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Developing a First-time Sustainability Report for a Higher Education Institution

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Abstract:

While municipal and corporate sectors benefit from step-by-step guidance on the process of developing a sustainability report from scratch, such guidance is lacking for higher education institutions. In this chapter, select municipal and corporate sustainability reporting processes and existing sustainable campus literature are examined alongside empirical evidence from the University of Waterloo (Waterloo, Canada) to arrive at the seven-step process for developing a first-time sustainable development report for a higher education institution. The steps are: 1) review Higher Education (HE) sector sustainability reports; 2) review HE sector sustainability assessment tools; 3) develop guiding principles; 4) engage the stakeholders; 5) collect sustainability performance information; 6) verify report accuracy; and 7) publish the report and welcome feedback. This chapter is particularly relevant for higher education institutions that are considering preparing a sustainability report for the first time.

Introduction: Sustainable Development and Higher Education Institutions

Higher education (HE) institutions play a significant role in advancing the sustainable development movement. Often compared to small cities or corporations due to their size, HE institutions have a responsibility to integrate sustainability into their operations in order to reduce their environmental footprint (Stafford, 2011). Moreover, as HE institutions are considered to be the incubators of tomorrow's leaders and decision-makers, they are urged to deliver learning and research opportunities to advance knowledge in the area of sustainable development (Velazquez *et al*., 2006). In recognition of their unique role, some higher education institutions have signed sustainability-related declarations that commit them to various actions to drive the movement forward (Wright, 2002). Similarly, some of these institutions have undertaken sustainability performance assessments, created sustainability coordinator positions, and assigned sustainability committees to develop their sustainability plans and manage their sustainability initiatives (Bardati, 2006; Herremans and Allwright, 2000). However, the uptake of sustainability reporting within the higher education sector has been slow (Fonseca *et al.*, 2010; Lozano, 2011).

Sustainability reports are documents that present relevant performance information. Whereas sustainability reporting has experienced significant growth in the past decade within corporations, it is has not become a common practice among the majority of higher education institutions (Fonseca *et al.*, 2010; Global Reporting Initiative, 2011). This is unfortunate, as a number of benefits from sustainability reporting within the higher education sector exist, including better stakeholder communication, and improved environmental management (Bardati, 2006; Walton *et al.*, 1997).

One of the barriers to sustainability reporting among higher education institutions may be the lack of sector-specific, step-by-step guidance for developing sustainability reports in the higher education sector (Lozano, 2011). In contrast, academic and practitioner literatures provide such guidance for the corporate and municipal sectors (e.g., Commonwealth of Australia, 2000; Maclaren, 1996; Global Reporting Initiative, 2011; Mitchell *et al.*, 2008). Campus sustainability literature covers the role of sustainability coordinators (e.g., Herremans and Allwright, 2000), conducting assessments (e.g., Beringer, 2006), and involving students (e.g., Helferty and Clarke, 2009), which is all part of the process of preparing a sustainability report, but the extant literature does not detail the complete picture. Drawing from both the practitioner and academic literature, as well as from the empirical evidence of developing the first sustainable development report at the University of Waterloo (Waterloo, Ontario, Canada), this chapter provides a seven-step process for developing a first-time sustainability report for a higher education institution. The specific research question is:

RQ: What is the process of developing a first-time sustainability report for a higher education institution?

The chapter begins with a literature review of existing campus sustainability literature related to the process of developing a report, followed by an introduction to the corporate and municipal literature on the topic. Next the methodology section introduces the University of Waterloo case study. The combined results and discussion section detail the seven steps in relation to both the literature and the case study findings. The chapter ends with conclusion and future research section.

