



**UNIVERSITY OF
SASKATCHEWAN**

**SCHOOL OF
ENVIRONMENT
AND
SUSTAINABILITY**

FINAL PROPOSAL

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Prepared by:

The School of Environment and Sustainability Steering Committee

Steven Franklin, Vice-President Research (Chair and Executive Sponsor)

Maureen Reed, Department of Geography (Special Advisor)

Bob Gander, Acting Dean, College of Engineering

Lawrence Martz, Associate Dean Social Sciences, College of Arts and Science

Dick Neal, Department of Biology, College of Arts and Science

Graham Scoles, Associate Dean Research, College of Agriculture and Bioresources

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1. Executive Summary

The importance of sustaining Saskatchewan's environment for current and future generations is undeniable. While individuals at the University of Saskatchewan make significant research and societal contributions to the understanding and resolution of environmental problems, the University has yet to establish a distinctive identity through specific research programs and educational opportunities that are focused and coordinated. The proposed School of Environment and Sustainability provides an opportunity for the University to leverage the maximum return on the considerable investments this University has already made in environmental and sustainability research and scholarly activities, and to demonstrate its commitment publicly. There has been considerable consultation and enthusiasm within and outside the University, suggesting that establishment of a School will propel the University to playing a significantly enhanced role in research and graduate learning opportunities related to environment and sustainability. The School will facilitate new relationships among the faculty, Colleges, Research Centres and Institutes, and outside partners. The School will increase the size and scope of graduate education on campus, enhance the visibility of current research related to environment and sustainability, and establish partnerships to broaden and deepen research programs. Consequently, it will enrich a vibrant research community that promotes innovative interdisciplinary approaches to knowledge creation, synthesis and exchange beyond what might be attained by any individual centre.

The School will be guided by the following vision and mission:

Vision: Excellence in interdisciplinary environmental research and learning based on a rich understanding and commitment to sustainability through a focus on issues of importance to the northern prairie and parkland, boreal forest, and Arctic ecosystems.

Mission: 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 themes will focus the launch of research and graduate programs of the School. These are:

- * *Appraising and sustaining ecological integrity and resource use;*
- * *Assessing and addressing energy use and climate change;*
- * *Understanding the linkages among earth system processes;*
- * *Analysing and proposing environmental ethics, justice, and governance arrangements.*

It is expected that the School will be interdisciplinary, innovative, original, collaborative, cooperative and publicly accountable. Its people – faculty, staff, students, associates, partners, and visitors – will be committed to working together to nurture an interdisciplinary learning culture that values excellence in original research and scholarly activities, respects multiple forms of knowledge, encourages constructive and respectful debate, creates innovations in learning and teaching, and addresses issues of societal importance.

The School will be populated by 1 Executive Director, 1 Centennial Chair, 1 Canada Research Chair (Tier 2), 8 full-time equivalent faculty relocated from existing units, 2 new faculty (with

up to 3 more phased in over time), 20 or more Associates, 20 or more Adjuncts from co-located partners, and 5 staff across 4 FTEs to be phased in over time.

Proposed programs include an interdisciplinary thesis-based Master of Environment (M.Env.); a course-based professional Master of Applied Environmental Processes (M.A.E.P.); interdisciplinary thesis-based M.A. or M.Sc. programs on particular themes (e.g. Hydrology); and an interdisciplinary Ph.D. program. Over time, collaborative programs and certificates will also be explored.

The success of the School will be measured by its achievements in:

- demonstrating leadership in interdisciplinary learning and research associated with sustainability;
- creating a dynamic, cohesive, and collegial academic community;
- developing strong linkages across the University including Colleges, Research Institutes and Centres, and University operations, and partnerships outside the University that provide unique research opportunities and new programmatic initiatives;
- providing specific increases in student learning opportunities and student numbers because of new graduate programs that did not previously exist; and
- increasing the number, value, and quality of interdisciplinary environmental and sustainability research projects in areas strongly identified with the School that are not attributable to pre-existing structures.

This proposal was prepared after significant input from faculty, staff, and prospective partners. We acknowledge their wisdom, enthusiasm and hard work and look forward to engaging them in the further development of the School of Environment and Sustainability.

2. The Opportunity

Saskatchewan has undergone one of the world's most substantial landscape changes of the past century and may be facing some of its most intense climate changes in the century ahead. A sustainable future for the province is dependent on striking a careful balance between resource use and environmental quality. This future includes a growing role for Aboriginal people in environmental decision-making and management. A strong environmental research capacity is essential to the economic development and social well-being of Saskatchewan.

The University of Saskatchewan, along with 327 other institutions of higher learning around the world, signed the 1992 Talloires Declaration that committed the University to initiate and support mobilization of internal and external resources to address problems of environmental pollution and degradation and depletion of natural resources (Appendix A). By signing this declaration, the University of Saskatchewan affirmed the importance of the environment as a foundation of its education and practice and committed the University to developing interdisciplinary approaches to curricula, research initiatives, operations, and outreach activities that support an environmentally sustainable future.

This commitment has been reinforced by new investments in environmental research and infrastructure such as allocating Canada Research Chairs in related subject areas, increasing support for relevant research centres such as the Centre for Hydrology and the Toxicology Centre, and improving opportunities for graduate level education through new programming and an increased number of scholarships. The University has also applied its commitment to sustainability to its internal planning and development by adopting "sustainability" as one of the guiding principles of the 2002 Campus Master Plan.

Sustainability refers to the ability to maintain ecosystem functions and services, while protecting human livelihoods in a fair and equitable manner. Research about sustainability, particularly the burgeoning field of "sustainability science," focuses on "the dynamic interactions between nature and society."¹ More specifically, this field is described as "an emerging and highly relevant field of research dealing with the interactions between natural and social systems in the co-evolution of environment and civilization. It focuses on the challenges of sustainability: meeting the needs of present and future human populations while conserving the finite resources as well as the main functions and services of our planet."² Increased awareness that sustainability involves the mutual engagement of environmental and social considerations places emphasis on the need for scientists working on sustainability issues to join with other communities to establish practical solutions to environmental and social problems.³ It is these imperatives – a focus on the human/environment intersections and the need to establish partnerships within and beyond the University to resolve common problems – that will shape the philosophy, research, and graduate

¹ Clark, William C., and Nancy M. Dickson. 2003. "Sustainability science: the emerging research program." *Proceedings of the National Academy of Sciences of the United States of America*. 100 (14): 8059 – 8061. P. 8059.

² Humboldt-Universität zu Berlin. 2006. Advertisement for the Alexander von Humboldt Chair in Sustainability Science. *Science*.
<http://aaas.sciencecareers.org/texis/jobsearch/details.html?id=458855c34a02b0&q=computer%20science&pp=25&view=1&page=1> Accessed on 1 February 2007.

³ National Research Council (US). 1999. *Our Common Journey* (National Academic Press: Washington, DC).

programs of the School of Environment and Sustainability.

Analyzing environmental problems and pursuing solutions requires informed scrutiny, careful research, and strategic policy intervention. **While individuals at the University of Saskatchewan make significant research and societal contributions to the understanding and resolution of environmental problems, the University has yet to establish a distinctive identity through specific research programs and educational opportunities that are focused and coordinated.** The proposed School of Environment and Sustainability provides an opportunity for the University to leverage the maximum return on the considerable investments it has already made in environmental and sustainability research and scholarly activities, and to demonstrate its commitment publicly.

