graduate programs might be conceived and delivered.

The Vision of the School is "Excellence in environmental research and learning based on a rich understanding and commitment to sustainable landscapes and livelihoods through an interdisciplinary focus on issues of importance to the northern prairie and parkland, boreal forest, and Arctic ecosystems." Its mission is "to work with partners within and beyond the University to undertake original interdisciplinary research and scholarly activities, establish innovative learning opportunities, and promote knowledge translation and exchange to foster sustainability." Four areas are being considered to focus research and graduate programs. These are:

- Appraising ecological integrity and resource use (includes toxicology, reclamation, resource appraisal in rural and urban contexts);
- Assessing energy use and climate change (includes broader analysis of vulnerabilities and opportunities associated with climate change and innovations through alternative energy sources (e.g., biodiesel));
- Understanding earth system processes (includes hydrology, related biogeochemical processes/cycles (e.g., atmospheric physics));
- Analyzing environmental ethics and governance arrangements (includes systems of knowledge, environmental ethics, and governance with Aboriginal peoples and other stakeholder groups).

The School of Environment and Sustainability also proposes to develop interdisciplinary graduate programs in Environment and Sustainability. Students may still take graduate programs within departments that provide excellent training in specific environmental topics, disciplinary perspectives, and analytical methods. Students who opt to do so would be able to take courses from the School. The School is proposing to offer 3 types of graduate programs:

a) A Master of Applied Environmental Processes (M.A.E.P.) is a course-based program. Students might take 24 cu of courses and complete a small project. The M.A.E.P. program would be targeted at students who seek professional employment seeking to upgrade their qualifications and/or students seeking a Master's that will not lead to a Ph.D. This program will be developed as we gain information about what kinds of expertise might be desirable for those in communities, industries, organizations, and government agencies. Over time, there may be more than one M.A.E.P. stream (e.g., geomatics, Aboriginal land management).
b) A Master of Environment (M.Env.) is a thesis-based program. Students might take 15 cu of courses and complete a thesis. The M.Env. program would be targeted at students who seek an interdisciplinary graduate learning experience that could lead to a Ph.D. or other employment opportunities.
c) A Doctor of Philosophy (Ph.D.) is a thesis-based program. Students might take 9 cu of courses and complete a thesis. The Ph.D. program would be targeted at students who seek an interdisciplinary graduate learning experience that could lead to employment at a university or other research setting.

The Questionnaire

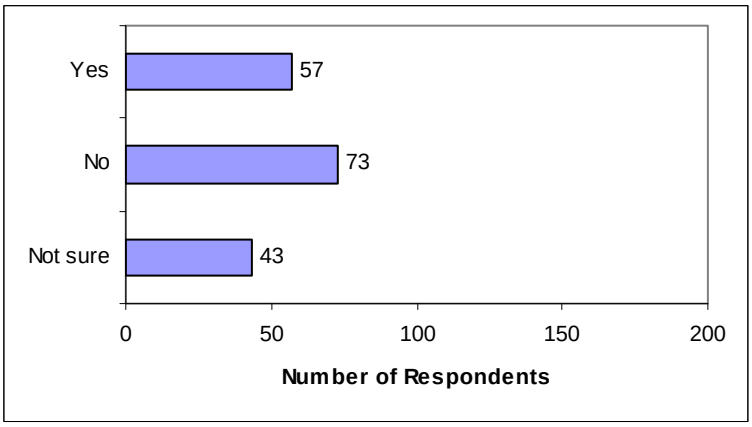
This questionnaire is in three parts, to reflect three different graduate programs that are being proposed. Please answer questions related to the program(s) with which you are most familiar. We expect that it may take from 20 - 45 minutes to complete the questionnaire. You may choose to answer questions in one, two, or all three parts. You may choose to only answer some questions. If you choose not to complete the questionnaire, there is no penalty. Your response is entirely anonymous. We will be provided with aggregated responses, so your answers will not be attributed to you directly. We will consider all answers received by 22 February 2007 in the final proposal. If you wish, you may also make additional comments to Dr. Maureen Reed by e-mail at m.reed@usask.ca, although these will not be anonymous.

Thank you for taking the time to respond to these questions.

Part 1: About the Master of Applied Environmental Processes (M.A.E.P.) Program

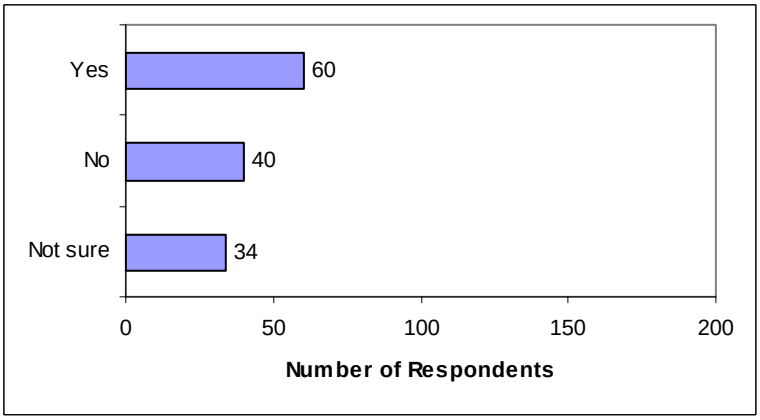
If the University of Saskatchewan offered an interdisciplinary course-based program in Environment and Sustainability through a School, leading to a Master of Applied Environmental Processes (M.A.E.P.), would you consider applying for this program?

Figure 1 Considering Applying for the M.A.E.P. Program



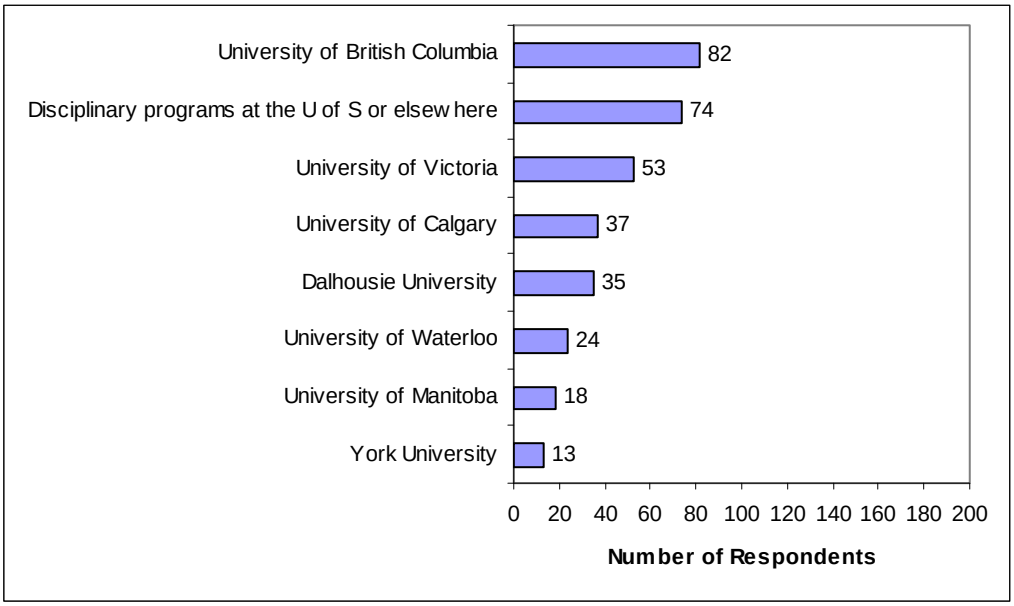
If you answered "no" or "not sure," if there was an opportunity for obtaining a Master's degree in a discipline with a "certificate" or designation on your transcript indicating you had some advanced interdisciplinary training in Environment and Sustainability, would you seek out this opportunity?

Figure 2 M.A.E.P. Program Designation on Transcript



Where else might you consider for advanced study in Environment and Sustainability (select up to 3)?

Figure 3 Other Institutions Considered



What characteristics would influence your choice of programs? Please select all which apply.

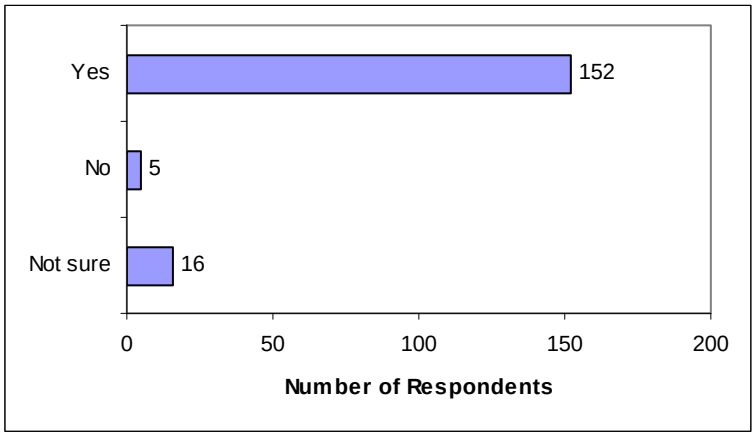
Table 1 Characteristics Influencing Choice of Programs	
Availability of funding	116
Reputation of the program	110
Having the right research opportunity	107
The types of environments being studied suit your interests	106
Location of the university	100
Finding the right supervisor	93
Your qualifications and grades meet the requirements	87
The program offers the right type of required courses	66
Finding the right mix of Faculty at the School	40
The program offers the right number of required courses	36

Please indicate if you agree with the following statements. ALL STUDENTS who graduate with a M.A.E.P. SHOULD:

Table 2 M.A.E.P.: Required Skills		
	Agree	**Disagree**
Be taught by multiple instructors with different points of view (within individual courses or course by course).	165	10
Have access to field courses, internships, and opportunities to partner with other groups.	165	6
Be equipped and empowered to critique the status quo and to consider fundamental values related to how humans interact with their environment.	157	15
Be familiar with concepts of property, policy, management processes, and laws and regulations that shape governance.	148	26
Understand the physics and chemistry of the atmosphere, hydrosphere and processes contributing to pollution and degradation of air, water, and soils.	144	29
Conduct research that has an immediate public value.	130	41
Have a strong background in ecology.	128	46
Be able to use economic arguments effectively, to articulate and critique the premises of neoclassical economics.	125	45

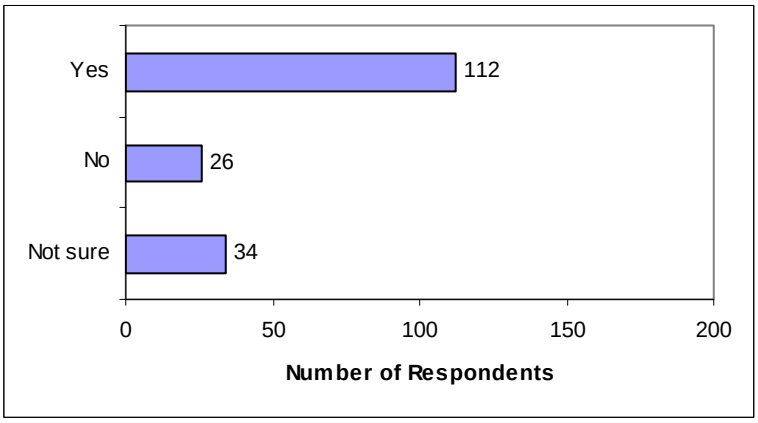
Would internships or work experience be useful in the M.A.E.P. program?

