

Report of the UTM Sustainability Pathways Working Group

SUSTAINABILITY PATHWAYS WORKING GROUP REPORT

Revised Version July 6, 2018

Contents

1. Context	
2. Review of Sustainability Materials	
2.1 Sustainability Plans	
2.2 Support Structures	
2.3 Sustainability Tracking Tools	
2.4 Undergraduate Courses with Sustainability Content at UTM	
2.5 Sustainability -Related Undergraduate Programs in Canada	
3. Sustainability at UTM	
3.1 Sustainability Vision	
3.2 Definition of Sustainability	
3.3 Role of Academic Disciplines	
3.4 Creating the Five Pillars of Sustainability Culture at UTM	
3.5 Sustainability Planning at UTM	
4. Five Pillars and Plans	
4.1 Short-Term Plan and Its Pillars	
Pillar 1: Academic Programs and Curriculum	
Objectives, Recommendations, and Resource Complements	
Pillar 2: Research	
Objectives, Recommendations, and Resource Complements	
Pillar 3: Campus Engagement	
Objectives, Recommendations, and Resource Complements	
Pillar 4: Civic Engagement	
Objectives, Recommendations, and Resource Complements	
4.2 Long-Term Plan and Its Pillars	
Pillar 5: Human Resources & Infrastructure	
Objectives, Recommendations, and Resource Complements	

1.0 Context

The Vision Statement within UTM's Academic Plan (2017) includes the following phrase: *“UTM strives to educate highly accomplished individuals who are capable of leadership in the global knowledge economy, and who are thoughtful and empathetic global citizens able to reflect critically on the world and are committed to the values of integrity, democracy, and academic freedom.”*

The Plan has identified five attributes – Community, Creativity, Communication, Innovation and Sustainability – that make up UTM's identity. The Plan has also set five goals: 1) inspire student success by supporting a rigorous and innovative academic environment, 2) demonstrate that UTM is a home for world-class research, 3) enrich the student experience by embracing opportunities for community involvement, 4) educate future leaders to be global citizens meeting complex challenges, and 5) focus on transformation and innovation to create a sustainable and cohesive community. Sustainability, directly or indirectly, is embedded in all five goals. In addition, Goal 1 puts special emphasis on engaged learning through multi-disciplinary collaborations:

“UTM will continue to create imaginative new undergraduate educational experiences designed to challenge student thinking, performance and growth to new levels. This will include sponsoring opportunities for engaged learning in multi-disciplinary collaborations at UTM that link across departments in the humanities, social sciences, and sciences. For example, providing students with the option to include a ‘Sustainability Pathway’ in their degree will allow our students to leave UTM with a deeper appreciation and understanding of the complexity surrounding sustainability in all that it encompasses.”

As part of the Academic Implementation Process, Professor Amrita Daniere, Vice-Principal Academic and Dean, constituted the Sustainability Pathways Working Group (SPWG) (membership list is provided in **Appendix 1**) in December 2017. The SPWG has met four times. In the first meeting, held in early January 2018, the group discussed the many aspects that make up sustainability on campus – academic programs, research, outreach, and sustainability initiatives - and it was decided that the group will report on all aspects. In the second meeting, held in late January 2018, the group was divided into two further sub-groups – one charged with providing a working definition of sustainability and the other to report on the good practices of sustainability at universities (membership of the sub-groups is also provided in **Appendix 1**). These two sub-groups met twice independently, and once together. The two sub-groups drafted separate reports, and then worked together to produce a joint report. The joint report was discussed in a facilitated session on April 23, 2018. In this session, first different parts of the report were discussed in smaller groups, and later the whole group discussed the observations/suggestions of different groups. The observations/suggestions from the meeting on April 23, 2018 have been incorporated in this version.

2.0 Review of Sustainability Material

Sustainability Plans, Support Structures, Sustainability Tools, Courses and Programs

The SPWG decided to review relevant material. A brief summary of the elements included in the review is provided below.

2.1 Sustainability Plans

The group reviewed sustainability plans from leading universities who have placed a high importance on sustainability including Yale, Columbia, Harvard and University of British Columbia. Details of these plans are available at the links provided.

1) Yale Sustainability Plan 2025

https://sustainability.yale.edu/sites/default/files/sustainability_plan_2025.pdf

2) Columbia University Sustainability Plan 2017-2020

[https://sustainable.columbia.edu/sites/default/files/content/Columbia%20University%20Sustainability%20Plan\(1\).pdf](https://sustainable.columbia.edu/sites/default/files/content/Columbia%20University%20Sustainability%20Plan(1).pdf)

3) Harvard Sustainability Plan 2015-2020

<http://www.syntao.com/Uploads/files/Harvard%20Sustainability%20Plan.pdf>

4) University of British Columbia – 20-Year Sustainability Strategy

https://sustain.ubc.ca/sites/sustain.ubc.ca/files/uploads/CampusSustainability/CS_PDFs/PlansReports/Plans/20-Year-Sustainability-Strategy-UBC.pdf

2.2 Support Structures

Different universities have used different structures to promote sustainability. Some examples of different structures include:

a) University of British Columbia - The UBC Sustainability Initiative (USI) Office under the direct supervision of the Provost: UBC has made a commitment to integrate academics and operations in sustainability and the USI, established in 2010, is the main agent/structure for implementation of this commitment. The USI directly reports to the Provost. The USI is responsible for fostering partnerships and collaborations beyond traditional boundaries of disciplines, sectors and geographies. The USI's work is carried out under two themes - campus as a living laboratory and the University as an agent of change. The USI has four groups to implement different programs: the Regional and International Engagement Group; the Teaching, Learning, and Student Engagement Group; the Urban Innovation Research Group, and the Pacific Institute for Climate Solutions.