On the programming front, the University of Saskatchewan has a long history of delivering interdisciplinary undergraduate programs that have not fared well under external review because they lacked sufficient resources to provide coherent and consistent delivery. At the graduate level, students seeking interdisciplinary environmental education have been required to compile their own programs through the interdisciplinary option within the College of Graduate Studies and Research. Few ever do so. Instead, students seeking interdisciplinary environment-related post-graduate study have typically opted to advance their learning elsewhere. In both cases, we can do better. With a School of Environment and Sustainability, the University will establish a core number of faculty members who are committed to delivering courses and programs that will provide focus, coherence, and choice for students. University commitment to improving offerings at both undergraduate and graduate levels will serve both undergraduate and graduate students. Such commitment will complement our research expertise and enhance the profile of the University in this area of strategic priority.

A School of Environment and Sustainability will help to focus expertise in environmental and sustainability research and provide interdisciplinary graduate-level education from across a full spectrum of academic traditions. This breadth has been endorsed by faculty and by students in consultations with them during Fall and Winter 2006-07. Additionally, the School can help to attract and retain undergraduate and graduate students from a wide range of disciplines to the University.

Universities across North America are seeking to promote and demonstrate sustainability by introducing better building design, improving stewardship practices, making curriculum changes, and engaging students and local communities more effectively.^{4,5,6} The School will provide a place where the issue of sustainability can be discussed and where supportive policies and practices can be developed, in collaboration with Facilities Management Division and other units, to ensure that academic activity and operation of the University are consistent with the ideal of sustainability. By doing so, faculty members of the School will contribute to the theme, articulated in the *Second Integrated Planning Cycle: Emerging Trends and Themes*, “to build a high-

⁴ Boogaart, T. 2006. How Going Green Went, *University Affairs*, http://www.universityaffairs.ca/issues/2006/December/going_green/01.html/ Accessed on December 20, 2006.

⁵ Creating Sustainable Universities, Special Issue of *The Chronicle of Higher Education* October 20, 2006, Volume LII, Number 9.

⁶ Bartlett, P.F. and Case, G.W. 2004. *Sustainability on Campus: Stories and Strategies for Change*, Cambridge, MASS: The MIT Press.

performance and environmentally sustainable organization.”⁷ Our interdisciplinary approach, combined with explicit synergies between University operations and scholarly activities, will provide a broad knowledge base from which to contribute constructively to the broader community and society of which we are a part, including industry, government, and civic society.

The time is right to establish a School of Environment and Sustainability. Public interest in issues associated with environment and sustainability is high and will likely continue to rise as pressing issues of this century include concerns for environmental pollution, climate change, biodiversity loss, rates and impacts of resource exploitation, the transition from a fossil-fuel based economy to a bioeconomy, and good governance of our resource endowment. The School of Environment and Sustainability will position the University of Saskatchewan as a major player in debating and addressing these issues.

The environmental sector of the economy continues to experience significant growth. Interdisciplinary and cross-sectoral in nature, environmental employment includes a range of options in environmental protection, conservation and preservation of natural resources, and environmental sustainability. Of particular importance in the planning and implementation of the new School of Environment and Sustainability is the fact that at the beginning of the 21st century, much of this growth has been 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 (Appendix B).⁸

This trend is also reflected in enrolment in existing University of Saskatchewan undergraduate programs related to the environment (Appendix C). In most cases, this enrolment has been increasing over the last five years, particularly since the introduction of the new Environmental Toxicology program, suggesting that students are interested in unique, interdisciplinary, environmental programs. Similarly, our student survey revealed strong interest in pursuing interdisciplinary environmental scholarship (Appendix E). Yet, there is currently no graduate interdisciplinary offering related to the environment in the province to serve this demand.

What is happening across the country at the undergraduate, and especially the graduate level, suggests even more strongly that unique environmental programming is required to satisfy demand and to position the University of Saskatchewan as a leader in the environmental field (Appendix D). A study that considered sustainability at nineteen campuses in Atlantic Canada found that “sustainability research and scholarship is being conducted on most campuses at least to some degree, and is spread amongst faculty and students.”⁹ Furthermore, the study found that most of the institutions surveyed had “multi- or interdisciplinary research structures to address

⁷ University of Saskatchewan. 2007. Second Integrated Planning Cycle: Emerging Trends and Themes, 1 February 2007, p. 12.

⁸ Canadian Council for Human Resources in the Environment Industry, 2004 Environmental Labour Market (ELM) Report, <http://www.eco.ca/portal/default.aspx?lang=0>

⁹ Beringer, Almut, Tarah Wright, and Leslie Malone. 2006. “Sustainability in higher education in Atlantic Canada: a performance assessment and regional peers comparison.” http://www.upei.ca/environment/Atl_Can_SHE_study.pdf Accessed 1 February 2007. P.2.

sustainability questions across campus and in collaboration with community partners, government, and the private sector.”¹⁰ Beyond Atlantic Canada, a sample of recent initiatives includes:

- The University of Western Ontario is seeking to launch a School of Environment and Sustainability in 2008.
- In 2005, the University of Toronto created a new Centre for Environment where it offers a ‘professional’ M.Env.Sc., an M.A. in Environmental Studies, an M.Sc. in Environmental Science, and Ph.D programs.
- The Institute of Resources and Environment at the University of British Columbia changed its name to the Institute of Resources, Environment and Sustainability to support a broader research focus. It offers M.A., M.Sc., and Ph.D. programs.
- In 2004, a new Faculty of Environment was created at the University of Manitoba.

Other related initiatives include:

- International Institute for Resource Industries & Sustainability, Haskayne School of Business, University of Calgary
- School of Sustainable Energy, University of Alberta, University of Calgary, and University of Lethbridge
- Institute for Research and Innovation in Sustainability, York University
- Institute for Biodiversity, Ecosystem Science & Sustainability, Sir Wilfred Grenfell College, Memorial University of Newfoundland
- Centre for Sustainable Community Development, Simon Fraser University
- School of Environment and Sustainability, Royal Roads University
- Centre for Environmental Sustainability, University College of the Fraser Valley
- School of Sustainability, Arizona State University
- Graham Environmental Sustainability Institute, University of Michigan
- Erb Institute for Sustainable Enterprise, University of Michigan
- Australian Research Institute in Education for Sustainability, Macquarie University
- Global Sustainability Institute, RMIT University, Melbourne
- Institute for Sustainability and Technology, Murdoch University, Perth
- MBA Specialization in Sustainability and Business, Sauder School of Business, University of British Columbia

In short, the number of creative initiatives in environment and sustainability has accelerated; the University of Saskatchewan needs to keep pace with such developments and, in fact, increase its institutional commitment to offer its own package of educational opportunities in order to remain competitive (Appendix D).

The formal title for the School of Environment and Sustainability has been an outcome of consultations with faculty and students. It serves to unify the varied research and scholarly contributions of the School and provides a sense of common purpose for research, graduate education, and knowledge translation and exchange. The title of the School is also consistent with the articulated vision and mission statements and signals the institutional commitment to integrate environmental sciences, social sciences, and humanities and thereby to add value to the collective research agenda of the University that has, to date, primarily emphasized environmental science.

¹⁰ *Ibid.*

3. The Planning Process

In Fall 2004, a Working Group was established from across the University community to identify the best platform for environmental programming at the undergraduate and graduate levels. Additionally, the Working Group considered ways to support environmental scholarship currently undertaken on this campus. The Working Group undertook extensive consultation with other units and individuals on campus. In April 2005, it completed its final report, recommending that a School be established to consolidate, coordinate, promote and enrich environmental scholarship at the University of Saskatchewan.¹¹ Additionally, the Working Group recommended ways to:

- (a) consolidate existing undergraduate environmental programs into a new, multi-faceted, undergraduate initiative focused around a core of new interdisciplinary environmental studies courses;
- (b) establish new environmental graduate programs in partnership with existing disciplinary and interdisciplinary programs; and
- (c) build on existing research centres and Canada Research Chairs with environmental interests and expertise. In particular, the report made recommendations to enhance the profile of research currently being undertaken.