Figure 4 Internships in the M.A.E.P. Program



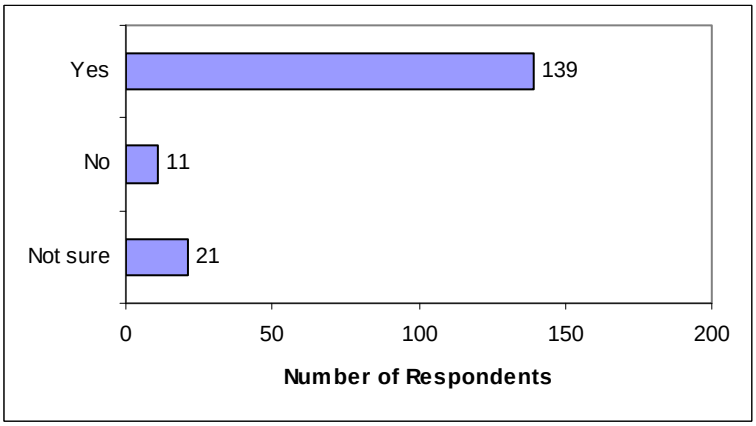
In the M.A.E.P. program, would you want opportunities as a teaching assistant?

Figure 5 Teaching Assistants in the M.A.E.P. Program



In the M.A.E.P. program, would you want opportunities to work as a research assistant?

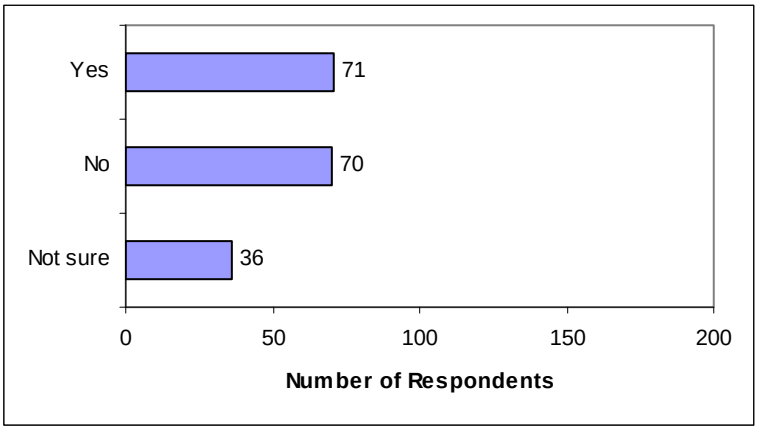
Figure 6 Research Assistants in the M.A.E.P. Program



Part 2: About the Master of Environment (M.Env.) Program

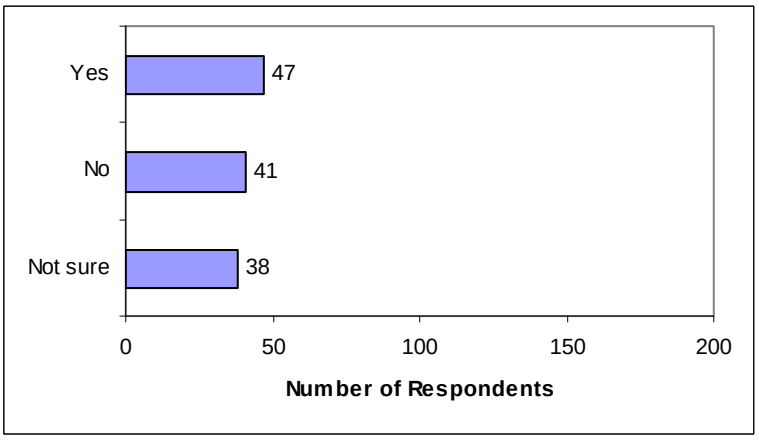
If the University of Saskatchewan offered an interdisciplinary thesis-based program in Environment and Sustainability through a School, leading to a Master of Environment (M.Env.), would you consider applying for this program?

Figure 7 Considering Applying for the M.Env. Program



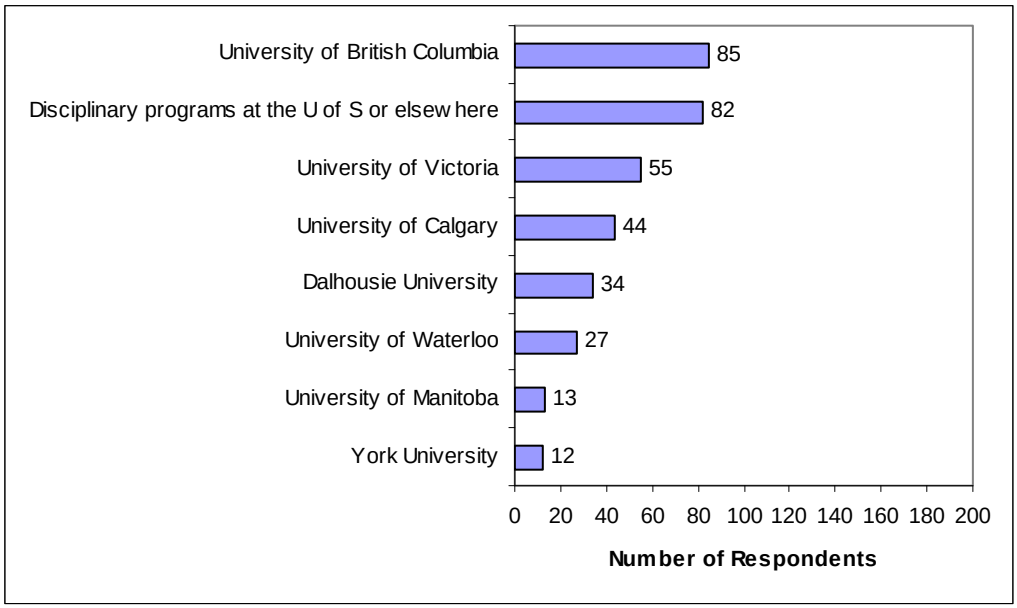
If you answered "no" or "not sure," if there was an opportunity for obtaining a Master's degree in a discipline with a "certificate" or designation on your transcript indicating you had some advanced interdisciplinary training in Environment and Sustainability, would you seek out this opportunity?

Figure 8 M.Env. Program Designation on Transcript



Where else might you consider for advanced study in Environment and Sustainability (select up to 3)?

Figure 9 Other Institutions Considered



What characteristics would influence your choice of programs? Please select all which apply.

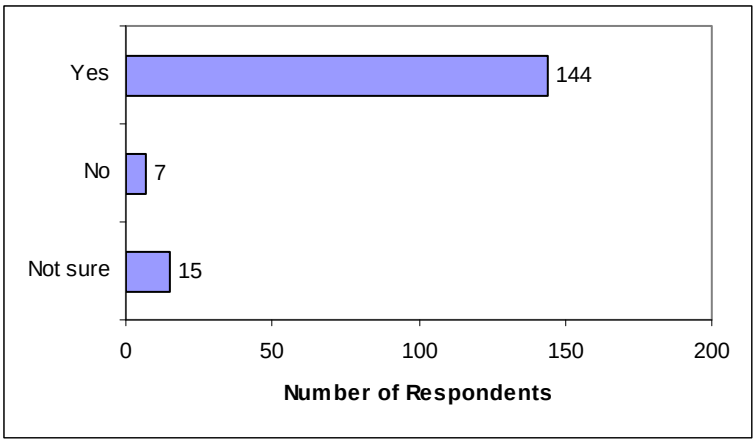
Table 3 Characteristics Influencing Choice of Programs	
Availability of funding	125
Having the right research opportunity	114
Reputation of the program	106
Location of the university	101
Finding the right supervisor	98
The types of environments being studied suit your interests	97
Your qualifications and grades meet the requirements	87
The program offers the right type of required courses	67
Finding the right mix of Faculty at the School	44
The program offers the right number of required courses	36

Please indicate if you agree with the following statements. ALL STUDENTS who graduate with an M.Env. SHOULD:

Table 4 M.Env.: Required Skills		
	Agree	**Disagree**
Have access to field courses, internships, and opportunities to partner with other groups.	160	7
Be taught by multiple instructors with different points of view (within individual courses or course by course).	155	13
Be equipped and empowered to critique the status quo and to consider fundamental values related to how humans interact with their environment.	155	13
Understand the physics and chemistry of the atmosphere, hydrosphere and processes contributing to pollution and degradation of air, water, and soils.	144	24
Be familiar with concepts of property, policy, management processes, and laws and regulations that shape governance.	139	26
Have a strong background in ecology.	130	37
Be able to use economic arguments effectively, to articulate and critique the premises of neoclassical economics.	126	36
Conduct research that has an immediate public value.	124	39

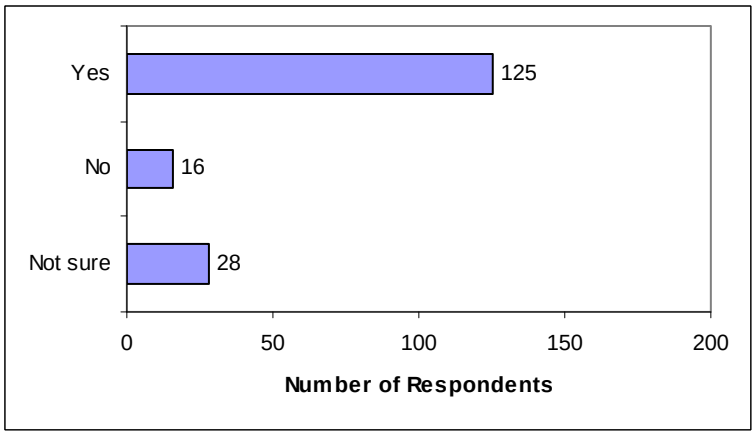
Would internships or work experience be useful in the M.Env. program?