b) Arizona State University - Julie Ann Wrigley Global Institute of Sustainability: The Institute is the hub of ASU's sustainability initiatives, and its mandate includes advancing education, research, and business practices. The School of Sustainability, in the Institute, offers transdisciplinary degree programs focused on finding practical solutions to social, economic and environmental challenges. The school offers the following degrees: a BA in Sustainability, a BS in Sustainability, an MA in Sustainability, an MS in Sustainability, an MS in Global Sustainability Science, a Master of Sustainability Solutions, a Master of Sustainability Leadership, a 4+1 Accelerated Master of Sustainability Solutions, a Ph.D. in Sustainability, a Ph.D. in Sustainable Energy, and a Ph.D. in Complex Adaptive Systems Science. The Institute

has 18 Sustainability Programs and Solutions, such as the Centre for Biodiversity Outcomes and Sustainable Cities Network. In our terminology, it may be a Faculty (given the size of the unit and support staff of the Director), but this is not entirely clear from the materials available publicly.

c) Columbia University - The Earth Institute: The Earth Institute is hub of inter-disciplinary research and programs at Columbia. It blends research in the physical and social sciences, education and practical solutions to help guide the world onto a path toward sustainability. It has 24 Columbia-based research units and programs which are home to over 850 scientists, students, postdoctoral fellows and staff working to advance understanding in engineering, biology, and earth, health, and social science. It offers many undergraduate programs, Master and Ph.D. programs related to sustainability either by itself or in collaboration with other academic units. The status (in terms of an EDU) is not clear, but its operations are quite large.

2.3 Sustainability Tracking Tools

The group reviewed a Sustainability Tracking, Assessment & Rating System to identify what metrics are typically reported on by institutions of higher learning. The most common Sustainability Metric used by many universities is the Sustainable Campus Index developed by the Association for the Advancement of Sustainability in Higher Education (AASHE). AASHE publishes an annual report on sustainability performance of universities. University of Toronto does not currently participate in the AASHE report. Examples of components or elements that make up the Sustainable Campus Index are included as ***Appendix 2***.

2.4 Undergraduate Courses with Sustainability Content at UTM

Amy Geisberger, Master of Science in Sustainability Management (MScSM) student and SPWG Member, identified a large number of UTM courses that have sustainability content. The main filter used for identification of courses was the text that makes up the Sustainable Development Goals (SDG) since they encompass a breadth of topics within sustainability. After carefully analyzing the course calendar, she went online to peruse the syllabus of every course that seemed to have some content related to the SDGs. She assessed the detailed descriptions in each course syllabus and made a judgment as to whether or not it had aspects of sustainability as defined by the SDGs. If the syllabus included an outline of the individual lectures, she also made note of the topic and numbers of lectures with sustainability content to further help her gauge if a significant portion (about 25% or more) of the course was focused on sustainability.

She also recorded the contact information available for the professors teaching each course. Next steps should include directly approaching each professor as well as every department chair/director to get a better understanding of the available courses and decide how much of the course content actually focuses on sustainability.

This list of courses, which contain sustainability content (***Appendix 3***), is a starting point for further creation or modification of UTM's sustainability-oriented courses. The list of sustainability courses in each department will be finalized in consultation with concerned academic units.

2.5 Sustainability-Related Undergraduate Programs in Canada

The committee also prepared a list of all sustainability-related undergraduate programs in Canada. The list is provided in *Appendix 4*. There are many Major and Minor options related to sustainability, such as Environmental Science, Environmental Management, Resource Management etc. However, a Sustainability Pathway is only available at the University of British Columbia.

After reviewing and debating the content of this material, the SPWG created the other elements of its report (which are presented next).

3. Sustainability at UTM

3.1 Sustainability Vision

UTM strives to become a global leader in sustainability by fostering a culture of sustainability.

3.2 Definition of Sustainability

The World Commission on Environment and Development (WCED), commonly known as Brundtland Commission, introduced the concept of sustainable development (SD) and defined it as:

“development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

In its most cited definition of SD, the WCED draws upon several notions but the key element is non-separation of environment and development. The commission states:

“...the "environment" is where we live; and "development" is what we all do in attempting to improve our lot within that abode. The two are inseparable.”

In 2015, to operationalize the goal of a sustainable world, more than 190 world leaders committed to 17 Sustainable Development Goals (SDGs) to help us all address the challenge of climate change, end extreme poverty, and fight inequality & injustice. The 17 goals are: (1) no poverty; (2) no hunger; (3) good health; (4) quality education; (5) gender equity; (6) clean water and sanitation; (7) renewable energy; (8) good jobs and economic growth; (9) industry, innovation and infrastructure; (10) reduced inequalities; (11) sustainable cities and communities; (12) responsible consumption; (13) climate action; (14) life below water; (15) life on land; (16) peace and justice; and (17) partnerships for the goals.

Taking the fundamental aspects of our existence and our wellbeing into perspective, the SPWG group defines sustainability as:

“Sustainability rests on the principle that the biosphere is the foundation for all human activities: the well-being of present and future generations depends on the health of our shared ecosystems. The University of Toronto Mississauga has a unique role to play in fostering a culture of sustainability that respects the Earth and all of its inhabitants.”

3.3 Role of Academic Disciplines – Natural Sciences, Social Sciences, Humanities and Beyond

Sustainability, as defined above, is about human beings’ relations with the Earth and its other inhabitants. A culture of sustainability promotes the wellbeing of all generations, maintains healthy ecosystems, and fosters regenerative relations between natural, social, and technological systems.

Fostering such a culture requires an emphasis on holistic, integrative, and critical thinking that draws upon but also moves across traditional academic fields and disciplines. The natural sciences provide foundations for knowledge about the Earth’s systems and processes, gained through research and scholarly engagements in biology, chemistry, geology, physical geography, physics, psychology and others. The social sciences provide foundations for knowledge about social systems and processes, gained through research and scholarly engagements in anthropology, economics, human geography, political science, sociology and others. The humanities provide foundations for knowledge about meaning of systems and processes, gained through research and scholarly engagements in the arts, history, languages, philosophy and others.

In addition to these traditional fields and disciplines, transdisciplinary and newly emerging fields also play a fundamental role by synthesizing insights, revealing critical gaps in knowledge and developing new approaches. This includes, but is not limited to, bioinformatics, digital humanities, environmental studies, ethnic and indigenous studies, communications, transnational studies and women and gender studies. In short, a culture of sustainability hinges on the generation, integration, and application of holistic knowledge that draws from traditional, transdisciplinary and emerging academic fields, disciplines and areas of specialization.