Sustainable Development Reporting in the Higher Education Sector

HE institutions that are considered leaders in sustainable development usually hire full-time personnel to co-ordinate sustainability efforts and report on the progress to senior governing bodies (Herremans and Allwright, 2000). This personnel (sustainability coordinator) typically conducts the sustainability assessment (Beringer, 2006; Viebahn, 2002) and involves students during the data collection stages (Bardati, 2006; Ferreira *et al.*, 2006; Helferty and Clarke, 2009). The ISO 14001 standard and the GRI Sustainability Reporting Guidelines can be used to guide the assessment process (Clarke and Kouri, 2009; Lozano, 2011). However, one of the challenges with using these tools is the lack of sector-specific guidance for the higher education sector (Clarke and Kouri, 2009; Lozano, 2011; Taddei-Bringas *et al.*, 2008). Thus, campus sustainability coordinators often draw from a variety of sustainability assessment tools designed specifically for higher education institutions, including in North America, the Campus Sustainability Assessment Framework (CSAF), and the Sustainability Tracking, Assessment, and Rating System (STARS) (Cole, 2003; Shriberg, 2002; AASHE, 2012). These campus sustainability assessment frameworks can be used to identify most pertinent data needed in order to communicate sustainability performance findings to the institutional decision-makers (Bardati, 2006; Beringer, 2006). To this end, the establishment of sustainability principles, a selection of few yet effective indicators, and clear communication of sustainability assessment results through an organized reporting structure are beneficial (Troschinetz *et al.*, 2007). However, aside from the sustainability assessment frameworks, practical guidance for the development of sustainability reports within the higher education sector is limited.

While Bardati's three-stage process of environmental assessment outlines possible steps prior to the report creation, the focus of her discussion remains on the environmental audit course structure (Bardati, 2006). Viebahn's environmental management model for universities provides broader insight into the set-up of environmental management systems, with only a brief discussion on reporting (Viebahn, 2002). A recent student paper entitled *Developing an Annual Sustainability Report for WPI* shares the authors' experience in writing the first-ever sustainability report for Worcester Polytechnic Institute (Alden *et al.*, 2010). One may deduct the process the authors employed to have consisted of the following: a review of GRI and STARS sustainability reporting frameworks; an examination of nine

higher education sector sustainability reports' contents; interviews with staff and faculty; and online publication of the report (Alden *et al.*, 2010). Good insight can be obtained from this report, yet there is still no explicit step-by-step guidance for a sustainability report development process proposed.

Sustainable Development Reporting in the Corporate and Municipal Sectors

In the corporate sector, investor pressures to disclose non-financial performance is becoming a significant driver for sustainability reporting in the corporate sector. Material risks to investors from inadequate environmental performance disclosure were identified as an issue and disclosure is now mandatory in some jurisdictions (Ioannou and Serafeim, 2011). To track sustainability performance, the corporate sector relies mostly on the International Standards Organization (ISO) environmental management standards and on the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines. The ISO 14001 standard is implemented by more than 200,000 organizations in 155 countries (International Standards Organization, 2011). The GRI Sustainability Reporting Guidelines now constitute the most used sustainability reporting framework in the world (Global Reporting Initiative, 2011). Stakeholder engagement is the forefront focus of the corporate sector sustainability assessment and reporting process (Adams and Frost, 2008). The following process exemplifies the steps involved in corporate sustainable development reporting:

1) Determine which stakeholders should be involved.
2) Empower stakeholders to select sustainability performance indicators and to suggest a course of action to improve organization's sustainability performance.
3) Ensure commitment from organization's leaders from the get-go.
4) Determine the extent of the sustainability performance evaluation.
5) Include social and equity issues in the analysis.
6) Focus on local sustainability issues. Select indicators that lead to practical actions, using generic sustainability indicator sets, such as the GRI Sustainability Guidelines, only as a guide.
7) Emphasize a problem-based focus of sustainability reporting, with the stakeholders making suggestions on appropriate actions to enhance sustainability.
8) Create links between the sustainability reporting process and the organization's everyday activities.
9) Collaborate with other organizations in achieving sustainability goals.

Adapted from Mitchell *et al.*, 2008, p. 73

In the public sector, influenced by their publically visible nature and by the increasingly popular corporate models for sustainability performance measurement and accountability, local governments have began to monitor and evaluate their policies based on economic, social and environmental trends (Seasons, 2003). Popular sources for guidance on municipal sustainability reporting include the Global Reporting Initiative Public Agency Sector Supplement and International Council for Local Environmental

Initiatives (ICLEI) publications (CPA Australia, 2007). However, the uptake of the GRI Sustainability Reporting Guidelines has also been slow in the municipal sector due to the lack of direction on methods of reporting community-based data (Leeson *et al.*, 2006). Furthermore, due to the differences in local planning context and a multitude of interpretations of the term 'sustainable development', there is no consensus on the optimal sustainability assessment approach or measurement tools (Tanguay *et al.*, 2009). Nevertheless, taking Canada as an example, a broad range of community-based 'state of the environment', 'healthy city', 'quality of life', and 'sustainability' reports have been undertaken (Pembina Institute, 2002). Maclaren provides step-by-step guidance for the development of an urban sustainability report:

1) Defining the urban sustainability goals for which indicators are needed
2) Scoping
3) Choosing an appropriate indicator framework
4) Defining indicator selection criteria
5) Identifying a set of potential indicators
6) Evaluating the indicators and selecting a final set
7) Collecting data and analyzing the indicator results
8) Preparing and presenting the urban sustainability report
9) Assessing indicator performance

Adapted from Maclaren, 1996, p. 198-203

Methodology: Sustainable Development Reporting - University of Waterloo Experience

This research uses a case study approach. The University of Waterloo served as an information-rich case to investigate the intricacies of developing the first-ever sustainability report in a higher education institution without an official sustainability plan, policy, goals or a sustainability coordinator.

Since its creation in 1957, the University of Waterloo has become one of Canada's leading comprehensive universities. It is home to 30,000 students and the largest post-secondary co-operative education program in the world. The University of Waterloo was named Canada's most innovative university in the Maclean's annual university rankings for 19 years in a row since 1991; and the Faculty of Environment is the oldest faculty of its kind nationwide (University of Waterloo, 2011). In terms of sustainability education, the environment and business undergraduate program has been ranked number one in Canada by Corporate Knights magazine (Waterloo Environment, 2010).

In 2009, the University of Waterloo signed the Council of Ontario Universities (COU) sustainability pledge, *Ontario Universities: Committed to a Greener World* (University of Waterloo Daily Bulletin, 2009). The pledge committed the university "to assist in finding solutions to the challenges of environmental sustainability; to share knowledge about sustainability and climate change; and to incorporate, wherever possible, principles of sustainability into our own operations" (COU, 2009, p.1).

The University of Waterloo's Faculty of Environment Dean's Advisory Council thus initiated the creation of the *University of Waterloo Sustainable Development Report 2010* to aid the university in its fulfillment of the pledge. The University hired Natalia Moudrak (a Master's student) to do the task as part of her thesis. For the final report, see: http://uwaterloo.ca/accountability/documents/july152011finaluniversityofwaterloosdr2010.pdf.

Results and Discussion: The Seven Step Process

The process of developing the *University of Waterloo Sustainable Development Report 2010* consisted of the seven steps outlined below:

1. Review higher education sector sustainability reports.
2. Review higher education sector sustainability assessment tools.
3. Develop a draft 'sustainable development' definition and associated guiding principles.
4. Engage the stakeholders.
5. Collect sustainability performance information.
6. Verify report accuracy.
7. Publish the report and welcome feedback.

These steps are deemed essential for any higher education institution undertaking sustainable development reporting for the first time.

Step 1: Review Higher Education Sector Sustainability Reports

Stakeholder identification and engagement are usually the first steps in municipal and corporate sustainability report development (e.g., Mitchell *et al.*, 2008). Alternatively, the seven-step process for first-time sustainability report development in a HE institution, suggests to first review higher education sector sustainability reports and sustainability assessment tools; engaging stakeholders does not occur until step 4. This difference is due to the first-time nature of the report being developed. In particular, the assumption is that the person in charge of sustainable development report creation needs to familiarize themselves with higher education sector sustainability reports and sustainability assessment tools in order to adequately lead the report development process. Indeed, Step 1 and Step 2 could be omitted if the person in charge of sustainability report development is already familiar with the optimal report structure and the commonly-suggested performance indicators. Nevertheless, one may regard undertaking Step 1 and Step 2 as good due diligence practice. For example, the authors of the Worcester Polytechnic Institute sustainability report have also reviewed higher education sector sustainability reports and sustainability assessment tools as their first steps (Alden *et al.*, 2010). The authors found that the reports were generally 20 to 50 pages long, profiled approximately 20 sustainability performance indicators, and made extensive

use of pictures and graphs. An introduction, letter from a sustainability representative or president and recommendations were other key components (Alden *et al.*, 2010).