Figure 10 Internships in the M.Env. Program



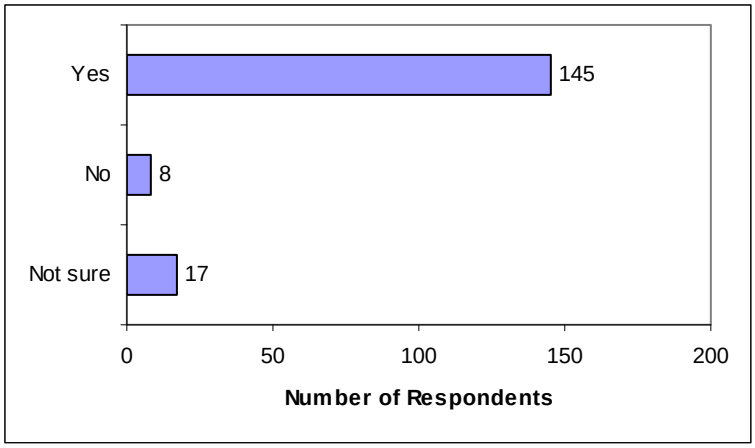
In the M.Env. program, would you want opportunities to work as a teaching assistant?

Figure 11 Teaching Assistants in the M.Env. Program



In the M.Env. program, would you want opportunities to work as a research assistant?

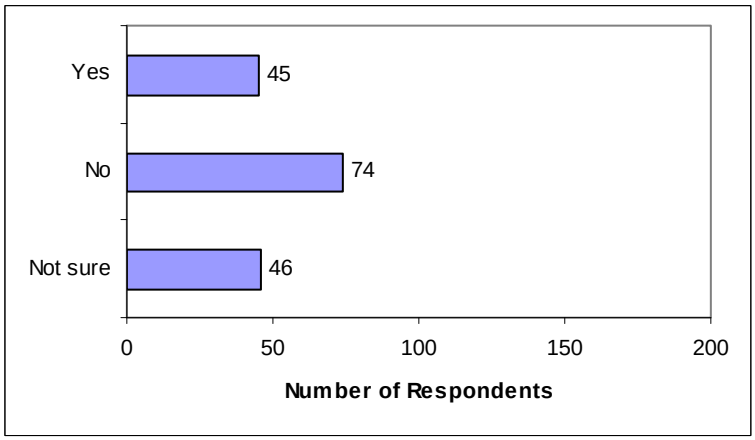
Figure 12 Research Assistants in the M.Env. Program



Part 3: About the Doctor of Philosophy (Ph.D) Program

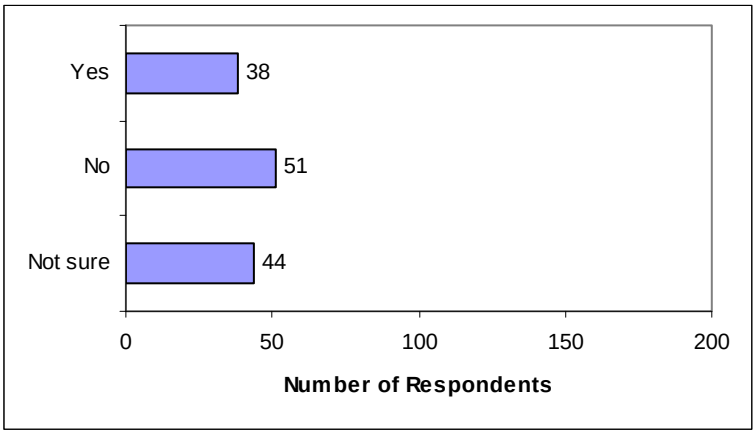
If the University of Saskatchewan offered an interdisciplinary thesis-based program in Environment and Sustainability through a School, leading to a Doctor of Philosophy (Ph.D.), would you consider applying for this program?

Figure 13 Considering Applying for the Ph.D. Program



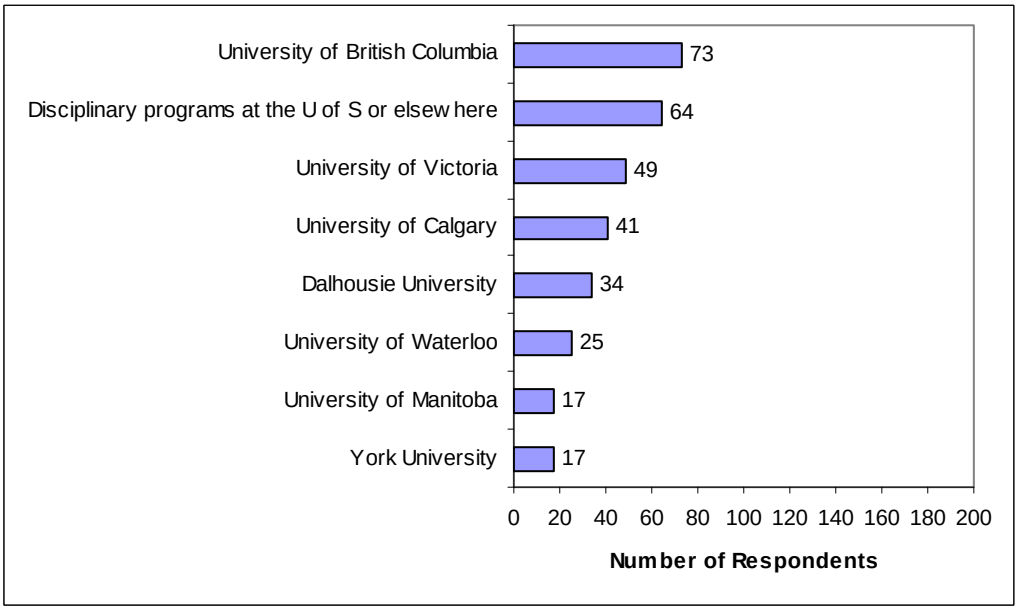
If you answered "no" or "not sure," if there were an opportunity for obtaining a Ph.D. in a discipline with a "certificate" or designation on your transcript indicating you had some advanced interdisciplinary training in Environment and Sustainability, would you seek out this opportunity?

Figure 14 Ph.D. Program Designation on Transcript



Where else might you consider for advanced study in Environment and Sustainability (select up to 3)?

Figure 15 Other Institutions Considered



What characteristics would influence your choice of programs? Please select all which apply.

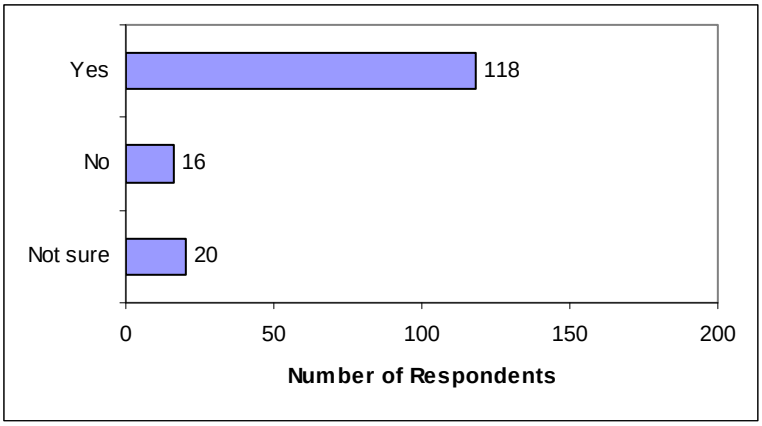
Table 5 Characteristics Influencing Choice of Programs	
Availability of funding	110
Reputation of the program	102
Finding the right supervisor	96
Having the right research opportunity	94
Location of the university	89
The types of environments being studied suit your interests	81
Your qualifications and grades meet the requirements	77
The program offers the right number of required courses	55
Finding the right mix of Faculty at the School	42
The program offers the right type of required courses	32

Please indicate if you agree with the following statements. ALL STUDENTS who graduate with an interdisciplinary Ph.D. in Environment and Sustainability SHOULD:

Table 6 Ph.D.: Required Skills		
	Agree	**Disagree**
Be equipped and empowered to critique the status quo and to consider fundamental values related to how humans interact with their environment.	149	6
Be taught by multiple instructors with different points of view (within individual courses or course by course).	147	9
Have access to field courses, internships, and opportunities to partner with other groups.	146	9
Be familiar with concepts of property, policy, management processes, and laws and regulations that shape governance.	145	11
Understand the physics and chemistry of the atmosphere, hydrosphere and processes contributing to pollution and degradation of air, water, and soils.	141	15
Be able to use economic arguments effectively, to articulate and critique the premises of neoclassical economics.	139	15
Have a strong background in ecology.	134	21
Conduct research that has an immediate public value.	125	30

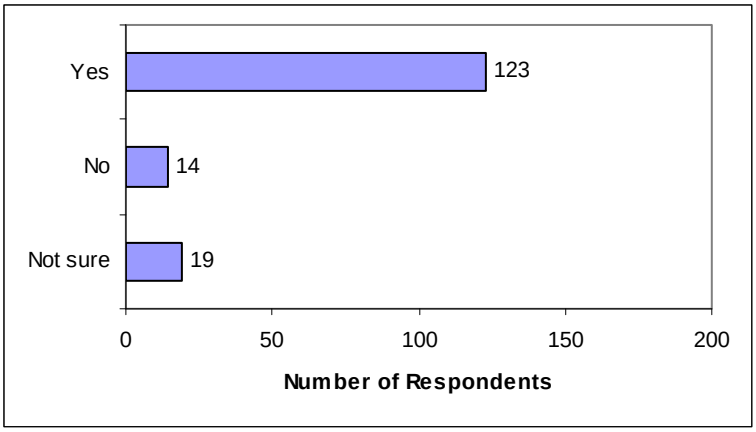
Would internships or work experience be useful in the Ph.D. program?