3.4 Five Pillars of Sustainability Culture at UTM

A culture of sustainability can be fostered only by incorporating sustainability in all aspects of UTM, e.g. academic programs, research, human resources and infrastructure and by engaging the whole campus and society-at-large. Hence, Sustainability at UTM rests on the following five pillars.

- 1) Academic Programs and Curriculum
- 2) Research
- 3) Campus Engagement
- 4) Civic Engagement
- 5) Human Resources and Infrastructure

3.5 Sustainability Planning at UTM

Pillars 1 to 4 are related to academics and research while Pillar 5 is related to infrastructure and human resources, and these two categories of pillars require different time-horizons and the involvement of different stakeholders in planning and implementation. Given these differences, sustainability planning should be adopted in at least two distinct phases:

- a. **Short-term Plan:** This part of the plan should focus on Pillars 1 to 4, and the first plan may be based on a 3-year planning period.
- b. **Long-term Plan:** This part of the plan should be a more comprehensive plan incorporating all five pillars; the short-term plan (or its updated version) should become a part of the long-term plan. The first long-term plan may have a planning period of five years. The plan should also include Key Performance Indicators (KPIs) for each pillar, measurement frequency and should identify the administrative/academic units responsible for reporting on the different KPIs.

The next section provides more details regarding the five pillars and affiliated recommendations related to both plans.

4.0 Five Pillars and Plans

Main Point of Agreement

Sustainability initiatives and strategic plans at higher education institutions in Canada and around the world have gained momentum at an accelerated rate. For UTM to truly embrace sustainability, there is a clear demand for better integration between theory and practice; UTM needs to walk the talk as well as conduct the research and teach sustainability throughout the curriculum.

To lead the sustainability effort at UTM that bridges and supports academic research, student education and campus administration and physical logistics/operations, a new position of Vice-Principal Sustainability should be created (or the existing Vice-Principal Special Projects can be converted into Vice-Principal Sustainability). The mandate of this office should be lead and collectively inform an overarching divisional sustainability strategy that crosses boundaries yet simultaneously aligns progress towards an integrated sustainability practice. The VP Sustainability should be supported to become the command centre for Sustainability initiatives on campus.

A standing Sustainability Advisory Group (SAG) should be formed immediately. The group should have representation from a wide range of stakeholders. The SAG will advise and work with the VP Sustainability to develop a Long-Term Sustainability Strategic Plan for UTM that should include metrics for all pillars and activities. The SAG should also develop an implementation, monitoring (tracking progress), and reporting mechanisms for the strategic plan.

The VP Sustainability will report directly to the Principal and be given primary responsibility for implementing efforts around Pillars 3, 4, and 5, will work with VP Academic on Pillar 1 and with VP Research on Pillar 2, each elaborated in much more detail below. This new position and

office can serve as the bridge that connects our campus community, integrating the vast number of sustainability practices underway and planned initiatives, including academic, research and operational approaches, with an added goal of linking our campus to local and global communities engaged in sustainability efforts more broadly.

4.1 Short-Term Plan and Its Pillars

The Short-term Plan, as stated earlier, will incorporate the first four pillars. Details of each pillar and related recommendations are discussed next.

Pillar 1: Academic Programs & Curriculum

Based on our myriad and profound teaching experiences as well as lessons learned from existing programs, UTM will develop sustainability-specific academic opportunities for undergraduate and graduate students. These opportunities will be in the form of courses, experiential learning options, pathways and programs focused on sustainability.

Objectives: The learning opportunities should provide students with the space to explore creative approaches to current systems, use critical thinking skills and take calculated risks.

Undergraduate and graduate learning pathways should be interdisciplinary and freely accessible to all students, regardless of their degree program.

- A. Undergraduate Programs:** Each undergraduate student, regardless of their degree program, should have access to sustainability education.

Recommendations: In the short-term, UTM should introduce a Sustainability Pathway. In the long-term, UTM should also consider incorporating at least one “Sustainability Course” as part of UTM’s distribution requirements.

Sustainability Pathway: UTM should introduce a Sustainability Pathway as a Certificate option. The SPWG felt that a Certificate option will complement existing programs, such as the recently approved Sustainability Minor in the Geography Department. A certificate can provide options for students who already have focused their studies towards formal Subject POSTs (programs) such as a specialist, two majors or one major and two minors. The design of the Certificate option should address three important aspects. First, the credit requirements of a certificate should be less than the credit requirements of a minor program (1.5 to 3.5 credits because a minor requires 4.0 credits). Second, the certificate should be clearly distinguishable from other programs/opportunities (such as the new Sustainability Minor in the Geography Department). Third, all courses that comprise the certificate should be regular for-credit courses that can also count towards a student’s other program(s) or degree requirements.

Key recommendations for the educational attributes and structure of the Sustainability Pathway include:

Educational Attributes: Four key educational attributes are:

- i. **Sustainability Thinking** – systems and critical thinking as well as global citizenship
- ii. **Sustainability Knowledge** – from different perspectives: scientific, social and humanities
- iii. **Sustainability Integration:** integration of knowledge from different perspectives

iv. **Sustainability in Practice** – experiential learning and change agents

Certificate Program Structure (3.0 credits)

First and Second Years: 1.5 (0.5 credit in the first year and 1.0 credit in the second year) credits from required courses taken in the first and second Years

First Year: No new course need be created. Rather, sustainability should be embedded in foundational courses of the departments that support the Sustainability Pathway. The first year courses that include sustainability content should be identified, and ideally comprise pre-requisites for taking future steps along the Sustainability Pathway, which will be open to students in their second year.

Second Year: Two new courses (ideally called SUS200H5 and SUS201H5) focused on Sustainability should be created and made available to all students who have taken one or more of the first year courses identified above. These courses should include contents from natural science, social science and humanities. These courses will resemble the “Big Ideas” courses in the Faculty of Arts and Science (FAS) at the St. George campus. They will normally be taught by multiple instructors and also include elements of systems and critical thinking. It is very likely that these courses will have more than one (SCI, SSC, and HUM or some other such as UTM/IMI) designation. These courses will be required courses.