In September 2005, the Provost's Committee on Integrated Planning (PCIP) approved a provisional plan for a School of Environment that would have an emphasis on graduate programs and research, including a commitment to the hiring of up to five new faculty members subject to the re-assignment of at least five faculty members from existing units. With this commitment, the Working Group began planning for a new School, and then in early 2006, the Working Group made a successful transformation to the current Steering Committee format (see cover page).

In June 2006, University Council received, and approved in concept, the formal vision for schools developed by the Task Force on Changing Structures that emphasized a focus on research and graduate education. A Special Advisor was appointed in September 2006 to consult broadly within and beyond the University community and to work with the Steering Committee to develop a final proposal. Building on the work of the past two years, a Letter of Intent (LOI) was drafted in October 2006 to form of the basis of consultations.

The LOI was sent to each member of graduate faculty with an invitation to participate in one or more information/discussion sessions and a planning workshop or to contact the Special Advisor separately (Appendix H). The Special Advisor also met with individual faculty members including professors emeriti, Canada Research Chairs, Department Heads, Deans of five Colleges, and Directors of Research Institutes and Centres. Additionally, the Special Advisor met with researchers engaged in Aboriginal research to discuss program and research opportunities. Four information/discussion sessions open to faculty, staff, and students were held in November and early December, including a brown-bag lunch sponsored by the Sustainability Office of Facilities Management Division and the Provost's Series on Teaching and Learning.

¹¹ University of Saskatchewan, Working Group on Environment, 2005. A Proposal for a School of Environment at the University of Saskatchewan. April 2005.

Additionally, an all-day workshop with faculty was held in December 2006 to discuss the philosophy, research/teaching themes, and graduate programs to be offered by the School. Faculty members from nine colleges participated in information/discussion meetings and workshops, and provided feedback through e-mail. The largest number of responses came from the Colleges of Agriculture and Bioresources, Arts and Science, Education, and Engineering. It is anticipated that those associated with the School of Environment and Sustainability will come from these Colleges, although participation from other Colleges, such as the Western College of Veterinary Medicine and the College of Commerce, which also had representatives at these sessions, would be welcome.

In January 2007, one workshop was designed specifically to obtain graduate and undergraduate student input. Twenty-two students from five colleges registered. Additionally, a questionnaire survey was distributed through PAWS, to which 173 students responded. Student responses have been incorporated into this proposal. Detailed results are available in Appendix E and are also reflected in the program proposals described in Appendix I. Finally, the Steering Committee invited leaders of similar “schools” at the University of British Columbia and the University of Toronto to describe their own experiences and offer advice on establishing a School at the University of Saskatchewan. These leaders met separately with interested Deans and faculty members to offer constructive suggestions for the establishment and on-going operations of the School.

Without advertising, many organizations learned of our planning efforts and requested meetings with the Special Advisor. Meetings or discussions have been held with organizations including the City of Saskatoon, Environment Canada, Parks Canada, the United Nations Regional Centre of Expertise in Education for Sustainable Development, the Association of Professional Engineering and Geoscientists of Saskatchewan, the Royal Museum of Saskatchewan, Roadmap 2020, the Saskatchewan Environmental Society and the Saskatchewan Eco-Network. Several prospective graduate students have also inquired about when our programs might be established.

4. The School Proposal

The School will be guided by the following vision and mission:

Vision: Excellence in interdisciplinary environmental research and learning based on a rich understanding and commitment to sustainability through a focus on issues of importance to the northern prairie and parkland, boreal forest, and Arctic ecosystems.

Mission: 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 themes will focus the launch of research and graduate programs of the School. These are:

- * *Appraising and sustaining ecological integrity and resource use* (includes research in biodiversity, toxicology, reclamation, resource appraisal and impact assessment in rural and urban contexts and specific sites of resource extraction/development);
- * *Assessing and addressing energy use and climate change* (includes broader analysis of human effects on climate, societal vulnerabilities and opportunities associated with climate change, and designing innovations to reduce environmental harm such as the development of alternative energy sources);
- * *Understanding the linkages among earth system processes* (includes consideration of earth as a system where biogeochemical processes intersect. Includes studies in hydrology and atmospheric physics);
- * *Analysing and proposing environmental ethics, justice, and governance arrangements* (analyzes how human institutions, economic systems, and beliefs shape the interactions between societies and environment. Includes systems of knowledge, environmental ethics, environmental justice, and governance with Aboriginal peoples and stakeholder groups).

The research/teaching themes have been designed to be sufficiently broad to allow for a range of research within them but sufficiently specific to reflect areas of significance to the landscapes and livelihoods of Saskatchewan. They also minimize overlap with disciplinary areas within colleges, by moving into interstices not previously occupied by individual disciplines and departments. For example, the theme of ecological integrity will involve a range of researchers who examine the implications of the life cycle of mining – from exploration to reclamation phases – and undertake assessments of the biophysical and social impacts. The theme of climate change may establish better regional predictions for Saskatchewan based on global circulation models as well as debate alternative social adjustments required given best local models. The ethics, justice, and governance theme will explicitly address how to incorporate Aboriginal peoples and their ways of knowing more effectively in the benefits of resource use while protecting environments and cultural identity for future generations. The umbrella theme of “Environment and Sustainability” for the School allows for this breadth of discussion and encourages inclusion of a range of scholars to address the associated complex human-environment interactions.

The School will be interdisciplinary, innovative, original, collaborative, cooperative and publicly accountable. Its people – faculty, staff, students, associates, partners, and visitors – will be committed to working together to nurture an interdisciplinary learning culture that values excellence in original research and scholarly activities, respects multiple forms of knowledge, encourages constructive and respectful debate, creates innovations in learning and teaching, and addresses issues of societal importance.

Given the importance of ecology and resource use to the Aboriginal peoples of Saskatchewan, the School will provide a place that welcomes Indigenous knowledge and recognizes the role of Aboriginal peoples in issues related to environment and sustainability. Collaborations with ap-

appropriate units and individuals on campus will help the School establish, nurture, and export research and learning protocols based on respect, collaboration, and creativity. These efforts will provide for mutual learning and understanding of Aboriginal perspectives, rights, and interests in Environment and Sustainability, enhance opportunities for Aboriginal peoples to learn, teach and conduct research, and provide a role for the School in meeting University priorities related to improving the University experience for Aboriginal peoples.

The School of Environment and Sustainability will help to meet the University's goals and objectives to improve capacity and recognition of its research and education about environment and sustainability. The proposed School is built on the concept of interdisciplinarity as defined by the Academic Affairs Committee Sub-Committee on Interdisciplinary Programs: "an interdisciplinary program is an academic program which permits students to study outside the boundaries of traditional programs, to explore related disciplines in depth, and to integrate knowledge gained into a central theme."¹² The Subcommittee report emphasizes that it is the integration of knowledge that separates a truly interdisciplinary program from a multidisciplinary program. This commitment to interdisciplinary study is reinforced by reviews of multidisciplinary undergraduate programs on campus (Land Use and Environmental Studies, Environmental Earth Sciences, Bachelor of Science in Agriculture-Environmental Science) that revealed that the lack of interdisciplinary offerings was a serious deficiency. The School will also help to promote sustainability initiatives on campus that affect research and scholarly activities and reflect its mission and core values.