Figure 16 Internships in the Ph.D. Program



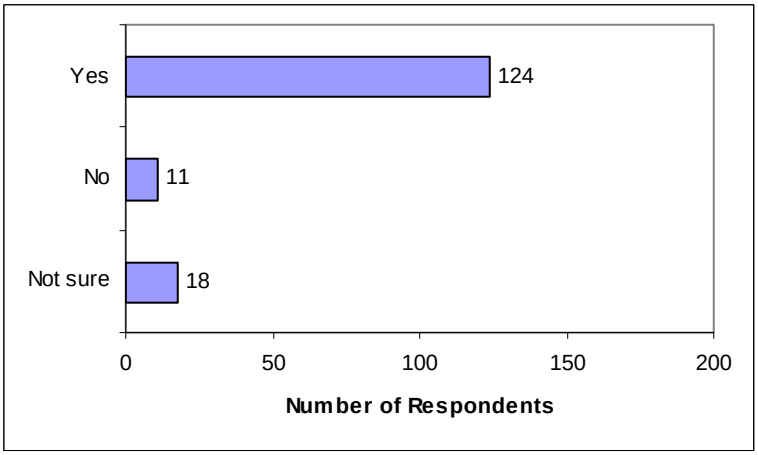
In the Ph.D. program, would you want opportunities to work as a teaching assistant?

Figure 17 Teaching Assistants in the Ph.D. Program



In the Ph.D. program, would you want opportunities to work as a research assistant?

Figure 18 Research Assistants in the Ph.D. Program



Appendix F
University of Saskatchewan Research Centres and Institutes with Expertise and Interests in Environment and Sustainability Issues (in alphabetical order):

Aboriginal Education Research Centre (existing)
Housed at the College of Education, the Aboriginal Education Research Centre is devoted to conducting ethical and appropriate research in and with First Nations and Métis communities and organizations to help find a new foundation for curriculum and instruction for Aboriginal students and to help establish new knowledge and exemplary practices for Aboriginal and cross-cultural learning environments. More information can be found at http://www.usask.ca/education/aerc/.

Centre for Hydrology (proposed)
The Centre for Hydrology provides a focus and catalyst for hydrological research at the University of Saskatchewan. The Centre is an interdisciplinary University facility designed to bring together and coordinate academic, graduate student, postdoctoral and allied government research staff for research, training and outreach on hydrological issues of local and global importance and to coordinate the University presence in hydrology. Expertise is focused on water resources and climate change; prairie, boreal and arctic hydrology; safe water; and effects of the mining sector on water resources. Participating faculty come from the Departments of Agricultural and Bioresource Engineering, Biology, Civil and Geological Engineering, Geography, Geology, Soil Science and Toxicology. Additionally, scientists from other government research centres such as the National Hydrology Research Centre and Saskatchewan Research Council are also key contributors.

Center for Canada/U.S. Relations (proposed)
The Center for Canada/U.S. Studies is a broad initiative involving all aspects of Canada/U.S. relations focused particularly on the Great Plains and Rocky Mountain regions of North America. This is a joint initiative of the Colleges of Arts and Science, Agriculture and Bioresources, and Commerce. The scope of the activities of the Centre are clearly multidisciplinary and encompass the Natural Sciences, Social Sciences, and Humanities/Fine Arts. Some broad areas of interest include: 1) trade issues and policies, NAFTA and the development of a north-south trade corridor, 2) water availability and management at a time of significant climate change, 3) greater emphasis on the energy and mining sectors of the economy coupled with concerns about the environment, 4) investments in, and networks of, centers of excellence in science and technology, 5) issues related to Native American/First Nations communities regarding both opportunities and challenges, 6) population shifts and the decline of rural communities, and 7) security and the nature of the borderlands. The Center would focus its activities primarily on research and graduate student programming although it will be connected to the new Prairie Studies Program which is an undergraduate initiative. The Center for Canada/U.S. Studies would be under the sphere of the proposed School of Public Policy.

Centre for Northern Research (proposed)
This centre, still in the developmental stages, seeks to provide linkages between researchers with expertise in the North. Researchers will be drawn from a broad range of disciplines, from the humanities and fine arts to science and social sciences. The Centre will seek to conduct research

to benefit the North, including its people and environment, and to promote the stewardship of the North's natural resources.

Centre for Rural Studies and Enrichment (existing)
Established in 1997, the Centre for Rural Studies and Enrichment is located at St. Peter's College in Muenster, Saskatchewan. Students from the college participate in many of the centre's research projects, which focus on rural people and communities. This broad mandate allows the centre to participate in research projects concerning all aspects of rural life, ranging from the rural economy to rural health to watersheds in rural areas. More information can be found at http://www.crse.ca/.

Centre for Studies in Agriculture, Law and the Environment (existing)
Established in 1996, the Centre for Studies in Agriculture, Law and the Environment, or CSALE, has three main research areas: agroforestry, food safety, and greenhouse gases. This interdisciplinary centre seeks to conduct research concerning the relationships between ecosystem health and agricultural production and distribution, as well as legal regulation of markets and the environment. The investigation of the assumptions of environmental analysis is also a key focus. CSALE's website is found at http://www.csale.usask.ca/index.html.

Community-University Institute for Social Research (CUISR) (existing)
CUISR is a partnership between a set of community-based organizations and faculty and graduate students from the University of Saskatchewan. It supports community-based research, helping to build the capacity of researchers, community-based organizations and citizenry to enhance community quality of life in Saskatoon. More information can be found at: http://www.usask.ca/cuisr/

Institute of Aboriginal and Indigenous Graduate Studies and Research (IAIGSR) (proposed)
It is anticipated that this proposed Institute will be located within the College of Arts and Science to establish and promote interdisciplinary research relating to Aboriginal societies in their cultural, societal, economic and political contexts, employing a wide range of both disciplinary and theoretical perspectives. Building on the established cohorts of expertise within the College of Arts and Science, the IAIGSR will develop three broad and inclusive themes: Aboriginal cultures and societies, contemporary public policy and Aboriginal people and global perspectives on Indigenous peoples and rights.

Institute for Space and Atmospheric Studies (ISAS) (existing)
The Institute of Space and Atmospheric Studies (ISAS) was formed in 1956 to study the aurora (northern lights), the related 'disturbances' in the upper atmosphere and ionosphere, and the effects of solar activity upon climate. Since that time members of the Institute have expanded the world's knowledge and understanding of how the sun and the earth interact, and has trained more than 200 scientists and engineers in a wide range of technical and scientific areas. Currently the Institute has approximately 35 members. For more information, see http://www.usask.ca/physics/isas/

Mineral Research Centre (proposed)
The College of Engineering has proposed a Mineral Research Centre to serve as a partnership among all levels of government, the mineral (mining) related industries, and other organizations such as the Saskatchewan Research Council. The proposed Centre is being designed to intensify and integrate mining-related research including technical aspects related to exploration, extraction and processing as well as related environmental and socio-economic issues.

Saskatchewan Population Health and Evaluation Research Unit (SPHERU) (existing)
SPHERU is a multi-disciplinary research unit that conducts collaborative research, graduate training and policy evaluation relating to determinants of population health such as early childhood development, economic globalization, community and environment, indigenous peoples' health, gender and socio-economic status. Multi-disciplinary teams of faculty, community groups, policy analysts, and researchers from other universities are involved. SPHERU's website is http://www.spheru.ca

Toxicology Centre (existing)
The University of Saskatchewan began developing expertise in toxicology in 1975, with the appointment of a coordinator of toxicology research. Today, the Toxicology Centre encompasses an active research program, as well as interdisciplinary undergraduate and graduate programs. Postgraduate diploma, M.Sc., and Ph.D. programs are available at the graduate level. The Toxicology Centre, which is the Western Node in the Canadian Network of Toxicology Centres, has two main research arms: environmental toxicology and biomedical toxicology. Additional information about the Centre can be found at http://www.usask.ca/toxicology/index.htm.

University of the Arctic (existing)
The University of the Arctic is a network of more than one hundred post-secondary institutions and other agencies seeking to promote higher education and research in the north. The focus of the University of the Arctic is the creation of a sustainable circumpolar region. Programs and facilities include an undergraduate degree in circumpolar studies, a field school, the north2north student exchange program, and a Ph.D. Networks team. The undergraduate studies office for the University of the Arctic is located at the University of Saskatchewan. More information can be found at http://www.uarctic.org/Frontpage.aspx?m=3

Appendix G
Staging of Resource Deployment for the School of Environment and Sustainability 2007-2012

	1st Cycle	2nd Cycle			
Faculty	**2007-08**	**2008-09**	**2009-10**	**2010-11**	**2011-12**
New – Chairs					
Centennial Chair		1			
Canada Research Chair (Tier 2)		1			
New – Operating Budget					
Acting Director	1	0			
Executive Director (Re-assigned)		1			
New Faculty		2	^1	^1	^1
Current Faculty Re-assigned		8			
TOTAL FACULTY	1	13			
Graduate Students*					
M.A.E.P.	0	10	15	25	30
M.Env.	0	9	26	40	48
Ph.D. (Environment)	0	5	12	21	22
M.Sc. (Hydrology)	0	3	6	6	6
Ph.D. (Hydrology)	0	3	5	7	7
TOTAL STUDENTS	0	30	64	99	113
Visitors					
Post Doctoral Fellows	0	0	2	3	4
Visiting Scholars	0	0	1	2	2

*Program enrolments all faculty will be hired or re-assigned by 2008/09 to deliver associated programs. These are incremental students. Numbers are based on total enrolment not annual intake.

^ After 2007-08, new faculty hiring will only take place if warranted by graduate and/or research program expansion.