Third and Fourth Years: 1.5 credits from a list of electives, including a minimum of 0.5 credits having an EXP designation

Third Year: Two electives, which would include existing courses with significant sustainability content within departments (no new course need be created). These courses will be identified in consultation with departments. The departments should be allowed to co-designate the courses.

Experiential Learning Course – Experiential education opportunity including Co-op/Internship, community-based projects, ROPs and other modes of experiential learning. The existing departmental courses, which include a Co-op/Internship component (such as BIO400H, and JEG400/401Y and similar courses in other departments which have sustainability projects), should be included here even if they are offered in Third Year or Fourth Year. Ideally, all of these courses should be regular for-credit courses that can also count towards a student’s other program(s) and/or degree requirements. In addition, UTM should create a new SUS experiential course (SUS3XXH5 (EXP)) with an internship component. Other possible courses to consider as meeting this requirement of the proposed Certificate include popular study abroad courses with a strong sustainability component. All these details should be sorted out during formal program approval process.

Fourth Year: A new Capstone course (SUS4XXH) should be created as an elective option for Certificate students.

Finally, to further enrich the exposure to sustainability research, values and experiences for undergraduate students, UTM should initiate a monthly sustainability lecture series.

Guidelines for Academic Next Steps

1. Create a brief document that includes existing UTM courses that are eligible for Certificate purposes and which may be eligible if more sustainability content is added.
2. Identify one faculty member in each department to:
 - Recruit/select courses
 - Coordinate with academic advisors/committees
 - Propose courses for inclusion in the Certificate program
3. Request that the Dean compose and send a letter to all Chairs and Directors that includes information about possible:
 - Support/funding/complement
 - Benefits in terms of attracting students to UTM and to their departments, which include:
 - i. Market research
 - ii. Employability
 - iii. Facilitation of civic engagement
4. An SPWG website should be created that helps to increase awareness about the new academic options for faculty and students and should include:
 - A brief summary of this report (1-2 pages)
 - A current list of identified sustainability courses (.xlsx)
 - An explanation of the purpose and structure of the proposed Certificate
5. Create a timeline grid/graphics for pillar one (e.g. Yale)
6. Use sustainability content to build critical thinking, reading, writing, literacy, numeracy
 - Connect to UTM's Academic Plan working groups

Resource Complements

- (i) To facilitate administration and to streamline access for students, only one academic unit (department/institute) should be responsible for administering the Sustainability Pathway Certificate, as well as student advising. The unit should be provided with sufficient human and financial resources.

- (ii) Faculty Complement: Additional faculty complement (research and/or teaching steam) may be considered for the departments that plan to participate in the Sustainability Pathway Certificate. In such instances, a firm commitment to offer and promote the Pathway certificate will be required from any academic unit who seeks additional complement for this purpose.
- (iii) Resources for First Year Courses: Additional resources in terms of Teaching Assistant(s) and/or Research Assistant hours should be provided to incorporate sustainability content.
- (iv) Resources for Second Year Courses: These courses will be challenging to design and deliver. Additional resources – that may be similar to the FAS “Big Ideas” course - should be allocated for these courses.
- (v) A new Sustainability Pathways Grant should be started to support the development of sustainability courses/opportunities within a department that may include the revision of existing undergraduate courses.
- (vi) Similar to UBC, Faculty Sustainability Fellowships should be created to support Sustainability Champions in departments who will lead various sustainability initiatives including implementation of the Sustainability Pathway Certificate.
- (vii) To promote a better understanding of different disciplines in Sustainability, a Workshop/ Conference on the Role of Different Disciplines in Sustainability should be organized in 2018-19. At this event, experts from different disciplines who are working on sustainability issues should be invited as guest speakers.

B. Graduate Programs: Similar to undergraduate students, all graduate students, regardless of their degree program, should have access to sustainability education.

Recommendations: UTM should explore the possibility of starting the following two programs.

- (i) Sustainability Summer School for Ph.D. students; and
- (ii) Collaborative Program in Sustainability for all graduate students.

Both programs should be inter-disciplinary and open to all students. Programs should be supported with required human and financial resources.

Pillar 2: Research

Building upon UTM’s excellence and diversity in terms of research, the campus should develop sustainability-specific inter-disciplinary (theoretical and applied) research opportunities for professors, graduate students, and undergraduate students. These opportunities should be in the form of research projects and research grants.

Objectives: UTM should become the pioneer for inter-disciplinary research related to sustainability within the University of Toronto. Research opportunities should provide a unique

academic space/environment to work in multi-disciplinary teams on various sustainability-related issues/problems and their solutions. The space should accommodate theoretical as well as applied research, and researchers (including graduate and undergraduate students) from natural science, social science, and humanities.

Recommendations

UTM should fund sustainability research at levels that create powerful incentives for faculty to embrace and engage in this area. These funding support levels below are *suggested targets* that UTM should aspire to reach.

- (i) **Research Grants for Professors:** UTM should allocate at least \$500,000/year for research projects proposed and led by faculty. The grants should be tiered in terms of size and duration. Suggested amounts range from \$60,000 for larger grants and as little as \$10,000 for smaller grants. It is also suggested that larger projects allow for implementation over a two to three-year period. All grants should be limited to interdisciplinary research projects, and the research teams should include faculty from at least two or more disciplines/departments. SPWG members urged that research proposals include the active involvement of students and that projects include scholarships/salaries of Post-Doctoral Fellows and Research Associates.
- (ii) **Research Grants for Graduate and Undergraduate Students:** UTM should allocate at least \$50,000/year for student-driven research projects related to sustainability. The suggested grant amount is from \$2,000 to \$5,000. These grants could potentially fund summer schools, research travel, publication fees, independent research projects on sustainability, small equipment, field travel and other participation in research activities, It is suggested that these grants also be available to ROP students engaged in sustainability research.
- (iii) **Research areas:** The research grants should not be limited to any specific discipline and/or research topic. The description of research areas and topics should be flexible and open-ended to encourage member of every department and academic unit at UTM to participate.
- (iv) **Sustainability Grants Committee (SGC):** A Sustainability Grants Committee should be formed to review and recommend grants. As with other research funding committees at UTM, the SGC should be made up of members from multiple disciplines that, ideally, roughly reflects the disciplinary diversity of the applicant pool. The committee should be chaired by the Vice-Principal Research and include input from the Vice-Principal Academic, and Vice-Principal Sustainability (proposed in this document).
- (v) **Promotion of Sustainability Research and Scholars:** UTM should develop a research website to promote scholarly research on sustainability being conducted by

UTM researchers. Promotion of this kind can help to develop sustainability-related partnerships and attract research funds to UTM.