Specifically, the School directly addresses the observation made in the University's Integrated Plan 2003-07, that:

*Many universities pursue science, but comparatively few focus in a sustained, critical, interdisciplinary, way on the intersection of science, communities, and environment. This intersection is a place where the University of Saskatchewan can make a distinctive contribution.*¹³

The Plan goes on to say: "We can do this in part by studying local examples that are close at hand, building on the province's natural environments and geography as well as its long experience with natural-resource economies to meet societal commitments locally and to propel our teaching and research activities on the global stage."¹⁴

A unifying structure that facilitates interdisciplinary research and graduate programs in environment and sustainability, serves as a mechanism for attracting and managing large integrated research programs, and engages in activities of knowledge translation and exchange does not currently exist on this campus. The School of Environment and Sustainability will provide such a structure. The School will facilitate new relationships among the faculty, Colleges, Research Centres and Institutes, and outside partners. The School will increase the size and scope of graduate education on campus, enhance the visibility of current research related to environment and sustainability, and establish partnerships to broaden and deepen research programs. Conse-

¹² Academic Affairs Committee Sub-Committee on Interdisciplinary Programs 1993. *Final Report*, July 1993, p. 3.

¹³ University of Saskatchewan 2003. *A Framework for Action: University of Saskatchewan Integrated Plan 2003-07*, p. 12.

¹⁴ *Ibid.*

quently, it will enrich a vibrant research community that promotes innovative interdisciplinary approaches to knowledge creation, synthesis and exchange beyond what might be attained by any individual centre.

The School is to be launched in July 2007. Procedures for review in 2012 will include performance measures that gauge the success of the School against the following objectives:

1. Recognition as a leading Canadian university in interdisciplinary learning and research associated with sustainability on issues of importance to the northern prairie and parkland, boreal forest, and Arctic ecosystems;
2. Creation of a dynamic, cohesive, and collegial academic community;
3. Development of strong linkages across the University including Colleges, Research Institutes and Centres, and University operations, and partnerships outside the University that provide unique research opportunities and new programmatic initiatives;
4. Specific increases in student learning opportunities and student numbers because of new graduate programs that did not previously exist; and
5. An increase in the number, value, and quality of interdisciplinary environmental and sustainability research projects in areas strongly identified with the School that are not attributable to pre-existing structures.

Following review in 2012, the School will undertake periodic reviews every tenth year in alignment with the Integrated Planning process.

5. Governance and Leadership

The School will exercise academic authority over new interdisciplinary graduate environmental degree programs, taking on a role much like that of a non-departmentalized College in this regard (see Figure 1 and Section 7: Academic Programs). Existing programs (e.g. Toxicology) will remain unchanged unless a specific unit requests a change. The School will introduce a range of new interdisciplinary environmental courses required by graduate students and will recommend graduates to Convocation.

The membership of the School will include a Centennial Chair (a position advertised in the November 2006 issue of *University Affairs*), a Tier 2 Canada Research Chair, an Executive Director, faculty whose time will be re-assigned from existing units and faculty newly hired to the University, adjunct faculty, affiliated Centres and Institutes, support staff, and partner organizations from outside the University (Section 6: Faculty and Appendices F and H). Positions will be phased in over the first 5 years of the School (Section 10 Resources and Appendix G).

The School will be established by founding members who will hold appointments for the first three years. After three years, these appointments may become formalized as standard appointments whereby faculty are appointed full time to the School where they will hold tenure or may continue to serve as primary or secondary joint appointments with other units on campus. In all cases, continuing appointments will be made for five years with an option to renew upon review by the Executive Director and the Vice-Provost. All founding faculty participating in the School of Environment and Sustainability will initially have an academic appointment in a College or

Department, but will negotiate with their Department Head, Dean and the Executive Director of the School to have their job duties revised to allow them to dedicate a portion of their time to academic activities in the School (see also Section 6). Faculty with 70% or more of their time assigned to the School will be considered Primary Joint Appointees; those with 30% or less of their duties assigned to the School will be considered Secondary Joint Appointees.¹⁵

For current faculty who become Primary Joint Appointees, appointment letters that reflect the mutual agreement of all parties will be rewritten to reflect new responsibilities with respect to teaching, research, and administration. Where faculty involvement does not require a substantial re-assignment of teaching, research, or administrative responsibilities, flexible arrangements will be made on an individual and informal basis.

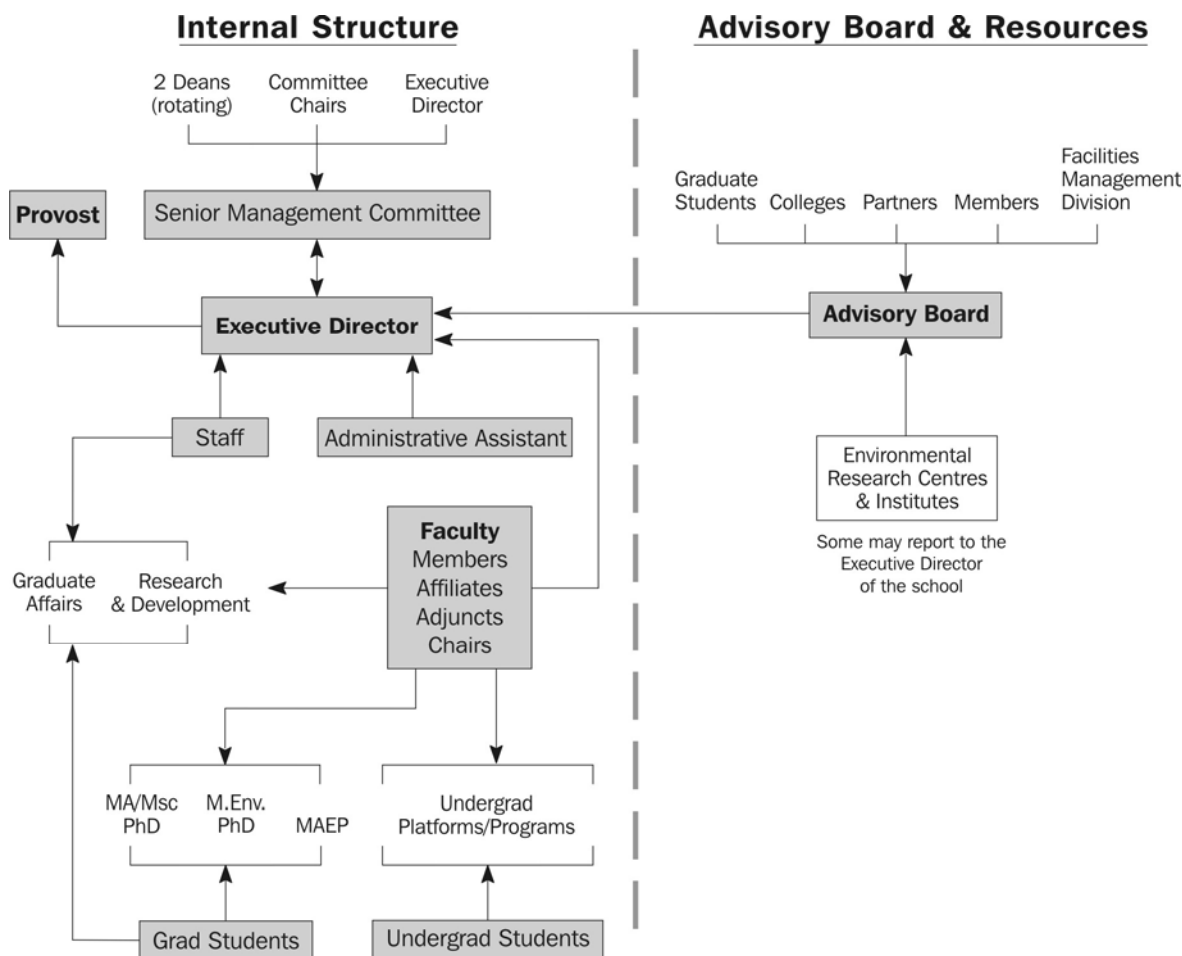


Figure 1: Reporting Relationships in the School of Environment and Sustainability

For faculty members whose primary duties will be assigned to the School, appointment letters will specify the responsibilities and expectations of both the School and the College or Department.