Summary of Operating Expenses and Revenues for the School of Environment and Sustainability

		2007/08		2008/09		2009/10		2010/11		2011/12	
	Notes	**FTE**	**$'s**	**FTE**	**$'s**	**FTE**	**$'s**	**FTE**	**$'s**	**FTE**	**$'s**
Administrative expenditures:	**1**										
Executive Director			0	1.0	100,000	1.0	100,000	1.0	100,000	1.0	100,000
Acting Executive Director		1.0	50,000		0		0		0		0
ASPA staff	**2**		0	0.5	28,730	1.0	57,460	1.0	57,460	1.0	57,460
CUPE staff	**2**	1.0	33,500	1.0	33,500	2.0	67,000	2.0	67,000	2.0	67,000
Shared ASPA services	**2,3**	1.0	57,460	1.0	57,460	1.0	57,460	1.0	57,460	1.0	57,460
Faculty fellowships	**4**		0		10,000		10,000		10,000		10,000
Benefits (17.5%)	**5**		15,918		20,946		31,836		31,836		31,836
sub-total		3.0	156,878	3.5	250,636	5.0	323,756	5.0	323,756	5.0	323,756
General operating costs	**6**		40,000		42,000		45,000		47,000		50,000
Graduate Student Fellowships (GSF)	**7,8**		0		15,000		30,000		40,000		50,000
Scholarships	**8**		0		0		50,000		50,000		50,000
Market study	**9**		25,000		0		0		0		0
Equipment	**10**		8,000		8,000		8,000		8,000		8,000
sub-total		3.0	**229,878**	3.5	**315,636**	5.0	**456,756**	5.0	**468,756**	5.0	**481,756**
Expenditures - Chairs & faculty											
Centennial Chair	**11**		0	1.0	120,000	1.0	120,000	1.0	120,000	1.0	120,000
Canada Research Chair	**12**		0	1.0	100,000	1.0	100,000	1.0	100,000	1.0	100,000
New faculty	**13**		0	2.0	215,764	3.0	323,646	4.0	431,528	5.0	539,410
sub-total		0.0	0	4.0	435,764	5.0	543,646	6.0	651,528	7.0	759,410
Total Expenditures		3.0	**229,878**	7.5	**751,400**	10.0	**1,000,402**	11.0	**1,120,284**	12.0	**1,241,166**
Funding sources:											
Centennial Chair Trust	**11**		0		120,000		120,000		120,000		120,000
Canada Research Chair	**12**		0		100,000		100,000		100,000		100,000
Scholarship funds	**8**		0		15,000		30,000		30,000		15,000
Minor capital equipment	**10**		8,000		8,000		8,000		8,000		8,000
Academic Priorities Fund	**14**		250,000		250,000		250,000		250,000		250,000
Other sources	**15**		0		258,400		492,402		612,284		748,166
Total Funding			**258,000**		**751,400**		**1,000,402**		**1,120,284**		**1,241,166**
Annual balance			**28,122**		**0**		**0**		**0**		**0**
Incremental FTE graduate students											
Number			0		30		64		99		113
Tuition revenue			0		120,000		237,000		372,000		429,000

School of Environment and Sustainability Preliminary Budget Notes

1 The budget is based on the following assumptions:
   a) Academic year (July 1 to June 30)
   b) Constant 2006/07 dollars

2 Salaries for ASPA and CUPE FTE positions valued at $57,460 (Phase 2) and $33,500 (Phase 4), respectively.

3 Arrangements required for shared services including development activities and technology support.

4 Faculty fellowships will allow a teaching release to develop large-scale proposals or to provide opportunities for a specific “sabbatical” in the School.

5 Benefits calculated on ASPA, CUPE, Shared ASPA services, and Faculty fellowships.

6 Estimated amount includes costs for student recruitment (including events and promotional material such as brochures and posters), speakers and visiting scholars, modest GSA support, office supplies, equipment maintenance and other expenses including software.

7 GSF’s will be used to provide teaching or research assistantships.

8 Commitment of $90,000. Access to central scholarship funds will be required after 3 years.

9 Market survey and community consultation to ensure that the program niche and delivery modes meet professional needs.

10 A provision for equipment will be included in the General Capital Equipment allocation.

11 The School has a commitment for a fully funded Centennial Chair.

12 The School has a commitment for a Tier 2 Canada Research Chair.

13 New faculty refers to centrally funded incremental faculty to the University. The positions have been valued using the position valuation guidelines for a purchased position, and the cost includes salary, benefits and APEF. After 2008, new faculty would only be hired if justified by additional research or graduate program requirements.

14 The Provost's Committee made an initial commitment of $250,000 annually from the APF to each School commencing in 2007/08.

15 In addition to the $750,000 ($250,000 x 3) allocated to the three Schools combined, the Provost's Committee has also set aside $700,000 in the APF to support faculty positions and additional resources within the Schools. While some portion of the additional funds set aside in the APF can be considered by each School to be an "other source", each School will be expected to generate an appropriate level of support from any number of other sources. These sources could include, but not be limited to, interested provincial government departments, external agencies, foundations, development activities, and research activity including overhead recoveries.

Administrative Support Requirements for the School of Environment and Sustainability

	Notes	2007/08	2008/09	2009/10	20010/11	2011/12
ASPA staff						
Financial/research support	**1**	0.0	0.5	1.0	1.0	1.0
Other		0.0	0.0	0.0	0.0	0.0
		0.0	0.5	1.0	1.0	1.0
CUPE staff						
Admin assistant	**2**	0.5	0.5	1.0	1.0	1.0
Clerical services	**3**	0.5	0.5	1.0	1.0	1.0
		1.0	1.0	2.0	2.0	2.0
Shared ASPA services						
Development	**4**	0.5	0.5	0.5	0.5	0.5
Technology	**5**	0.5	0.5	0.5	0.5	0.5
		1.0	1.0	1.0	1.0	1.0
Total		2.0	2.5	4.0	4.0	4.0

Notes:

1 Financial oversight and collaborative research grant applications.

2 General administrative duties such as administration of faculty notices of appointment, assist with program planning and development.

3 General duties including faculty (and director) support and graduate student applications and files.

4 Student recruitment campaigns and fundraising initiatives.

5 General support including website development and maintenance, web-based advertising, and database establishment and management.

Total Estimated Enrolment and Tuition Revenue for the School of Environment and Sustainability

	Notes	Estimated Annual Tuition	2007/08	2008/09	2009/10	2010/11	2011/12
Planned Enrolment							
MAEP			0	10	15	25	30
M.Env.			0	9	26	40	48
PhD (Env)			0	5	12	21	22
MSc (Hydrol)			0	3	6	6	6
PhD (Hydrol)			0	3	5	7	7
Total			0	30	64	99	113
Tuition revenue							
MAEP		6,000	0	60,000	90,000	150,000	180,000
M.Env.		3,000	0	27,000	78,000	120,000	144,000
PhD (Env)		3,000	0	15,000	36,000	63,000	66,000
MSc (Hydrol)		3,000	0	9,000	18,000	18,000	18,000
PhD (Hydrol)		3,000	0	9,000	15,000	21,000	21,000
Total			0	120,000	237,000	372,000	429,000

Annual Estimated Student Intake for the School of Environment and Sustainability

Notes	Estimated Annual Tuition	2007/08	2008/09	2009/10	2010/11	2011/12
Planned Intake						
MAEP		0	10	15	25	30
M.Env.		0	9	17	23	25
PhD (Env)		0	5	7	9	6
MSc (Hydrol)		0	3	3	3	3
PhD (Hydrol)		0	3	2	2	3
Total		0	30	44	62	67
Tuition revenue						
MAEP	6,000	0	60,000	90,000	150,000	180,000
M.Env.	3,000	0	27,000	51,000	69,000	75,000
PhD (Env)	3,000	0	15,000	21,000	27,000	18,000
MSc (Hydrol)	3,000	0	9,000	9,000	9,000	9,000
PhD (Hydrol)	3,000	0	9,000	6,000	6,000	9,000
Total		0	120,000	177,000	261,000	291,000

Appendix H: Names of Units That May Contribute to and Individuals Who Have Participated in Planning for the School *

*Individuals from some units may participate in more than one research theme. This table does not indicate that individuals or units have agreed to participate, only that they have the expertise to do so.

Ecological integrity and resource use	***Energy use and climate change***	***Earth system processes***	***Environmental ethics, justice and governance arrangements***
Biology	Environmental Engineering	Geography	Accounting
Biomedical Sciences & Pathology	Geology	Geology	Agricultural Economics
Environmental Engineering	Geography	Physics	Biology
Soil Science	Physics	Environmental Engineering	Economics
Toxicology	Agricultural Economics	Civil Engineering	Educational Foundations
Veterinary Medicine	Soil Science	Bioresource Engineering	Curriculum Studies
Plant Sciences	Economics		Geography
Agricultural Economics			History
Archeology			Law
Bioresource Engineering			Native Studies
Curriculum Studies			Philosophy
Geography			Political Studies
Accounting			Sociology
History			
Toxicology Centre Mineral Resource Centre Division of Environmental Engineering Centre for Studies in Agriculture, Law & the Environment Centre for Rural Studies and Enrichment Centre for Northern Research University of the Arctic	Division of Environmental Engineering Mineral Resource Centre Hydrology Centre	Hydrology Centre Institute for Space and Atmospheric Sciences	Centre for Studies in Agriculture, Law & the Environment Centre for Northern Research University of Arctic Aboriginal Education Research Centre Institute for Aboriginal & Indigenous Graduate Studies & Research Community-University Institute for Social Research Saskatchewan Public Health & Evaluation Research Unit Centre for Canada/US Relations

Faculty members expressed great interest in the development of the School. Four informal information/discussion sessions were attended by approximately 50-60 faculty members in total. Separate meetings were also held with groups (e.g. those conducting Aboriginal research on topics related to the School, departments) or individuals (e.g. Canada Research Chairs, Directors of Institutes or Centres, Heads of Departments). Additionally, the workshops in December and January were filled to room capacity. As these events required registration, the names of those who registered are listed below. Beyond these individuals, several faculty members have contacted the Special Advisor separately to discuss their interests in participating in the School.