In addition, UTM should support faculty attending conferences that feature research addressing themes on environmental sustainability, sustainability in economic, social, and cultural context, sustainability policy and practice, as well as sustainability education. One such example is the [International Conference on Environmental, Cultural, Economic & Social Sustainability](#) whose 2019 Special Focus is: From Pedagogies for Sustainability to Transformative Social Change.

All recipients of any sustainability research funding should also promote sustainability efforts on the campus; these activities may include participation and contributions to Sustainability Seminar/Colloquia Series (Pillar 3) and activities related to civic engagement (Pillar 4) such as Let us Talk Sustainability, Sustainability Summer Camp, Peel Region Science Fair.

- (vi) **Sustainability-Friendly Labs Program:** UTM should develop a well-funded and implemented program to reduce the environmental impacts of research-related activities and to support a healthy work environment in UTM labs. A Sustainability Revolving Fund should be created to promote this program. The funds can be used to reduce consumption of gas, electricity, water, chemicals, and to improve the work environment in labs. The SPWG proposes that UTM allocate at least \$100,000/per year for this program.

- (vii) **Global Conference on Sustainability:** UTM should consider organizing a global conference on sustainability every other year.

Resource Complements

- (i) A sub-unit, supported by adequate financial and human resources, within the VP Research portfolio and/or VP Sustainability portfolio will be necessary to implement the Sustainability research program.
- (ii) The unit should have an advisory committee with representation from sustainability scholars from different disciplines.
- (iii) The staff in the unit should also possess an educational background in the environmental, social and/or economic aspects of sustainability.

Pillar 3: Campus Engagement

UTM will support campus-based student, staff and faculty-driven initiatives surrounding issues of importance, including, but not limited to well-being, food and dining services, waste

management, water quality, transportation, infrastructure, energy utilization and grounds maintenance.

Objectives: Widespread campus engagement will contribute towards fostering a culture of sustainability through student, staff and faculty-driven activities in the areas that will directly contribute to making this campus a more sustainable community.

Recommendations:

- (i) **Sustainability Seminar/Colloquia Series:** UTM should start a seminar/colloquia/workshop series (also recommended in Section 4.1) with sustainability topics to edify campus members. The series may invite speakers from the areas identified above, such as water quality.
- (ii) **Sustainability Orientation:** Add material related to sustainability and/or Sustainable UTM to the website of the UTM/Sustainability Office as well as to campus recruitment and orientation events
- (iii) **Sustainability Poster Competition:** UTM should start an annual Sustainability Poster Competition. The competition may have different awards for undergraduate and graduate students. The poster competitions can also focus on different themes related to the topics identified above.
- (iv) **Campus Life and Sustainability:** UTM should consider incorporating Sustainability into the Campus Life menu on the UTM website and as part of opportunities offered through the Centre for Student Engagement.
- (iv) **Peace Garden:** UTM should consider developing a joint peace/indigenous garden and public space on campus as a symbol of the importance of international peace and its benefits to humanity. This is a fundamental tenant of social sustainability. The garden should be developed at a prominent location. The process of garden development should be inclusive and Indigenous leaders should be actively involved.
- (v) **Engagement of Student Clubs:** UTM should consider programs to promote sustainability through student clubs. Small grants, specifically for student clubs, for sustainability initiatives could be used to incentivize these efforts.
- (vi) **Professional Development (PD) for Staff Members:** UTM should consider creating professional development activities focused on sustainability. PD can include grants to attend workshops/courses, time release for staff to take courses related to sustainability, and organization of staff-oriented sustainability educational opportunities.

- (vii) **Recognition and Awards:** UTM should provide awards for students, student groups, staff and/or faculty who show leadership in sustainable practices on campus including co-curricular activities and other new ideas.
- (viii) **Sustainability Engagement Grants/ Loan Program:** UTM should create incentives for students, staff and faculty who wish to promote a sustainability culture on campus. UBC's Sustainability Coordinator (SC) program may be used as a model to develop details of this program.
- (ix) **Food and Dining Services and Waste Management:** UTM should immediately start reviewing and improving campus food and dining services and waste management practices with an eye to improving sustainable food practices.

Resource Complements

- (i) The Vice-President Sustainability portfolio should be responsible for all campus engagement and civic engagement activities. This administrative unit will also ensure that other opportunities/activities that are marketed as having sustainability themes are aligned with UTM's sustainability vision and plan.
- (ii) As indicated under previous pillar(s), consider where already-existing staff and faculty can support campus engagement opportunities.
- (iii) The unit/sub-unit should be supported with required financial and human resources.

Pillar 4: Civic Engagement

In recognition of our position in the broader ecosystem, UTM will support partnerships with schools, conservation authorities, local and broader government and community/neighborhood organizations that promote sustainable practices. This would include promoting authentic interactions between campus and community members leveraging the full range of human communications, which encourages development of verbal, analytical, and written skills.

Objectives: Such civic engagement will contribute towards fostering a culture of sustainability through engagement with a wider community. Supporting this pillar will also help position UTM as part of a broader natural, social, political and organizational ecosystem, embedded within Peel or the GTA.

Recommendations

- (i) UTM should explore all possibilities through the Centre for Student Engagement and Experiential Education Unit for existing opportunities or to create new ones for civic

engagement (to develop and strengthen connections with Mississauga, Peel Region, Ontario, and Canada).