¹⁵ The Tentative Agreement established between the University and the Faculty Association in March 2007 describes provisions for new types of appointments including “standard appointments,” “joint appointments: primary,” “joint appointments: secondary,” and “associates.” Should this agreement be ratified, the titles and descriptions of appointments to and affiliations with the School will be modified to fit this new language and intent.

ment. The terms of these letters will be used in annual performance reviews and in the evaluation of tenure and promotion decisions. Working with the Vice-Provost's Office, the School will establish collegial processes similar to those of a non-departmentalized college and that are consistent with the Collective Agreement. Where faculty members hold joint appointments, there will be consultation among the home department, the School, and the faculty member about progress towards tenure, promotion, and merit. The Executive Director of the School will provide regular annual reviews of the faculty member's performance to the Department or College, a detailed letter describing the role of the faculty members of the School during the time of tenure, and other advice or recommendations that may be required.

After the founding period (first three years), appointments to the School will typically be made for a period of 5 years but could be re-negotiated at any time at the request of any of the involved parties. Toward the end of the first three years, it will be evaluated whether it is in the best interests of the School to renew appointments as Standard appointments (100% duties in the School).

Two positions will play important governance and/or leadership roles – the Executive Director and the Centennial Chair. The mandate of the *Executive Director* is to provide academic leadership, overall direction, and outreach for the research and education initiatives of the School. The Executive Director will have a strong academic record, entrepreneurial skills, and appropriate university administrative and management experience. As the academic interests of the School cut across Colleges, the Executive Director of the School of Environment and Sustainability will report to the Provost and Vice-President Academic. A memorandum of understanding will be created to specify responsibilities and benefits of the position. The Executive Director will be a member of the University Deans' Council and other collegial bodies as necessary and appropriate. Until such time as an Executive Director can be hired (July 2008), an Acting Director will serve in this position.

The duties of the Executive Director will include:

- Promoting the reputation of the University of Saskatchewan as a national centre of excellence in environmental and sustainability scholarship
- Providing oversight in the development and implementation of graduate programs
- Liaising with Colleges in the delivery of the platform in undergraduate environmental and sustainability education
- Fostering collaborations among faculty members of the School, of Centres, and of Departments
- Identifying opportunities for developing collaborative, interdisciplinary environmental research within the University and among partners, and
- Negotiating the terms of standard, primary and secondary appointees, associates and adjunct appointees and participating, where required, in collegial processes (such as for promotion and tenure)

The role of the *Centennial Chair* is to demonstrate scholarly accomplishments at a very high level while also working to promote interdisciplinary research opportunities for the School. The duties of the Centennial Chair will include:

- Developing an intensive, ambitious, and nationally-recognized research program that is consistent with, and inclusive of, the expertise developed at the School

- Fostering and promoting collaborative, interdisciplinary environmental research within the University and among partners, and
- Contributing to the reputation of the University of Saskatchewan as a national centre of excellence in environmental and sustainability scholarship

Where possible, the School will help Research Centres and Institutes establish research collaborations. The School will develop appropriate affiliation and governance arrangements with several existing and proposed University Research Centres and Institutes (see Appendix F for details) including, but not limited to (in alphabetical order):

- Aboriginal Education Research Centre
- Centre for Hydrology
- Centre for Northern Research
- Centre for Rural Studies and Enrichment
- Centre for Studies in Agriculture, Law and the Environment (CSALE)
- Center for Canada/US Relations
- Community-University Institute for Social Research
- Division of Environmental Engineering
- Institute for Aboriginal and Indigenous Graduate Studies and Research
- Institute for Space and Atmospheric Studies
- Mineral Technology Research Centre
- Saskatchewan Public Health & Evaluation Research Unit
- Toxicology Centre
- University of the Arctic

These units will increase the range and depth of research expertise beyond the individual participants of the School. They may also contribute to, or be affiliated with, the proposed School of Public Policy and/or the School of Public Health, perhaps in addition to maintaining still other appropriate linkages within the University's many structures and units. The School of Environment and Sustainability will also add value to these units by increasing the scope of expertise available to the Centres, advertising the Centres affiliated with the Schools, offering participation in new partnerships, and thereby creating new synergies that might otherwise not occur within the University of Saskatchewan academic milieu.

As the Colleges plan new initiatives in undergraduate programs, appointees to the School will be expected to play a role in delivery and co-ordination of those programs.

To assist in providing leadership to the School, the Executive Director will be assisted by a Senior Management Committee composed of Chairs of specific committees and two Deans from participating Colleges or their designates (who will become rotating members). This Committee will meet at least twice a year to develop and monitor annual strategic priorities for the School.

The School will have an Advisory Board that will meet once a year to provide guidance and suggestions related to the School's activities. The board will include representatives from the School (including graduate students), as well as from participating Colleges, Institutes and Cen-

tres, Facilities Management Division, and partners from government, industry, and civil society organizations.

Students shall, where appropriate, have participatory roles in School and program evaluation procedures, policy-setting, and decision-making. Administrative mechanisms will also permit appropriate student involvement in program policy formulation and review. Standing and *ad hoc* committees, with explainable exceptions, will include student members. Possible committees involving graduate students and faculty include:

1. Graduate Affairs Committee
2. Research and Development Committee (that works with other Colleges to enhance mutual interests and avoid overlap)

6. Faculty

Types of Appointments

The following appointment categories will be available for participants in the School of Environment and Sustainability:

Primary Joint Appointees are faculty whose primary responsibilities (more than 70% of their duties) are assigned to the School. In the start-up period (first three years), faculty members who have up to 100% of their duties re-assigned to the School will be considered Primary Joint Appointees because their tenure will still rest within a home department. Regardless of the balance of duties, nearly all Primary Joint Appointees will be required to teach at least one undergraduate course each year (exceptions may include Canada Research Chairs, Centennial Chairs, and the Executive Director). Beyond this commitment, Primary Joint Appointees will have primary teaching, research and service responsibilities in the School. These appointees will be expected to participate in planning and delivering interdisciplinary team-taught required courses, planning and delivering individual required and elective courses, developing new graduate programs, setting standards for graduate student admissions, conducting graduate student admissions, serving on graduate student committees and standing committees of the School, organizing and attending annual general meetings with partners, and serving as members of external committees of partner organizations. Primary Joint Appointees will generate innovative teaching opportunities; develop meaningful engagement with partners; seek out new funding for research and graduate education; and identify on-going opportunities for internships, joint research, and other innovations that foster collaboration for sustainability.

Primary Joint Appointees will serve as the academic authority over the programmatic offerings of the School and will provide advice to the Executive Director on other activities. Through School committees, these appointees will propose, oversee, and modify programs of study and research under the general academic authority of University Council. They will be responsible through the Executive Director to the Provost on other matters such as fundraising and knowledge exchange.

Secondary Joint Appointees are faculty who will have some responsibilities to the School but who maintain the majority of their responsibilities within a Home Department. Secondary Joint Appointees will not be expected to participate in the governance of the School. Secondary Joint Appointees will require a minority, but significant, share (up to 49%) of their duties assigned to the School, requiring formal written documentation of responsibilities to the School and the Home Department. Depending on the situation, duties may include teaching responsibilities in the School, graduate student supervision, research with colleagues associated with the School, and possibly some limited service to the School (e.g. around curriculum planning or seminar development). The nature and extent of these duties will vary and will be established by mutual agreement among the School, the Home Department, the Home College, and the faculty member.

Associates may engage with the School in a limited range of activities. They do not require formal written documentation of duties between the School and the Home Department. Advantages for Joint Appointees and Associates would include participation in new interdisciplinary research initiatives, and opportunities to work with interdisciplinary graduate students in related research fields.