At the University of Waterloo, in order to understand what constitutes a superior sustainability report structure, a random sample of 17 sustainability reports from colleges and universities as well as a large number of corporate and municipal reports were reviewed. These included seven sustainability reports by Canada's largest universities (Fonseca *et al.*, 2010). The following components were identified as integral to a well-designed sustainability report:

1. Title page
2. Message from the president
3. Table of contents
4. Introduction to the report, including its purpose, reporting period and scope
5. List of guiding principles and key performance areas being reported on
6. Executive summary of findings
7. Sustainability performance analysis
8. Conclusion and recommendations
9. Appendix
10. Contact information of a person/office to address report inquires

Step 2: Review CSAF, STARS and GRI Sustainability Assessment Tools

There is a diversity of sustainable development assessment tools available, with varying emphasis placed on the environmental, social and economic aspects of sustainability performance measurement and on the level of reporting detail (Shriberg, 2002). Of these tools, CSAF, STARS and GRI have gained popularity (Alden *et al.*, 2010; Fonseca *et al.*, 2011; Lozano, 2011). Selecting sustainability performance indicators from existing professionally-designed assessment tools ensures scientific validation of the process (Cloquell-Ballester *et al.*, 2006).

At the University of Watreloo, to determine the most common sustainability performance measurements for the higher education sector, lists of core indicators from CSAF, STARS and the GRI 3.0 Sustainability Reporting Guidelines were analyzed. Since there is no GRI sector supplement for higher education institutions, Lozano's modification to account for the "academe" dimension of sustainability performance was used (Lozano, 2011). Table 1 details this analysis.

Table 1: Comparison of CSAF, STARS and GRI Core Indicators

Environment

CSAF - Core		STARS - Core		GRI - Core	
Energy					
E-1	Renewable Energy: Buildings	OP Credit 7	Building Energy Consumption	EN3	Direct energy consumption by primary energy source.
E-8	Reduction in Energy Consumption	OP Credit 8	Renewable Energy	EN4	Indirect energy consumption by primary source.
Water					
W-1	Potable Water Consumed	OP Credit 22	Water Consumption	EN8	Total water withdrawal by source.
W-7	Efficiency of Fixtures	OP Credit 23	Stormwater Management	EN21	Total water discharge by quality and destination.
W-9	Wastewater Produced				
Land/Grounds/Biodiversity					
L-1	Managed Greenspace	OP Credit 9	Integrated Pest Management	EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.
L-3	Pesticides	OP Credit 1	Building Operations and Maintenance	EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.
M-1	LEED Certified Base Buildings	OP Credit 2	Building Design and Construction (eg. LEED)		
Waste/Materials					
M-3	Paper Consumption	OP Credit 6	Food Purchasing (eg. composting)	EN1	Materials used by weight or volume.
M-4	Recycled Content of Paper	OP Credit 10	Computer Purchasing	EN2	Percentage of materials used that are recycled input materials.
M-7	Local Food Production	OP Credit 12	Office Paper Purchasing	EN22	Total weight of waste by type and disposal method.
M-9	Solid Waste and Recyclables Produced	OP Credit 13	Vendor Code of Conduct	EN23	Total number and volume of significant spills.
M-11	Recyclables Being Landfilled	OP Credit 17	Waste Reduction	EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.
		OP Credit 18	Waste Diversion	EN27	Percentage of products sold and their packaging materials that are reclaimed by category.
		OP Credit 19	Construction and Demolition Waste Diversion		
		OP Credit 20	Electronic Waste Recycling Program		
		OP Credit 21	Hazardous Waste Management		
Air Quality					
A-7	Chemical Free Cleaning	OP Credit 11	Cleaning Product Purchasing	EN16	Total direct and indirect greenhouse gas emissions by weight.
E-4	Greenhouse Gas Emissions: Buildings	OP Credit 3	Indoor Air Quality	EN17	Other relevant indirect greenhouse gas emissions by weight.
E-5	Greenhouse Gas Emissions: Commuting Transport	OP Credit 4	Greenhouse Gas Emissions Inventory	EN19	Emissions of ozone-depleting substances by weight.
C-25	Affordability of Public Transit	OP Credit 5	Greenhouse Gas Emissions Reduction	EN20	NOx, SOx, and other significant air emissions by type and weight.
		OP Credit 14	Campus Fleet		
		OP Credit 15	Student Commute Modal Split		
		OP Credit 16	Employee Commute Modal Split		