- (ii) **Partnership with Let's Talk Science:** UTM should develop a partnership with this group to promote sustainability among elementary and high school students. UTM should also explore the possibilities of organizing a separate event on Let's Talk Sustainability, with or without partnership of Let's Talk Science.
- (iii) **Peel Region Science Fair:** UTM should also develop a sustainability component (competition on sustainability-focused projects) in this science fair.
- (iv) **Summer Camps Focused on Sustainability:** UTM should explore possibilities of organizing sustainability-focused summer camps for elementary school students either as a part of its existing summer camps or an independent stream of summer camps.
- (v) **Team-building Events:** UTM managers and/or leaders should be encouraged to coordinate team-building events whereby entire teams/units volunteer with a program or organization (such as an NGO, Habitat for Humanity, a food bank), which encourages learning and sharing of experiences and cultures. A Sustainability leadership course should be organized for city councilors to be offered on-campus on an annual basis if it proves successful.
- (vi) **Partnerships and Support of Community Organizations:** UTM should introduce a program for staff to contribute a fixed number of paid days per year (for example, seven) to provide professional support to community organizations that have mandates consistent with UTM's Sustainability Plan. Examples include: The United Way campaign and where it should be possible for UTM to support community organizations through individual or coordinated donations and by allowing embedding of UTM staff and faculty and librarians. This could mean, for example, allowing the Mississauga Food Bank to partner with UTM on yearly events such as the Principal's Holiday reception. Other possible organizations to partner with are Toronto and Region Conservation Authority (TRCA), EcoSource, and Credit Valley Conservation.

Resource Complements

- (i) VP Sustainability will be responsible for campus engagement activities.

- (ii) Consider where already-existing staff (such as Environment & Sustainability Coordinator) can support managers and leaders who have ideas on how to become more involved or active with the community.
- (iii) Consider having Sustainability Ambassadors (much like Health & Safety representatives) representing collective units on campus, who meet regularly with a central administrative unit, a coordinator and/or Faculty so that ideas and knowledge can be shared and disseminated.
- (iv) Human Resources and management at UTM has to be supportive of the financial implications of staff being away from the office for a day or days, understanding the ultimate way it gives back to the community.

4.2 Long-Term Plan and Its Pillars

To foster a culture of sustainability in the long-term, it is essential that we ‘walk the talk’. Hence, the integration of sustainability principles and incorporation of the best possible standards of sustainability practices in our human resource and infrastructure management will be critical for building our reputation as a global leader in sustainability.

The long-term plan, as stated earlier, will include all pillars. Other pillars have been discussed in the short-term plan, and here we discuss only Pillar 5.

Pillar 5: Human Resources & Infrastructure

The main focus of this pillar is to build sustainability into human resource infrastructure management practices. Some of the aspects that need to be addressed in this pillar are air quality, buildings, energy use, food and dining, greenhouse gas (GHG) emissions, grounds, purchasing, transportation, waste, water use, employee engagement and well-being.

The scope of this pillar is very broad, and the UTM stakeholders related to human resources and infrastructure are not represented on the SPWG. The SPWG does not have enough understanding, data, time, and other resources to offer informed input into the long-term plan in this area.

Recommendations:

- (i) As mentioned above in section 4.0, create a new position of Vice-Principal Sustainability. The Office of the VP Sustainability will oversee all other sustainability-related activities and initiatives at UTM. The Office of the VP Sustainability should have three units – (i) Campus and Civic Engagement; (ii) Human Resources, Infrastructure, and Reporting; and (iii) Coordination of Sustainability related Academic and Research Initiatives and Outreach. The VP Sustainability should be added to the membership of the UTM Executive Committee. The appropriate level of resourcing for this new office is to be

determined, but should be supported to take a leadership role in Sustainability at UTM, Mississauga, Ontario, Canada, and globally.

- (ii) A standing Sustainability Advisory Group (SAG) should be formed immediately. The group should have representation from all stakeholders. The SAG will advise the VP Sustainability.
- (iii) The SAG should work with the VP Sustainability to develop a Long-Term Sustainability Strategic Plan for UTM. The SAG should be able to request the services as needed of expert consultants to support the development of the Sustainability Strategic Plan. The Plan should include metrics for all pillars and activities. Examples of metrics related to five pillars are detailed in Appendix 2.
- (iv) Given the importance of Sustainability overall to UTM, the VP Sustainability should be supported by an appropriate structure and resources to implement, monitor, and report on all of the short-term and long-term sustainability plans.
- (v) UTM should become a member of AASHE STARS as soon as possible; AASHE reporting could become part of the coursework in 3rd year experiential learning courses and/or capstone courses.

Appendix 1

Sustainability Pathways Working Group (SPWG) University of Toronto Mississauga

A. Membership of the group

1. Prof. Amrita Daniere (VP Academic and Dean, UTM)
2. Prof. Ingo Ensminger (Department of Biology)
3. Prof. Jumi Shin (Department of Chemical and Physical Sciences)
4. Prof. Teresa Lobalsamo (Department of Language Studies)
5. Prof. Barbara Murck (Department of Geography)
6. Prof. Joan Simalchik (Department of Historical Studies)
7. Prof. Soo Min Toh (Department of Management)
8. Prof. Steven Hoffman (Department of Sociology)
9. Prof. Amy Mullin (Department of Philosophy)
10. Prof. Jeffrey Graham (Department of Psychology)
11. Christopher Lengyell (Student Housing & Residence Life)
12. Laura Ferlito (Academic Advisor, Office of the Registrar)
13. Lorretta Neebar (Registrar & Director of Enrolment Management, Office of the Registrar)
14. Amy Geisberger (MScSM Student)
15. Julia Morton-Marr (International Holistic Tourism Education Centre)
16. Anuar Rodrigues (Director, Academic Planning, Policy, and Research, Office of the Dean)
17. Prof. Shashi Kant (Director, MScSM)

B. Membership of Two Sub-groups

Sub-group on Sustainability Definition

1. Prof. Jumi Shin (Department of Chemical and Physical Sciences)
2. Prof. Barbara Murck (Department of Geography)
3. Prof. Steven Hoffman (Department of Sociology)
4. Laura Ferlito (Academic Advisor, Office of the Registrar)
5. Prof. Shashi Kant (Program Director, MScSM)

Sub-group on Best Practices of Sustainability

1. Prof. Joan Simalchik (Department of Historical Studies)
2. Prof. Soo Min Toh (Department of Management)
3. Lorretta Neebar (Registrar & Director of Enrolment Management, Office of the Registrar)
4. Amy Geisberger (MScSM Student)
5. Prof. Shashi Kant (Director, MScSM)