The following faculty members registered for the workshop in December:

Aitken, Alec	Geography
Akkerman, Avi	Geography
Archibold, O.W.	Geography
Barbour, S. Lee	Civil & Geological Engineering
Bharadwaj, Lalita	Nursing
Bortolotti, Gary	Biology
Boulfiza, Moh	Civil & Geological Engineering
Bowden, Marie-Ann	Law
Cunfer, Geoff	History
Dalai, Ajay	Chemical Engineering
de Boer, Dirk	Geography
Elabor-Idemudia, Patience	Sociology
Fleming, Ian	Civil & Geological Engineering
Franklin, Steven	Vice-President Research/Geography
Gander, Bob	Electrical Engineering
Guo, Xulin	Geography
Harrison, Niran	IROB, Commerce
Henry, Carol	Pharmacy & Nutrition
Hesseln, Hayley	Agricultural Economics
Hill, Gordon	Chemical Engineering
Holm, Rick	Plant Sciences
Howe, Leslie	Philosophy
Hudson, Jeff	Biology
Johnstone, Jill	Biology
Lloyd, Nick	Institute of Space and Atmospheric Studies
Lovrod, Marie	Women's and Gender Studies
Majewski, Marek	Chemistry
Manson, Alan	Institute of Space and Atmospheric Studies
McVittie, Janet	Curriculum Studies
Ndisang, Joseph	Physiology
Neal, Dick	Biology
Nemati, Mehdi	Chemical Engineering
Ogoucha, Ike	Mechanical Engineering
Peak, Derek	Soil Science
Peng, Jian	Civil & Geological Engineering
Poellet, Michael	Philosophy STM
Pomeroy, John	Geography
Rangacharyulu, Chary	Physics & Engineering Physics
Reed, Maureen	Geography
Regnier, Robert	Educational Foundations
St-Maurice, Jean-Pierre	Physics & Engineering Physics

Tanino, Karen	Plant Sciences
Van Rees, Ken	Soil Science
Walburger, Ken	Animal and Poultry Science
Walder, Cheryl	Large Animal Clinical Sciences
Walker, Ryan	Geography
Westbrook, Cherie	Geography
Woodhouse, Howard	Educational Foundations
Woodhouse, Viola	Philosophy

Additionally, the following faculty registered for the meeting with visitors in January:

Trever Crowe, Head, Department of Agricultural & Bioresource Engineering, College of Engineering
Jim Thornhill, Associate Dean Research & Graduate Studies, College of Medicine
Jim Hendry, Senior NSERC & Cameco Research Chairs, Department of Geological Sciences, College of Arts & Science
Syed Shah, Associate Professor, Canadian Centre for Health & Safety in Agriculture
Kevin Ansdell, Head, Department of Geological Sciences, College of Arts & Science
François Messier, Head, Department of Biology, College of Arts & Science
Bernhard Juurlink, Acting Associate Dean Basic Sciences, College of Medicine
Alan Manson, Chair, Institute of Space and Atmospheric Studies
Ian Fleming, Department of Civil & Geological Engineering, College of Engineering
John Pomeroy, Canada Research Chair in Water Resources and Climate Change, Department of Geography, College of Arts & Science
S. Lee Barbour, Department of Civil and Geological Engineering, College of Engineering
Bill Waiser, Department of History, College of Arts & Science
Ted Leighton, Executive Director, Canadian Cooperative Wildlife Health Centre/Department of Veterinary Pathology, Western College of Veterinary Medicine
Karsten Liber, Director, Toxicology Centre
Bob Gander, Acting Dean, College of Engineering/School of Environment Steering Committee
Dirk de Boer, Department of Geography, College of Arts & Science
P.M. Huang, Professor Emeritus, Department of Soil Science, College of Agriculture & Bioresources
Phil Dwyer, Department of Philosophy, College of Arts & Science
Darwin Anderson, Department of Soil Science, College of Agriculture & Bioresources
William Kerr, Department of Agricultural Economics, College of Agriculture & Bioresources
Claire Card, Chair, International Activities Committee of Council/Department of Large Animal Clinical Sciences, Western College of Veterinary Medicine
Niran Harrison, Department of Industrial Relations & Organizational Behaviour, College of Commerce
Larry Sackney, Department of Educational Administration, College of Education
Melanie Elliott, Extension Division

Appendix I
Proposed Graduate Programs of the School of Environment and Sustainability

All these programs will be developed and formally proposed in the 2007-08 academic year, for a launch in 2008-09. All proposed programs will be developed with faculty members and brought forward for approval separately through the regular processes and procedures of the College of Graduate Studies and Research and University Council.

(a) A **Master of Environment** (M.Env.) is a thesis-based program. Students would be expected to take a minimum of 12 credit units of course work and complete a thesis. The M.Env. program would be targeted at students who seek an interdisciplinary graduate learning experience that could lead to a Ph.D. or other employment opportunities.

This program will attract approximately 23-25 *new* (incremental) students each year after 4 years. A proposal for this program will be submitted to the College of Graduate Studies and Research in late Fall 2007 with a view to launching the program in September 2008.

Students entering the M.Env. program will be required to have a Bachelor's degree with a minimum 80% average over the last 60 credit units (or equivalent) completed. This standard is higher than that for the College of Graduate Studies and Research, recognizing that we seek students of high caliber who can succeed at interdisciplinary investigation. This program is designed to be completed in two years of full-time study. We would expect that M.Env. students would have opportunities to work as teaching assistants during their degree program.

(b) A **Master of Applied Environmental Processes (M.A.E.P.)** is a course-based program. The M.A.E.P. will be targeted at professionals (although students without work experience outside the University may apply) from a wide range of disciplines, requiring advanced knowledge to address environmental issues. This program will be developed as information is obtained about the kinds of desired expertise for those in communities, industries, organizations, and government agencies. A market survey and community consultation will be required. Student input has indicated that an internship within this program would be highly desirable (Appendix E). This may include internship opportunities within the University such as with Facilities Management Division. Over time, there may be more than one M.A.E.P. stream (e.g. geomatics, Aboriginal land management). It is anticipated that this program will attract about 30 *new* (incremental) students each year after 4 years. A proposal for this program will be submitted to the College of Graduate Studies and Research in Fall 2007 with a view to launching the program in September 2008.

Students entering the M.A.E.P. will be required to have a Bachelor's degree with a minimum 75% average over the last 60 credit units (or equivalent) completed. This standard is higher than that for the College of Graduate Studies and Research, recognizing that we seek students of high caliber who can succeed at interdisciplinary studies. Subject to some minimum prerequisites that will have to be defined, students from a wide variety of disciplines – *e.g.* ranging from the fine arts to the social sciences to the physical sciences to the professional college disciplines – will be eligible.

Students enrolled in the course-based Master's program (M.A.E.P.) must take at least 24 credit units of course work and complete a project. Students may undertake projects in conjunction with an internship. A project should be of sufficient size and scope that it can be completed in the spring/summer term. There is no defence, but the project will be graded as for other courses.

Typically, students enrolled in the applied program do not go on to pursue a Ph.D. with this accreditation. However, they may transfer to the thesis-based Master's program after completing at least 9 credit units of their program, if they obtained a minimum 80% average in their course work and they have developed an acceptable thesis proposal. This M.A.E.P. program is designed to be completed in one year of full-time study or can be completed on a part-time basis.

To facilitate students who are already employed, some courses may be taught in a condensed format (e.g. one week) or on-line.

(c) **Interdisciplinary thesis-based M.A. or M.Sc. degrees** will be developed as stand-alone degrees that cannot be advanced within a department. Research clusters will be invited to develop these options over time. The first program will be launched after appropriate faculty are hired or re-assigned and following faculty consultation. A Master of Science in Hydrology (M.Sc. in Hydrology) has been proposed for the first round of consideration. Students will take a minimum of 12 credit units of courses and complete a thesis. While this would be an interdisciplinary degree, the mix of course requirements will differ from those for the M.Env. degree.

This program would be the first hydrological science graduate degree program in Canada and would place Canada alongside the United States, Japan and most western European countries and Russia. This program would attract approximately 3 *new* (incremental) students each year. A proposal for this program will be submitted to the College of Graduate Studies and Research in Fall 2007 with a view to launching the program in September 2008.

(d) A **Doctor of Philosophy** (Ph.D.) is a thesis-based program. Students will take 6 credit units of courses and complete a thesis. The Ph.D. program would be targeted at students who seek an interdisciplinary graduate learning experience that could lead to employment at a University or other research setting.

This program would attract approximately 6-9 *new* (incremental) students each year in the interdisciplinary "environment and sustainability" stream and 3 *new* (incremental) students each year in "hydrology." A proposal for this program will be submitted to the College of Graduate Studies and Research in Fall 2007 with a view to launching the program in September 2008.

The Ph.D. program is a research-driven degree program. Students enrolled in the Ph.D. program would have to successfully complete at least 6 credit units of course work with at least 3 credit units from the core Environment offerings, a comprehensive examination, a thesis proposal, and final thesis (by manuscript [composed of at least 3 papers of publishable quality] or by standard thesis). Required courses are yet to be determined. As with M.Env. students, we would expect that Ph.D. students would have opportunities to work as teaching assistants during their degree program.

Other Options

For students who seek a disciplinary degree with some interdisciplinary training, additional certification or collaborative degree options administered by departments will continue to be explored after the School is launched and faculty are in place.

General Program Characteristics

In addition to requirements specified above for individual programs, all applicants to the thesis-based programs of the School must submit a statement of research interests that is sufficiently detailed that it describes the research issue(s) to be addressed and how their undergraduate education and/or work experience contribute to and would be enhanced by additional post-graduate work at the University of Saskatchewan. Upon admission, the supervisor and the student must create a committee that includes representation from outside their field of study. For the thesis options, joint supervision by faculty in different disciplines may be required.

Some applicants may require additional preparation to make the transition into one of the postgraduate programs. These may include students who have an undergraduate degree in a discipline unrelated to that which they now seek to study or who have not completed sufficient undergraduate education to have the equivalent of an "honours undergraduate degree." Decisions will be made about additional education requirements at the time of admission.

We anticipate that the School will offer interdisciplinary graduate courses annually that are not offered within home departments. These courses will offer opportunities to hone specific research skills and to establish linkages with other students in environmental programs, thereby enhancing the interdisciplinary experience. In particular, researchers have identified a need to create graduate courses in research methods that transcend individual disciplines. The School can help fill this need. In addition, we anticipate that students in disciplinary programs may choose to take individual courses offered through the School and that students of the School may choose to take courses offered within departments to round out their programs.

The tuition for the M.Env. and the Ph.D. programs will be the same as tuition for other graduate programs on campus, currently set at $1,000 per term. Planning for the M.A.E.P. will determine the best tuition model, given challenges and opportunities associated with international recruitment.