Adjuncts of the School will be those who participate in the activities of the School from outside the University of Saskatchewan. There is a large community of excellent researchers from which to draw including, but not restricted to, the Canadian Wildlife Service, the Saskatchewan Research Council, the National Hydrology Research Centre, and the Plant Biotechnology Institute. Adjuncts from these and other agencies will participate on graduate committees and in the seminar series, provide financial and logistical support to graduate students (including internships), and possibly teach elective courses and even required courses in certain programs. The School will adopt the current rules and regulations regarding Adjunct members of the University.

Number of Appointments

The requirements for faculty appointments have been established by considering the general expectation of workload for individual faculty members and the balance of teaching, research, and administrative responsibilities they will have in the School and in home departments. Table 1 illustrates that the four proposed programs will initially require the teaching of a minimum of 39 credit units of new courses (13 new courses). It is important to note that professional-type programs are teaching intensive; students will be required to take eight 30-credit courses in a single year to complete the program in addition to a seminar for which no credit is assigned. The total number of credit units listed provides for the basic requirements of all programs and a very limited number of electives that will be taught by faculty appointed to the School. Course requirements will also be met through existing courses across campus. In each year, faculty in the School will be required to teach at least one undergraduate course in a Home Department or interdisciplinary program as well as graduate courses in the School.

Table 1: Credit Unit Offerings for New Programs to be Implemented by the School			
	Course requirement (in credit units)	Number of new credit units to be offered at the School	Number of existing credit units to be of- fered by other de- partments
M.A.E.P.	24	30*	6
M.Env.	12	3	3
Ph.D.	6	3	3
M.Sc.	12	3	3
TOTAL	54	39	18

* Master's students from the three proposed programs will fulfill their course requirements with some courses that are particular to their program and some courses that are taught across all programs. Thus, the 30 credit units of new courses listed for the M.A.E.P. will also be used by students in the M.Env. and M.Sc. programs. The number of courses listed for programs other than M.A.E.P. are unique to each program.

An important element of the School is that 21 of the 39 credit units of required courses will be team-taught. True team teaching (as opposed to tag teaching) requires a greater degree of teaching preparation and effort than the split proportion might suggest. Team teaching requires that both instructors be involved in course preparation, delivery at all lectures, and in grading all assignments. This level of preparation and commitment in the team-taught courses is critical for practicing and demonstrating interdisciplinarity among faculty members. It is a demonstrated means to help faculty learn the perspectives of other disciplines (especially across the natural and social sciences), ensure that those perspectives are adequately addressed in course work, and create opportunities for research synergies for team-based research. Each faculty member who participates in a team-taught course will receive a teaching credit for a full three credit unit course. It is assumed that no more than two faculty members will share a course. Over time, additional elective courses may be offered by appointees, associates, and/or adjuncts.

Once the programs are launched in 2008, there will be an immediate need for 60 credit units of teaching (39 credit units of new courses + 21 credit units that are team-taught). Some Primary Joint Appointees of the School will not carry a full teaching load. This includes the Centennial Chair and the Canada Research Chair, whose primary responsibility will be to conduct research and demonstrate academic leadership, and the Executive Director, whose primary responsibility is the administration of the School. New faculty may have reduced teaching loads during start-up, on-going faculty may require teaching releases for specific duties, some positions such as Research Chairs have limited teaching responsibilities, and at any one time, there may be faculty on leave for various reasons (e.g. sabbatical leave, administrative leave, maternity or paternity leave, or sick leave). In 2008 when programs come on stream, if each full-time equivalent (FTE) faculty member to the School teaches two courses in the school (and one undergraduate course),

then 8 re-assigned faculty will be able to teach 48 credit units. The remaining 12 credit units will be taught by two new faculty members to be hired into the School for July 2008.

Calculating the needs for teaching and service and the average teaching duties per Member, the following human resources are necessary for the School once it is fully established (see also Sections 10 and 13):

1 Centennial Chair

This allocation has been made under the University of Saskatchewan Chairs Program. All proposed Schools at this time (Public Policy, Public Health, Environment and Sustainability) have been allocated one Chair under this program to spearhead each School's research program.

1 Canada Research Chair (Tier 2)

This position has been granted to the University of Saskatchewan and will be used to enhance the research capacity of the School.

1 Executive Director

8 additional FTE faculty members from existing units (with more than 50% of their duties to the School). These individuals would participate through voluntary agreements signed by the Heads of their Home Departments, the Executive Director of the School, and the faculty member. This agreement will specify research, teaching, and administrative responsibilities. One would serve as the Chair of Graduate Programs.

2 new faculty who would begin in July 2008. Up to 3 more faculty members may be required once programs are fully subscribed and research programs are developed. These new faculty will be sought only if numbers or types of courses are insufficient to address student needs or if new (graduate or research) programs warrant the addition.

20 or more Associates. Associates would participate informally in research, teaching, and administrative responsibilities. It is likely that associates will have relatively low levels of teaching – and supervisory roles – and virtually no administrative responsibilities to the School.

20 or more Adjuncts from co-located partners

2.0 FTE staff positions (across 5 categories) for administrative support. This will increase to 4 FTE positions by 2011-2012 to be shared with other units (for development and advancement, administrative assistance, financial/research grants co-ordination, information technology, and graduate and general secretarial support)

During 2007-2008, faculty members who are to be re-assigned will be expected to provide service to the School to develop graduate programs and to hire new faculty.

Once the proposal is approved by University Council, one of the first tasks will be to establish appointees to the School. Those individuals and units that have participated in planning workshops and information/discussions sessions of the School are listed in Appendix H. To initiate appointments with the School, a memo will be sent to all graduate faculty to explain the ways

people might be involved. Faculty members will be invited to indicate what kinds of involvement they might seek. Faculty seeking solely to teach within a disciplinary setting or intensify their individual research programs through membership in the School would not be sought. Nevertheless, such people may wish to become Associates with the School in order to teach a course or offer research expertise to particular projects. A resource committee, composed of members of the Steering Committee (including the Executive Sponsor), the Deans of Colleges (e.g. Agriculture and Bioresources, Arts and Science, Education, Engineering, Western College of Veterinary Medicine) or their designates, will be established to determine the best fit of faculty members with the School. Where required, suitable letters of appointment will be written in consultation with the appropriate department/unit heads and the Vice-Provost's Office. It is expected that the re-assigned faculty member complement will be completed by July 1, 2008. Any new assignments after that date will have to be negotiated with the appropriate Departments and Deans.

In order to build the School and its associated graduate education opportunities, it will be necessary to hire two new faculty to start July 2008. Priorities for hiring from outside the University will be based on careful review of the research strengths and gaps relative to each research theme of the School, its teaching needs, and the ability to serve undergraduate teaching needs in Home Departments. Beyond the initial allotment, new hiring will be conducted only if justified by the expansion of graduate and research programs. Some departments have already indicated that they are interested in using future appointments to create direct linkages with the School. These appointments will provide new pathways between Departments and the School and will help to meet increased opportunities that will arise as education and research programs become operational.

The following individuals may also wish to become associated with the School:

- Up to 7 Canada Research Chairs because their research is consistent with the mandate of the School,¹⁶ and
- Up to 3 'Priority Determination' positions (associated with the Northern Ecosystems Toxicology Initiative)

Given the high level of national interest in environment and sustainability, there are opportunities for establishing new research chairs that would be affiliated with the School of Environment and Sustainability. During the first 5 years, the School will seek opportunities to establish at least one new Canada Research Chair. The *Saskatchewan Chairs Program*, which is currently being developed by the University of Saskatchewan, may also provide opportunities for future appointments. Additionally, government agencies (e.g. Parks Canada, Environment Canada) have expressed interest in locating research scientists within universities. The mid-term plan (3-5 years) for the School is to build the faculty complement through a range of opportunities within and outside the University.