Society

CSAF - Core		STARS - Core		GRI - Core	
Health					
HW-1	Recreation Space			LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region.
HW-3	Diet Types			LA8	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases.
HW-5	Organic, Non-GMO, Fair Trade Food				
HW-9	Physical Health Care Practitioners				
HW-12	Mental Health Care Practitioners				
HW-17	Accessible Greenspace				
Equity and Diversity					
C-7	Faculty With Disabilities	PAE Credit 6	Diversity and Equity Coordination	HR4	Total number of incidents of discrimination and actions taken.
C-8	Staff With Disabilities	PAE Credit 7	Measuring Campus Diversity Culture	LA1	Total workforce by employment type, employment contract, and region.
C-9	Students With Disabilities	PAE Credit 8	Support Programs for Under-Represented Groups	LA2	Total number and rate of employee turnover by age group, gender, and region.
C-10	Faculty of Ethnic Minorities	PAE Credit 9	Support Programs for Future Faculty	LA4	Percentage of employees covered by collective bargaining agreements.
C-11	Staff of Ethnic Minorities	PAE Credit 10	Affordability and Access Programs	LA5	Minimum notice period(s) regarding significant operational changes, including whether it is specified in collective agreements.
C-12	Student of Ethnic Minorities			LA13	Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity.
C-13	Faculty Gender			LA14	Ratio of basic salary of men to women by employee category.
C-14	Staff Gender				
C-15	Student Gender				
C-16	Equity of Indigenous Peoples: Faculty				
C-17	Equity of Indigenous Peoples: Staff				
C-18	Equity of Indigenous Peoples: Students				
Employee Training					
K-1	New Faculty Orientation	PAE Credit 13	Staff Professional Development in Sustainability	LA10	Average hours of training per year per employee by employee category.
K-4	Faculty Sustainability Training	PAE Credit 14	Sustainability in New Employee Orientation		
		PAE Credit 15	Employee Sustainability Educators Program		
		ER Credit 1	Student Sustainability Educators Program		
		ER Credit 2	Student Sustainability Outreach Campaign		
		ER Credit 3	Sustainability in New Student Orientation		
		ER Credit 4	Sustainability Materials and Publications		
Community Outreach					
		PAE Credit 19	Community Sustainability Partnerships	SO1	Nature, scope, and effectiveness of any programs and practices that assess and manage the impacts of operations on communities, including entering, operating, and exiting.
		PAE Credit 20	Inter-Campus Collaboration on Sustainability		
		PAE Credit 21	Sustainability in Continuing Education		
		PAE Credit 22	Community Service Participation		
		PAE Credit 23	Community Service Hours		

Economy

CSAF - Core		STARS - Core		GRI - Core	
EW-2	Student Debt Load	PAE Credit 16	Committee Socially Responsible Investment	EC1	Economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments.
EW-7	Wage Gap	PAE Credit 17	Shareholder Advocacy	EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change.
EW-17	Ethically and Environmentally Sound Investments	PAE Credit 18	Positive Sustainability Investments	EC3	Coverage of the organization's defined benefit plan obligations.
EW-15	Locally Purchased Goods and Services	PAE Credit 11	Sustainable Compensation	EC4	Significant financial assistance received from government.
				EC6	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation.
				EC7	Procedures for local hiring and proportion of senior management hired from the local community at significant locations of operation.
				EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement.

Academe

CSAF - Core		STARS - Core		GRI - Lozano	
Sustainability Courses					
K-17	Courses With Applied Learning	ER Credit 5	Sustainability Course Identification	CU1	Number and percentage (in respect to the total) of courses related to sustainability concepts
		ER Credit 6	Sustainability-Focused Courses	CU2	Number of students enrolled in sustainability-related courses
		ER Credit 7	Sustainability-Related Courses	CU3	Number of courses with some content on SD themes
		ER Credit 8	Sustainability Courses by Department	CU6	List with course titles and SD theme contained
		ER Credit 9	Sustainability Learning Outcomes	CU4	Specific course to 'Educate the Educators' in SD
		ER Credit 10	Undergraduate Program in Sustainability	CU7	Course structure, goals and duration
		ER Credit 11	Graduate Program in Sustainability	CU5	Management procedures to monitor incorporation of SD themes into Curricula
		ER Credit 12	Sustainability Immersive Experience	CU11	Number and percent of departments and colleges including sustainability courses and curricula
		ER Credit 13	Sustainability Literacy Assessment		
		ER Credit 14	Incentives for Developing Sustainability Courses		
Sustainability Research					
K-11	Research Collaboration - For Profit	ER Credit 15	Sustainability Research Identification	RE1	Research in the area of sustainability
		ER Credit 16	Faculty Involved in Sustainability Research	RE6	List issues addressed: Renewable energies, ecological economics, urban planning, etc
		ER Credit 17	Departments Involved in Sustainability Research	RE2	Percentage of graduate students doing research in sustainability
		ER Credit 18	Sustainability Research Incentives	RE7	List of knowledge field involved.
		ER Credit 19	Interdisciplinary Research in Tenure and Promotion	RE3	Percentage of faculty doing research in sustainability issues
				RE8	List of faculty members and Departments or Centres to which they belong
				RE4	Institutional support and management procedures for multidisciplinary and interdisciplinary research in sustainability
				RE5	Number of research projects that are multidisciplinary and interdisciplinary in the area of sustainability
				RE11	Total revenues from grants and contracts specifying sustainability-related research
				RE12	Published research with focus on sustainability-related issues
				RE13	Number and function of centres on campus providing sustainability-related research or services