Courses

M. Env. Course requirements to be fulfilled by:
(SENS 990) Interdisciplinary Seminar in Environment and Sustainability: No credit.

(SENS 800) Interdisciplinary Perspectives on Environment and Sustainability: 3 cu
OR, one of
(SENS 801) Primer on Environmental Science: 3 cu

(SENS 802) Primer on Environmental Studies: 3 cu

(SENS 803) Research Design in Environment and Sustainability (SENS 803): 3 cu

(SENS 804) Problem solving in Environment and Sustainability: 3 cu
FOR STUDENTS IN THE M.A.E.P. PROGRAM ONLY

One of the following:
(SENS 810) Appraising and Sustaining Ecological Integrity and Resource Use: 3 cu
(SENS 820) Assessing and Addressing Energy Use and Climate Change: 3 cu
(SENS 830) Understanding the Linkages Among Earth System Processes: 3 cu
(SENS 840) Analysing and Proposing Environmental Ethics, Justice, and Governance Arrangements: 3 cu

and two 3 cu electives from within or outside the School with permission of the student's supervisor.

The above core courses will be team-taught.

(SENS 990) Interdisciplinary Seminar in Environment and Sustainability: No credit. Terms 1 and 2. Students are required to give one seminar, help co-ordinate the series, and to participate regularly (attendance will be taken). Regular faculty participation is expected and participation from partners is welcome. Over time, some of these sessions will be co-ordinated with the 990 seminar in the Schools for Public Policy and Public Health.

Either the following course or one of the two courses below as follows:
(SENS 800) Interdisciplinary Perspectives on Environment and Sustainability: 3 cu.
This course examines philosophical underpinnings of environmental and sustainability issues through commonly encountered challenges of interdisciplinary research and policy practices. The purpose is to introduce students to a range of perspectives from the natural and social sciences and humanities. Different forms of inquiry, with discussion of their relative strengths and limitations, will be addressed. Modules will focus on "arts" and "science" perspectives.

OR

(SENS 801) Primer on Environmental Science: 3 cu.
The purpose of this course is to introduce the ways in which environmental scientists identify and resolve research problems for students entering the School with a B.A. or equivalent. It would introduce the scientific method including its strengths and limitations. It would illustrate how science has tackled specific problems such as those identified by researchers of the School (e.g. climate change, toxics in aquatic environments, water quantity and quality issues on the prairies).

OR

(SENS 802) Primer on Environmental Studies: 3 cu.
The purpose of this course would be to introduce the ways in which environmental social scientists and humanities scholars identify and resolve research problems for students entering

the School with a B.Sc. or equivalent. It would introduce the basis of social theory and the methods associated with different forms of inquiry with a discussion of their relative strengths and limitations. It would illustrate how social science or humanities have tackled specific problems such as those identified by researchers of the School. (e.g. climate change, toxics in aquatic environments, water quantity and quality issues on the prairies).

(SENS 803) Research Design in Environment and Sustainability: 3 cu.
The purpose of this course is to introduce graduate students to conceptual, practical, and ethical issues in conducting research in Environment and Sustainability. Its specific objective is to help the student develop a research proposal. Students will learn how to formulate a research question, develop an appropriate literature review, seek out and document methods used, and address ethical implications of their research.

(SENS 804) Problem Solving in Environment and Sustainability: 3 cu.
A course that requires all students to participate in a group project to resolve an environmental and sustainability 'problem' requiring expertise from the arts and sciences.
REQUIRED FOR M.A.E.P. students only.

(SENS 810) Appraising and Sustaining Ecological Integrity and Resource Use: 3 cu.
Will provide students with concepts and methods specific to their general area of inquiry.

(SENS 820) Assessing and Addressing Energy Use and Climate Change: 3 cu.
Will provide students with concepts and methods specific to their general area of inquiry.

(SENS 830) Understanding the Linkages Among Earth System Processes: 3 cu.
Will provide students with concepts and methods specific to their general area of inquiry.

(SENS 840) Analysing and Proposing Environmental Ethics, Justice, and Governance Arrangements: 3 cu
Will provide students with concepts and methods specific to their general area of inquiry.

Note: Courses numbered by 0 at the centre are core (required), courses with 10, 20, 30, and 40 in their numbers reflect the distinct research areas of the School.

The M.Sc. in Hydrology will have a different set of core courses including:
(SENS 831) Principles of Hydrology: 3 cu

Elective (minimum 3 cu) One of a set of specialty courses offered by instructors on a rotating basis or courses from individual departments. Alternatively, a second course of the 810, 820, 830, 840 offerings could be taken as an elective or other courses that may be offered through the M.A.E.P. program (to be developed).

In addition to the standard 13-week courses, we anticipate offering courses that can be taken in a one-week intensive format, allowing people who are currently employed to take courses in a format that may be more attractive than the traditional 13-week term. On-line delivery of courses will also be explored.

Appendix J
Letters of Support

UNIVERSITY OF SASKATCHEWAN
College of Agriculture
and Bioresources

TO: Dr. Steven Franklin, Vice-President Research

FROM: Ernie M. Barber, Dean

DATE: March 20, 2007

RE: School of Environment and Sustainability

I have reviewed the document, dated February 28, 2007, describing the proposed School of Environment and Sustainability, and have discussed the proposal with department heads and others in committee. Today I am writing to convey the continuing support and encouragement of the College of Agriculture and Bioresources for the development of this proposed School. While there still are implementation and operational details to work out, I believe that the proposal offers the foundation for an important initiative at the University of Saskatchewan.

The proposed School of Environment and Sustainability is very likely to bring significant benefits to the University of Saskatchewan and to our stakeholders. It will bring an enhanced profile and visibility to the very good and extensive work already taking place at this campus related to environment, natural resource management, and sustainable development. Public support for the University is enhanced when we are seen to be providing leadership on issues of importance to people and communities. It seems very likely that this enhanced profile will also attract new students to our undergraduate and graduate programs, and bring new investments to support research and scholarly work.

I want to thank you and the Steering Committee, led by Dr. Maureen Reed, for their extensive consultation with the campus community in the development of the proposal. I sincerely appreciated the opportunity to meet with you and Maureen, and I am gratified that the most important concerns and reservations that I expressed have been dealt with through amendments or additional explanations. Notwithstanding these earlier conversations and the support in principle of our College for the proposed School, there remain issues around its implementation that we believe need some further discussion.

- As noted in the last College Plan, the College of Agriculture and Bioresources has a substantial number of faculty members whose work is significantly related to environmental science and who, therefore, may be able to contribute to the School as either members or affiliates. Our College mission is to advance the responsible development of land, water and bioresources to provide products and services that enhance the quality of life. Environmental science and concepts of sustainability are essential elements of the value-chain approach implied by our mission. This mission involves teaching, research and public service and requires the same faculty who could be attracted to the School. Our challenge will be to support the School without overly diminishing capacity for disciplinary scholarship within our departments and without

inappropriately diverting effort and focus from the achievement of the integrated resource management mission of the College.

- Second, we want to be sure that implementation of the School, with its focus on graduate programming and research, will not inadvertently diminish the capacity at the University for undergraduate teaching in environmental science. Even with the addition of new faculty, there could be an overall reduction in our capacity to teach and provide administrative and academic oversight for undergraduate programs if new and existing faculty named to the School as members have only minimal responsibilities to undergraduate programs. This issue is of particular concern to the College of Agriculture and Bioresources as we continue to focus a lot of energy on bringing in new undergraduate programs in resource management to complement our existing programs in agricultural science and business and to increase our overall contributions to undergraduate education. The relationship between the School and both the leadership and the delivery of interdisciplinary courses in proposed new undergraduate programs in the environment remains to be clarified. It is possible that this clarification will help address any concerns regarding undergraduate programming.

- Some questions remain regarding the mechanisms by which interdisciplinary research will be fostered and supported. There likely are dozens of current faculty members whose work in environmental studies could qualify them to become members of the School and the promise of this high profile unit will be attractive to many. However, faculty joining the School need to be committed to achieving high levels of interdisciplinarity, especially the more difficult kind that spans across the life sciences, natural sciences, social sciences and the humanities. Without this commitment, the School could become a collector for good individual scholarly contributions yet not really move our work to a new level of interdisciplinarity. What selection criteria will be used to ensure that members are prepared to devote their energies to high levels of interdisciplinarity? A more thorough discussion of the nature of the planned interdisciplinarity and expectations regarding participation might be helpful for faculty considering possible roles that they could have in the School.

- Given the significant overlap in the mission of the College of Agriculture and Bioresources and the proposed School, it is especially important that every attempt is made to foster collaboration rather than competition between our two units. The College of Agriculture and Bioresources already behaves much like a School in terms of its interdisciplinarity, its focus on issue-based scholarship, and its reliance on external funds to supplement the University Operating Grant. The College and the School will almost certainly be relying on the same government and private organizations to support our work and I hope we will think very strategically about how we collaboratively engage with those external constituencies.

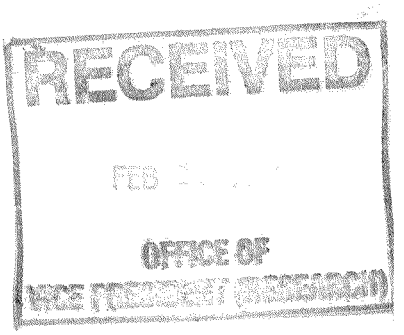
This College of Agriculture and Bioresources is able to see the potential benefits for our University and for our stakeholder communities of giving the issues of environment and sustainability the increased visibility and focus that might be achieved with a School. Given the mission and the suggested initial areas of focus for the School as described in the proposal, there are several faculty in this College that could make significant contributions to the School as members, and an even larger cohort of faculty that could make contributions as affiliates. The College of Agriculture and Bioresources manages several laboratories that could be of

importance to the School, including extensive field facilities. It follows that the College of Agriculture and Bioresources could be the most appropriate home for at least some of the new faculty proposed for the School. Our College is also prepared to explore potential collaborations involving staffing and shared administrative functions in areas such as communications, fund raising and development, and international programming.

Let me again offer my admiration for the tremendous work that the steering committee has done in developing this proposal and a special commendation to Maureen Reed for her leadership of the committee.