¹⁶ Canada Research Chairs include Drs. Pomeroy, St. Maurice, Dubé, Giesy, Pickering, George, and Dalai.

7. Academic Programs

Graduate Programs

Appointees to the School will develop and deliver 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. We are exploring options for discipline-based students to take one or two additional core courses from the School for a certification that will appear on their transcripts or diplomas.

Within the graduate programs, students will be directed to gain specific skills within one of the four research themes (p. 7). Some courses will be offered that span across the specific research themes (e.g. Interdisciplinary Perspectives on Environment and Sustainability), while others will be targeted to students with research interests that correspond to the themes (e.g. Appraising Ecological Integrity and Resource Use) (Appendix I). A colloquium series will be established to help foster interdisciplinarity. The concurrent development of the School of Public Health and the School of Public Policy present a unique opportunity for interdisciplinarity. We will seek opportunities to promote learning and research opportunities that involve participants in the other Schools.

It is anticipated that the programs will attract and retain graduate students to the University of Saskatchewan who have, until now, had no opportunity for systematic interdisciplinary environmental programming at this University (except through the Interdisciplinary Programs of the College of Graduate Studies and Research). As the core of the program will be interdisciplinary courses through the School (rather than one or two courses from the School ‘attached’ to departmental offerings), we anticipate that students and faculty will know if students wish to become specialists in a discipline or in interdisciplinary environmental scholarship. Thus, we anticipate that few students will shift from existing programs. The most likely program where students may shift from is “interdisciplinary studies” – thereby relieving some of the burden of administering and coordinating individual programs from advisory committees formed for each student.

The School will provide graduate degrees in environment and sustainability that will cover what is traditionally considered the breadth of several environmental fields of study. Our survey of University of Saskatchewan students indicated that programs providing a broad understanding of science and policy would be desirable (Appendix E). Graduate students will enter the School’s programs with disciplinary and interdisciplinary degrees including basic sciences, social sciences and humanities, education, engineering, accounting, management and administration. Depending on their field of undergraduate study, their chosen thematic area within the School of Environment and Sustainability (described below), and the actual program of study, students will have opportunities to be employed as leaders, managers, and researchers in environmental management departments, industries, environmental organizations at different scales, and academic institutions upon the completion of their studies. Appropriate discussion with possible accreditation and regulatory bodies will occur to examine the possibilities of creating a responsible, na-

tional professional-degree designation for School of Environment and Sustainability programming when the programs are formally developed.

Specific educational programs and opportunities will be created that allow students to:

- Explore the full spectrum of scientific, technical, political, social, economic, and institutional factors that shape environmental problems and their management;
- Broaden horizons through interdisciplinary, rather than multi-disciplinary programming achieved by purpose-designed courses and research education;
- Obtain real-world research opportunities through advanced studies in basic and applied research, with particular emphasis on developing partnerships with government, industry, and community-based organizations for internships, fellowships, and research problem formulation;
- Learn in a supportive learning environment through innovative education methods including development of critical thinking and technical research skills and opportunities to help resolve real challenges in government, industry, and environmental and community-based organizations;
- Build a firm foundation in appropriate scientific and technical methods; and
- Follow tailored programming or to develop customized options to meet their individual needs and career aspirations.

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. New faculty appointments beyond 2008 will be tied to the expansion of graduate offerings and/or research programs. Details of the proposed programs are provided in Appendix I. The proposed programs are as follows:

(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.

(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. Development of an M.A.E.P. in environmental impact assessment has gained interest from a wide range of people within and beyond the university. However, the M.A.E.P. program will be formally developed after a market survey and community consultation to ensure that the program niche and delivery modes are appropriate. 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.

(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.

Links to Existing Programs

The M.Env., M.Sc. in Hydrology, and Ph.D. are significantly different from existing graduate programs offered by departments such as Geography, Soil Science, Sociology, Civil Engineering, Educational Foundations and so on. These differences are expected to attract a different kind of student than those in existing programs. While some students may opt to take graduate education within the School instead of through a Department or the Interdisciplinary option in the College of Graduate Studies and Research, it is anticipated that coordinated program advertising and delivery will give rise to more applicants to the School *and to departments*. This has been the experience with Toxicology Centre and the Department of Biology following the introduction of undergraduate and graduate programs in Toxicology.

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.

Funding for Students

Students at the University of Saskatchewan mentioned most frequently that the availability of funding influenced their choice of graduate program (see Appendix E). All students accepted into thesis-based graduate programs will have financial support for their first two (Master's) or three (Ph.D.) years of study. Funds may come from various sources, including external and university scholarships and faculty research grants. Faculty will be expected to provide some of the financial support for their students. Between 2008-2011, some financial support will also be provided to students in thesis-based programs through a scholarship fund administered by the School. Initially, this fund must be provided outside of the Devolved Scholarship mechanism. After four years, these funds will be transferred to the Devolved Scholarship Fund of the College of Graduate Studies and Research. The School will then obtain an allocation based on the current funding formula. Excellent candidates can also compete for the Dean's Scholarship. Students will also qualify and be expected to have opportunities to work as teaching or research assistants through Graduate Student Fellowships. Finally, all eligible students will be required to apply for Tri-Council graduate fellowships.

Undergraduate Programs

There is strong support among faculty and students for the implementation of (a) rich and coordinated undergraduate program(s) to ensure the viability of the School. Faculty who may wish to become associated with the School have expressed interest in delivering core undergraduate courses in environment and sustainability.

A strong undergraduate program(s) will provide a cohort of students who may continue their studies and research at the University. Currently, graduates from the University have tended to go elsewhere to pursue further study because of a lack of a coordinated, interdisciplinary graduate program in environmental science or studies. Connection between the graduate programs of the School with an undergraduate program(s) will also provide opportunities for graduate students to work as teaching assistants. This experience is vital for well-rounded training in both research and teaching.

Presently, the Colleges of Agriculture and Bioresources and Arts and Science are formulating a platform model to deliver programs in environment and sustainability that would serve as the foundation for a range of undergraduate offerings. For greatest impact, this platform should be launched simultaneously with the proposed graduate programs in 2008 to support the School and the University in the endeavour to become nationally and internationally recognized for excellence in research and learning related to environment and sustainability. To succeed, the undergraduate programs should be established and monitored by an appropriate academic committee that is not the sole purview of the faculty assembly of a single academic College.

8. Research

Significant research and scholarly work related to environmental issues is currently being undertaken by individuals housed within the Colleges of Agriculture and Bioresources, Arts and Science, Engineering, Nursing, and the Western College of Veterinary Medicine, and several Research Centres and Institutes (Appendix F). Nevertheless, the School will add value to existing research initiatives by:

- Developing a seminar series for faculty and graduate students to showcase each other's work and demonstrate potential linkages across individual research programs
- Embedding team teaching within the core curriculum and fostering interdisciplinary graduate supervision, offering faculty who may not 'naturally' work together opportunities for intellectual exchange, thereby fostering opportunities for new synergies
- Offering a physical space for faculty and students who might not otherwise meet to work and exchange ideas with one another, and
- Establishing partnerships within and beyond the university that will help raise research questions not previously considered by existing research teams

Overall goals are to support existing and new research clusters, to engage partners and increase opportunities to approach research in novel ways, and to enhance the University's success in achieving funding, establishing innovating learning opportunities, and undertaking research on issues of societal importance. Specific targets for each of these activities will be identified once the School is launched and faculty members are established within the School.