Appendix 2

Metrics (based on AASHE Technical Manual)

Pillar 1: Academic Programs & Curriculum

- Academic courses
 - An inventory of courses that have been identified as “sustainability courses” and “courses that include sustainability” using the definitions provided by AASHE
- Learning Outcomes
 - Number of students that graduate from programs that have adopted at least one sustainability learning outcome
- Undergraduate Programs
 - Number of sustainability-focused programs and sustainability-focused minors of concentration
- Graduate Programs
 - Number of sustainability-focused programs and sustainability focused minors of concentration
- Immersive Experience
 - Immersive, sustainability-focused educational programs that are one week or more in length and may take place off-campus, abroad, or on-campus
- Sustainability Literacy Assessment
 - Conduct an assessment of the sustainability literacy of students
- Incentives for Developing Courses
 - An ongoing program that offers incentives for faculty in multiple disciplines to develop new sustainability courses and/or incorporate sustainability into existing courses
- Campus as a Living Laboratory
 - utilizing its infrastructure and operations for multidisciplinary student learning and applied research that contributes to understanding campus sustainability

Pillar 2: Research

- Research and Scholarship

- An inventory of Faculty and staff engaged in sustainability research and Departments that conduct sustainability research
- Support for Research
 - Encourage and support sustainability research
- Open Access to Research
 - Published open access policy that ensures that versions of future scholarly articles by faculty and staff are deposited in designated open access repository

Pillar 3: Campus Engagement

- Student Educators Program
 - Total number of students served by a peer-to-peer outreach and education program
- Student orientation
 - Percentage of entering students provided orientation activities and programming that include sustainability
- Student life
 - Number of co-curricular sustainability programs and initiatives
- Outreach Materials and Publications
 - Production of outreach materials and/or publications that foster sustainability learning and knowledge
- Outreach Campaigns
 - Hold at least one sustainability-related outreach campaign directed at students
 - Hold at least one sustainability-related outreach campaign directed at employees
- Assessing Sustainability Culture
 - Conduct an assessment of campus sustainability culture

Pillar 4: Civic Engagement

- Community Partnership
 - At least one formal community partnership that is either transformative, collaborative or supportive
- Inter-Campus Collaboration

- Collaboration with other colleges and universities to support and help build the campus sustainability community
- Continuing Education
 - Conduct an inventory during the previous three years to identify continuing education courses that address sustainability
 - Have at least one sustainability-themed certificate program through continuing education or extension department
- Community Service
 - Engage student body in community service, as measured by the percentage of students who participate in community service
 - Engage students in community service, as measured by the average hours contributed per student per year
- Participation in Public Policy
 - Advocate for public policies that support campus sustainability or that otherwise advance sustainability
- Trademark Licensing
 - Become a member of the Fair Labor Association (FLA) and/or the Worker Rights Consortium (WRC)

Pillar 5: Human Resources & Infrastructure

Air Quality

- Greenhouse Gas Emissions
 - Conduct a publicly available greenhouse gas (GHG) emissions inventory that includes, at minimum, Scope 1 and Scope 2 GHG emissions and may also include Scope 3 GHG emissions
 - Reduce its adjusted net Scope 1 and Scope 2 GHG emissions per weighted campus user compared to a baseline
 - Annual adjusted net Scope 1 and Scope 2 GHG emissions are less than the minimum performance threshold of 0.02 metric tons of carbon dioxide equivalent (MtCO₂e) per gross square foot (0.215 MtCO₂e per gross square meter) of floor area
- Outdoor Air Quality
 - Written policies or guidelines to improve outdoor air quality and minimize air pollutant emissions from mobile sources on campus
 - Complete an inventory of significant air emissions from stationary sources on campus or else verified that no such emissions are produced. Significant emissions include nitrogen oxides (NO_x), sulfur oxides (SO_x), and other standard

categories of air emissions identified in environmental permits held by the institution, international conventions, and/or national laws or regulations

Buildings

- Building Operations and Maintenance
 - Certified under a green building rating system focused on the operations and maintenance of existing buildings, e.g., LEED®: Building Operations + Maintenance (O+M) and/or Operate and maintain in accordance with published sustainable operations and maintenance guidelines and policies that include one or more of the following:
- Building Design and Construction
 - Buildings that were constructed or underwent major renovations in the previous five years are: 1) Certified under a green building rating system for new construction and major renovations, e.g., LEED®: Building Design & Construction (BD+C) 2) Certified Living under the Living Building Challenge and/or 3) Designed and built in accordance with published green building codes, guidelines and/or policies

Energy

- Building Energy Consumption
 - Reduced total building energy consumption per gross square foot/meter of floor area compared to a baseline
 - Annual building energy consumption is less than the minimum performance threshold of 65 BTU per gross square foot per Fahrenheit degree day (389 BTU per gross square meter per Celsius degree day).
- Clean and Renewable Energy
 - Supports the development and use of clean and renewable energy sources

Food & Dining

- Food and Beverage Purchasing
 - Primary dining services contractor conducts an inventory to identify food and beverage purchases that have the following attributes: 1) Third Party Verified. The product is sustainably and/or ethically -produced as determined by one or more recognized food and beverage sustainability standards. 2) Local & Community Based. The product does not qualify as Third Party Verified, but meets the criteria outlined in the table below. This category provides a path for campus farms and gardens and small and mid-sized producers to be recognized in the absence of third party certification.
- Sustainable Dining
 - Dining services support sustainable food systems in one or more ways

Grounds

- Landscape Management
 - Grounds include areas that are managed in accordance with: 1) an Integrated Pest Management (IPM) program; and/or 2) an organic land care standard or landscape management program that has eliminated the use of inorganic fertilizers and chemical pesticides, fungicides and herbicides in favor of ecologically preferable materials.
- Biodiversity
 - Conduct one or both of the following: 1) an assessment to identify endangered and vulnerable species (including migratory species) with habitats on institution-owned or -managed land; and/or 2) an assessment to identify environmentally sensitive areas on institution-owned or -managed land.