EMB/mal

c: Dr. Maureen Reed, Department of Geography
Dr. Jo-Anne Dillon, Dean, College of Arts and Science
College Executive Committee



February 12, 2007

Dr. Steven Franklin
Vice President, Research
University of Saskatchewan

Dear Dr. Franklin:

Thank you for meeting with me to discuss the progress towards the creation of a School of Environment and Sustainability. I am in favour of the Schools initiatives and can see a number of ways in which Education will intersect with the development of all three Schools at this time. Indeed, we are proposing our own School of Leadership and I hope that we can find ways to develop mutually-supportive programming and research as this initiative comes to fruition.

I am pleased to offer my support of the School and to suggest that there are different ways in which we might engage with it. As you know, I am restructuring the College to place greater emphasis on graduate education and research. We may not be in a position to assign faculty members into the School until this restructuring process has been completed. In the interim, however, I anticipate that there are many ways that faculty might contribute. These may include teaching a class within new courses, allowing students from the School to enter Education courses, participating in colloquia, and of course, participating on graduate student committees.

We have considerable, and growing, strength in areas of Indigenous knowledge, social justice, and Aboriginal science education. Additionally, the Aboriginal Education Research Centre and the Aboriginal Learning Centre project have increased the range of expertise related to Aboriginal learning. We hope that the School will be able to learn from the people associated with these initiatives. We also have several sites around the province that might serve as "laboratories" for students in the School. These include the Prairie Habitat Garden and schools in the Catholic and Public School Divisions. Additionally, we conduct community-based delivery of teacher-education programs. Through this initiative, we have access to many Aboriginal communities in the province and can help researchers gain "credible entry" into those places to conduct mutually-beneficial research related to Environment and Sustainability.

Dean, College of Education, University of Saskatchewan
28 Campus Drive, Saskatoon SK S7N 0X1 Canada Telephone: (306) 966-7647 Facsimile: (306) 966-7624

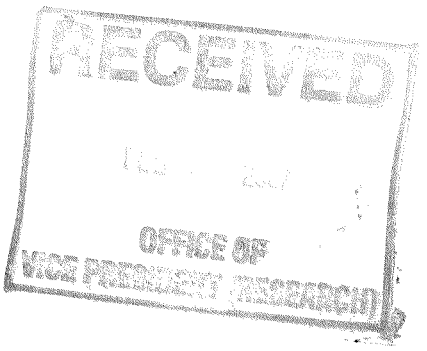
For our part, I can identify a range of benefits from our involvement including an expansion of our contribution to graduate programs and research. Thus, I am willing to be a member of a resource committee that will examine the needs of the School and determine how they might be met from a combination of new appointments and re-assignment of existing appointments across the University. Such a committee will help to clarify how each College may contribute and will help build a sense of partnership between the School and each of the participating Colleges.

In summary, I support this initiative and look forward to establishing strong links over time with the proposed School of Environment and Sustainability.

Yours truly,

Cecilia Reynolds

Cecilia Reynolds
Dean, Education



February 15, 2007

Dr. Steven Franklin
Vice President, Research
University of Saskatchewan

Dear Dr. Franklin:

Thank you for meeting with me to discuss the progress toward the creation of a School of Environment and Sustainability. I have reviewed your progress and am pleased to see that you have considered several key items that will facilitate the School's meeting the mandate to enhance research opportunities and graduate programming related to environment and sustainability. Our College will participate with the School of Environment and Sustainability where appropriate.

I anticipate that faculty in the WCVM may work with members of the School on research related to ecological integrity, biodiversity, and the health of wildlife populations. Additionally, I expect that once the School is running, there may be other synergies identified including opportunities for learning through invited speakers, participating in colloquia, and participating on graduate student committees.

Thus, I am willing to be a member of a resource committee that will examine the needs of the School and determine how they might be met from a combination of new appointments and re-assignment of existing appointments across the University. Such a committee will help to clarify how each College may contribute and will help build a sense of partnership between the School and each of the participating Colleges.

In summary, I support this initiative and look forward to establishing strong links over time with the proposed School of Environment and Sustainability.

Sincerely,

Charles S. Rhodes
Dean

cc: Dr. Maureen Reed

Office of the Dean, Western College of Veterinary Medicine, University of Saskatchewan
52 Campus Drive, Saskatoon SK S7N 5B4 Canada Telephone: (306) 966-7447 Facsimile: (306) 966-8747

UNIVERSITY OF SASKATCHEWAN

College of Arts and Science

9 Campus Drive
Saskatoon SK S7N 5A5 Canada
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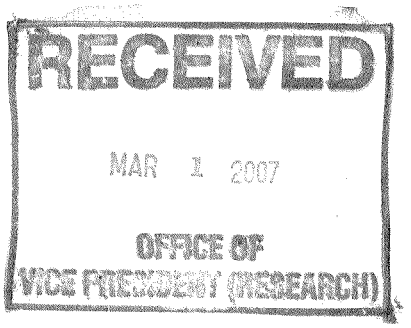

February 27, 2007

Dr. Steven Franklin
Vice President, Research
University of Saskatchewan

Dear Dr. Franklin:

Thank you for meeting with me to discuss the progress towards the creation of a School of Environment and Sustainability. I can see that a great deal of thought and effort has been made by the Steering Committee to engage all members of the University community in this initiative and to develop a proposal that reflects their broad interests.

I am pleased to offer my support to the concept of a School of Environment and Sustainability. In doing so, I look forward to a partnership between the School and the College of Arts and Science. I can identify a range of benefits from our involvement both for the School and for our College.

The College of Arts and Science, with the College of Agriculture and Bioresources, is committed to developing and delivering an undergraduate curriculum in environment built on a platform of common courses. We hope that members of the School will be engaged in teaching in this program and that they will provide research opportunities for undergraduate students. We also envisage that joint advertising of the undergraduate and graduate programs will enhance our enrollments in all areas.

The School should help to focus attention on the considerable research and teaching of our College, and the University at large, in "environment and sustainability". This attention will help to increase enrollments at both the undergraduate and graduate levels across several Colleges. I anticipate, therefore, that learning opportunities of our College will interdigitate with those of the School for our mutual benefit.

As Dean of a research-intensive College I am committed to not only maintaining, but also increasing the profile of our College in research funding at our University. While at this time, I do not know the precise number of faculty who might wish to participate in the School at some level, the finding of homes for School faculty in Arts and Science departments and the co-operation of some of our faculty in the School will only serve to strengthen our University profile in this import area. Therefore, I accept your invitation to be a member of a resource committee that will examine the needs of the School. Such a committee will help to clarify how each College may participate and will help build a sense of partnership between the School and each of the participate Colleges.

Yours truly,

Jo-Anne R. Dillon
Professor and Dean

JRD/sf

Cc: Maureen Reed, Department of Geography
Ernie Barber, Dean, College of Agriculture and Bioresources

City of
Saskatoon
Utility Services
Department

January 24, 2007
File No. 277-1

Maureen G. Reed, Ph.D., Professor
Department of Geography
9 Campus Drive
University of Saskatchewan
Saskatoon, SK S7N 5A5

Dear Dr. Reed:

Re: University of Saskatchewan School of the Environment

The City of Saskatoon is excited about the proposed School of the Environment and is interested in partnering with this initiative. A few ideas that could formulate the City's involvement include creating opportunities to identify and address common environmental challenges; offering graduate student internship appointments with the City; developing joint demonstration projects; engaging in joint research projects; as well as the potential for City employees to provide lectures and take classes at the School.

The City is also interested in the possibility that a Board of Partners will be established, in which representatives from agencies and organizations outside the University of Saskatchewan could help guide the School in endeavors that will have a mutual and lasting benefit for citizens of the city and the province.

Please accept our congratulations on the University of Saskatchewan's Centennial Year and accept our support of the potential development of the School of the Environment. We look forward to further discussions with the University.

Yours truly,

Sheri Praski, Branch Manager
Environmental Services

SP:el

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UNIVERSITY OF SASKATCHEWAN

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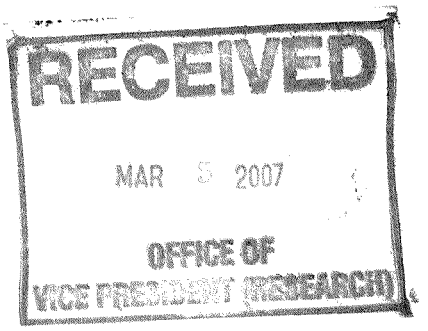


March 2, 2007

Dr. Steven Franklin
Vice President, Research
University of Saskatchewan

Dear Dr. Franklin:

Thank you for meeting with me to discuss the progress towards the creation of a School of Environment and Sustainability. I am in favour of the Schools' initiatives and am pleased to see the direction that the graduate programming is taking and the consideration given to graduate student funding and innovative learning opportunities. Work with partners will provide an enhanced learning experience for graduates. Additionally, the housing of interdisciplinary offerings within the School will offer an excellent opportunity to support students who seek post-graduate education.

I am pleased to offer my support of the School and to encourage adequate funding of the School to ensure these benefits are realized. You may recall that students may be "double counted" for the purposes of providing funding credit to academic units and the School for the supervision provided by faculty members.

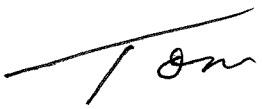
All students enrolled in thesis and dissertation programs qualify for University Graduate Scholarships either through the 'devolved' scholarship arrangements or through the direct application to CGSR's non-devolved scholarship competition. Without additional funding however, this is a zero-sum game such that the School would compete with already existing graduate programs for support for graduate students. That would guarantee opposition to the School and its objectives to implement new graduate programs. I strongly suggest that you and your colleagues urge the University to allocate direct funding for graduate students to the School during its start-up phase (say 5 years). This funding should then become part of the University Graduate Scholarship program and the School would then receive an annual allocation through the devolved funding arrangements.

For our part, I can identify a range of benefits from our involvement including an expansion of our contribution to graduate programs and research. Thus, I am willing to be a member of a resource committee that will examine the needs of the School and determine how they might be met from a combination of new appointments and re-assignment of existing appointments across the University. Such a committee will help

to clarify how each College may contribute and will help build a sense of partnership between the School and each of the participating Colleges.

In summary, I support this initiative and look forward to establishing strong links over time with the proposed School of Environment and Sustainability.

Yours truly,



Thomas B. Wishart
Dean, Graduate Studies and Research

cc: Professor Maureen Reed