9. Outreach and Engagement (Partnerships)

The School of Environment and Sustainability will work closely with provincial and federal partners in developing its research and education programs. Engagement with organizations, agencies, and industries outside the School will raise the profile of the School and will help it undertake an ambitious research and graduate education agenda that promotes sustainability and is publicly relevant. Local, provincial, and federal partners include the Canadian Light Source, Agriculture & Agri-Food Canada, Environment Canada, Parks Canada, Natural Resources Canada, Saskatchewan Research Council, Saskatchewan Environment, SaskWater, SaskPower, Saskatchewan Watershed Authority, National Hydrology Research Centre, National Wildlife Research Centre, Meewasin Valley Authority, and the City of Saskatoon. The City has indicated strong support for the School, including involving City employees by engaging in joint research, delivering lectures, and enrolling in the graduate programs of the School. Opportunities for attracting research scientists from government departments to the School for short-term or long-term appointments will be sought once the School is launched.

Additionally, engagement with industry associations, consultants, and non-governmental organizations will be important for establishing innovative research and learning opportunities. To date, some organizations that have been informed about the School include Roadmap 2020, the Saskatchewan Environmental Society, the United Nations Regional Centre of Expertise in Edu-

cation for Sustainable Development, and the Association of Professional Engineers and Geoscientists of Saskatchewan.

Partnerships will also be established with the operations side of the University. Facilities Management Division (FMD) is attempting to incorporate sustainability principles into the University infrastructure and organizational culture. FMD currently provides internships for undergraduate students working on environmental and sustainability issues. Opportunities for internships for graduate students (especially those registered in the M.A.E.P. program) will be explored. Specific strategies that have been discussed include participating on the Advisory Board to the School, establishing internships, providing guest lectures and visiting scientists, and participating in research projects.

10. Resources and Staging

In addition to faculty and the Executive Director as described in Sections 5 and 6, new support staff positions will be needed. There is a need for 2.0 FTE staff positions upon launch, increasing to 4 FTE positions (across 5 categories) over time. Initially, these positions will be part-time and/or shared with other Schools being launched at the University.

These positions include:

- **Development/Advancement Officer** to formulate and undertake recruitment campaigns of students and create business plans for new kinds of faculty positions (e.g. potential chairs to be established with government and industry). Work of the development/advancement officer will have to be co-ordinated with similar work by Colleges (e.g. Agriculture and Bioresources) to ensure fundraising strategies are complementary (Part-time [0.5 FTE] 2007-2008 and onward to be shared with School of Public Health or another unit).
- **Administrative Assistant** will help the School liaise with Centres and Colleges, write annual reports, set up meetings, advise graduate students, and co-ordinate graduate programming (Part-time [0.5 FTE] 2007-2008 and 2008-09; Full-time 2008 onward).
- **Financial/Research Grants Officer** to provide financial oversight, help co-ordinate and manage collaborative research grant applications, report writing and related duties (Not required 2007-08; Part-time [0.5 FTE] 2008-2009; Full-time 2009 onward if warranted).
- **Information Technology Officer** to build the website and web-based advertising for the School, establish a database to track School activities on an annual basis, and provide technical assistance for classrooms and research teams (Part-time [0.5 FTE] 2007-08 and onward to be shared with other Schools or units. Toxicology has expressed its need for such a position and has indicated an interest in creating a shared position).
- **Graduate and General Secretary** to handle graduate student applications and files, assist with course evaluation, maintain the student database for annual reviews and the College of Graduate Studies and Research, and provide general support to faculty including logistical assistance for the interviews of new faculty (Part-time 2007-2008 and 2008-09 [0.5 FTE]; Full-time 2009 onward).

It is anticipated that faculty and staff offices, classrooms and meeting rooms, and student offices will be located together as soon as possible to provide coherence for the School. It is also vital to establish a social space for students and faculty to meet and exchange ideas informally. As laboratory facilities are now being established for specific uses rather than for individuals, laboratory requirements for new appointees (only some of whom may require such space) and for those re-assigned will remain in departments, with suitable arrangements made for usage of this space.

There are no anticipated additional expenses for library resources, with the exception of individual requests made by new faculty members. One meeting room that has tele- and video-conference capability will be required.

Funding for the Centennial Chair is secured from the endowment from the campaign, *Thinking the World of Our Future*, while funding for new appointees has been committed by the Provost's Committee on Integrated Planning. An additional funding increment will have to be provided for support staff and operating costs during the first five years, to be renegotiated as required (Appendix G). As the process is staged, we expect that funding will be staged and contingent on meeting milestones, as agreed between the Provost's Committee on Integrated Planning and the School. Over time, the School may be required to conduct fundraising activities to support these functions. Additionally, funds may be returned to the School when faculty members succeed in obtaining research grants under existing arrangements for overhead and indirect costs of research.

If the proposal for the School of Environment and Sustainability is approved for a launch by July 1, 2007, the first priority will be to re-assign existing faculty, hire new faculty, and develop the graduate programs. Early assignment and new hiring are priorities to ensure sufficient numbers to develop the graduate programs, to mount courses, and to begin developing research teams and programs. Despite the fact that reassignments and hiring will not be effective until 2008, some allocation of faculty time during 2007-08 will be necessary to help develop graduate programs, to shepherd them through the approval process and to liaise with newly-emerging undergraduate programs.

The thesis-based programs (M.Env., M.Sc. in Hydrology, Ph.D.) will be developed in the 2007-2008 academic year, for a launch in Fall 2008.

The M.A.E.P. program will be finalized after a market survey and community consultation (Fall 2007) to ensure that the program niche and delivery modes meet professional needs. If possible, a proposal and communication plan will be developed in Fall 2007, for approval and launch in Fall 2008. However, this program may be delayed by one year if sufficient faculty members cannot be hired or identified to develop and deliver the larger number of required courses envisioned by a course-based Masters program.

11. Space and Infrastructure (Permanent and Interim)

The space needs of the School will be met in stages as the School develops and University resources become available. There have been initial discussions with Integrated Facilities Planning (Integrated Planning Office) and Facilities Management Division to discuss how to meet space needs in the immediate and long-term future of the School. Specific options include developing suitable office and classroom space in Kirk Hall with the possibility of moving to the Thorvaldson Building when the new Academic Health Sciences complex opens. Details will be finalized to house the Centennial Chair, Executive Director, and the first cohort of administrative staff and faculty appointees by the time the School is launched in 2007.

As part of the University's second Integrated Plan, a Multi-Year Capital Plan will also be developed. Within the Multi-Year Capital Plan, a comprehensive and strategic Campus Space Plan will be developed that will identify overall campus space needs along with recommendations on solutions, space allocation scenarios and resulting capital projects. The provision of space for the School of the Environment and Sustainability (both interim and final) will be an integral component of the Space Plan. Several options currently exist; however, a final recommendation will require a further review and analysis of the needs of the School with particular attention being paid to academic synergies, availability and functionality of space, program growth, and incorporation within the Campus Space Plan. Pending the final determination of the space solution, capital funding will be required for the acquisition of furnishings along with potential space renovations to accommodate laboratory requirements of two or three of the new faculty appointees, student offices, and/or classroom spaces.

12. Evaluation and Review

Review of the program will be undertaken in 2012. Following review in 2012, the School will undertake periodic reviews every 10th year. Timing for the hiring of faculty and staff is provided in Appendix G.

13. Communications Plan

After the School of Environment and Sustainability is formally approved, a communications strategy will include a press conference, media release(s), a PAWS announcement, a posting to the University of Saskatchewan website, and notification of key governmental and community partners and related academic institutions. A website for the School of Environment and Sustainability will be developed and on-going communication would include the use of on-line newsletters, *On Campus News*, and other venues as appropriate.

A great deal of effort will be devoted to advertising the graduate programs of the School as soon as they are approved. Working with Student Enrolment and Services Division, a variety of outlets will be used, including announcements to appropriate colleges and departments in universities across Canada and elsewhere in the world, a website that presents the graduate programs and

the application procedures, links to the websites of relevant partners, advertisements in appropriate journals and publications, and on-line sources.

14. Acknowledgements

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