Purchasing

- Sustainable Procurement
 - Written policies, guidelines or directives that seek to support sustainable purchasing across commodity categories institution-wide
 - Employ Life Cycle Cost Analysis (LCCA) as a matter of policy and practice when evaluating energy- and water-using products, systems and building components
- Electronics Purchasing
 - Purchase EPEAT registered products for desktop and notebook/laptop computers, displays, thin clients, tablets/slates, televisions and imaging equipment (copiers, digital duplicators, facsimile machines, mailing machines, multifunction devices, printers and scanners)
- Cleaning and Janitorial Purchasing
 - Main cleaning or housekeeping department(s) and/or contractor(s) purchase cleaning and janitorial paper products which are environmentally-conscious
- Office Paper Purchasing
 - Purchase office paper with post-consumer recycled, agricultural residue, and/or Forest Stewardship Council (FSC) certified content.

Transportation

- Campus Fleet
 - Supports alternative fuel and power technology by including appropriate components in its motorized vehicle fleet vehicles
- Student Commute Modal Split
 - Students commute to and from campus using more sustainable commuting options such as walking, bicycling, vanpooling or carpooling, taking public transportation, riding motorcycles or scooters, riding a campus shuttle, or a combination of these options
- Employee Commute Modal Split

- Employees (faculty, staff, and administrators) get to and from campus using more sustainable commuting options such as walking, bicycling, vanpooling or carpooling, taking public transportation, riding motorcycles or scooters, riding a campus shuttle, telecommuting, or a combination of these options
- Support for Sustainable Transportation
 - Implement one or more strategies to encourage more sustainable modes of transportation and reduce the impact of student and employee commuting

Waste

- Waste Minimization and Diversion
 - Implement source reduction strategies to reduce the total amount of waste generated (materials diverted + materials disposed) per weighted campus user compared to a baseline
 - Total annual waste generation (materials diverted and disposed) is less than the minimum performance threshold of 0.50 tons (0.45 tonnes) per weighted campus user.
 - Divert materials from the landfill or incinerator by recycling, composting, donating or re-selling
- Construction and Demolition Waste Diversion
 - Divert non-hazardous construction and demolition waste from the landfill and/or incinerator. Soil and organic debris from excavating or clearing the site do not count for this credit.
- Hazardous Waste Management
 - Strategies in place to safely dispose of all hazardous, special (e.g., coal ash), universal, and non-regulated chemical waste and seeks to minimize the presence of these materials on campus.
 - Program in place to recycle, reuse, and/or refurbish electronic waste generated by the institution and/or its students. Institution ensures that the electronic waste is recycled responsibly by using a recycler certified under the e-Stewards® and/or Responsible Recycling (R2) standards.

Water

- Water Use
 - Reduce its potable water use per weighted campus user compared to a baseline
 - Reduce its potable water use per gross square foot/meter of floor area compared to a baseline
 - Reduce its total water use (potable + non-potable) per acre/hectare of vegetated grounds compared to a baseline
- Rainwater Management

- Use green infrastructure and low impact development (LID) practices to help mitigate stormwater run-off impacts and treat rainwater as a resource rather than as a waste product

Sustainability Coordination

- Sustainability Planning
 - Publish one or more written plans that include measurable sustainability objectives

Diversity & Affordability

- Diversity and Equity Coordination
 - Institution has a diversity and equity committee, office and/or officer (or the equivalent) tasked by the administration or governing body to advise on and implement policies, programs, and training related to diversity, equity, inclusion and human rights on campus. The committee, office and/or officer may focus on students and/or employees.
 - Institution makes cultural competence training and activities available to students, staff, and/or faculty.
- Assessing Diversity and Equity
 - Institution has engaged in a structured assessment process during the previous three years to improve diversity, equity, and inclusion on campus
- Support for Underrepresented Groups
 - Institution has one or more policies, programs or initiatives to support underrepresented groups and foster a more diverse and inclusive campus community
- Affordability and Access
 - Institution has policies and programs in place to make it accessible and affordable to low-income students and/or to support non-traditional students

Investment & Finance

- Committee on Investor Responsibility
 - Institution has a formally established and active committee on investor responsibility (CIR) or equivalent body that makes recommendations to fund decision-makers on socially and environmentally responsible investment opportunities across asset classes, including proxy voting (if the institution engages in proxy voting)
- Sustainable Investment
 - There are two possible approaches to this credit; institutions may pursue one or both. Institutions for which investments are handled by the university system, a separate foundation of the institution and/or a management company contracted by the institution should report on the combined activities of those entities.
 - Option 1: Positive Sustainability Investment or Option 2: Investor Engagement

- Investment Disclosure
 - Institution makes a snapshot of its investment holdings available to the public, including the amount invested in each fund and/or company and proxy voting records. The snapshot of holdings is updated at least once per year.

Wellbeing & Work

- Employee Compensation
 - More than 75 percent of the institution's employees receive a living wage (benefits excluded)
 - Institution is able to verify that more than 75 percent of the employees as contractors that work on-site as part of regular and ongoing campus operations receive a living wage (benefits excluded)
 - Total compensation provided to the institution's lowest paid regular (i.e., permanent) employee or pay grade meets or exceeds the local living wage
- Wellness Program
 - Institution has a wellness and/or employee assistance program that makes available counseling, referral, and well-being services to all students, staff, and/or faculty members
- Workplace Health and Safety
 - Institution has reduced its total number of recordable workplace injuries and occupational disease cases per full-time equivalent (FTE) employee compared to a baseline
 - Institution has fewer than 6 recordable workplace injuries and occupational disease cases annually per 100 full-time equivalent (FTE) employees

Employee Engagement

- Employee Educators Program
 - Number of employees served by a peer-to-peer outreach program
- Employee Orientation
 - Percentage of new employees offered orientation and/or outreach and guidance materials that cover sustainability
- Staff Professional Development
 - Estimated percentage of regular staff that participates annually in sustainability professional development and training

Innovation & Leadership

- Innovation

- Innovation credits are open-ended and reserved for new, extraordinary, unique, groundbreaking, or uncommon outcomes, policies, and practices that address sustainability challenges and are not covered by an existing credit or exemplary practice option

Appendix 3

Undergraduate Courses with Sustainability Content at UTM

(Not included here)

Appendix 4

Sustainability-Related Undergraduate Programs in Canada

(not included here)