Table 2 below identifies key sustainability indicators for the four main dimensions of sustainability performance at an HE institution - environment, society, economy and academe. In deriving this table, recurring themes from the CSAF, STARS and GRI were identified and where such themes were common to at least two of the three assessment tools, the item was added to the table. There were two exceptions, the 'Employee Injury and Severity Rates' and 'Economic Value Generated' indicators that were only

listed under the GRI 3.0 Sustainability Reporting Guidelines but are included in Table 1. These two indicators were deemed as two important omissions from the other two sustainability assessment tools because of the central role that they occupy within corporate and municipal sustainability reports. The table's last column illustrates which indicators were addressed in the *University of Waterloo Sustainable Development Report 2010*.

Table 2: Key Sustainability Indicators from GRI, CSAF and STARS

	CSAF	STARS	GRI	Addressed?
1. Environment				
• Energy Consumption	■	■	■	Yes
• Water Consumption	■	■	■	Yes
• Wastewater Discharge	■		■	Yes
• Biodiversity/Habitat/Green Spaces	■		■	Yes
• Pesticide Use	■	■		Yes
• LEED Certified Buildings	■	■		Yes
• Waste and Recyclables Produced	■	■	■	Yes
• Office Paper Consumption/Other Purchasing (such as Food)	■	■		Yes
• Greenhouse Gas Emissions	■	■	■	Yes
2. Society				
• Employee Injury and Severity Rates			■	Yes
• Gender, Age, Persons with Disabilities and Indigenous Groups	■	■	■	Yes
• Student, Staff and Faculty Sustainability Training	■	■		N/A
• Community Outreach Programs		■	■	Yes
3. Economy:				
• Economic Value Generated			■	Yes
• Socially Responsible Investment	■	■		Yes
• Purchasing Considerations	■	■	■	Yes
4. Academe:				
• Sustainability-Related Courses	■	■	■	No
• Sustainability-Focused Research	■	■	■	Yes

In addition to these key sustainability indicators, the *University of Waterloo Sustainable Development Report 2010* assessed student health issues by tracking number of student visits to the on-campus clinic, included information on fundraising efforts, research grants, pension and endowment fund management, and profiled student engagement performance. While the table above indicates the

importance of tracking sustainability-related courses, at the time the *University of Waterloo Sustainable Development Report 2010* was prepared, there were no resources to create such a database. It is also important to note that all three sustainability assessment tools analyzed stress the importance of reporting on sustainability commitments, including an institution's sustainability policies and plans. These items were not included in the table above because they do not directly relate to sustainability indicator selection, but to recognizing sustainability within the organizational structure of an institution.

Step 3: Develop a Draft 'Sustainable Development' Definition and Associated Guiding Principles

The way sustainability is defined and which guiding principles are selected determines what parameters of sustainable development are being measured and reported on. Differences in priorities and values at all levels of decision-making explain why most sustainability tools favour more strongly one of the standard dimensions of sustainability - economic, social, or environmental (Wilson *et al.*, 2007). Prior to any reporting effort, stakeholder consensus must be reached on the 'sustainability' definition reflective of their core values and priorities (Cloquell-Ballester *et al.*, 2006). There are merits of providing a draft document with possible sustainability goals and indicators to the stakeholders to drive the discussion (Valentin and Spangenberg, 2000).

As the University of Waterloo does not have an overarching sustainability policy, it was important to develop a definition of 'sustainable development' reflective of the University of Waterloo stakeholder values and parameters of sustainability most pertinent to its operations. The creation of guiding principles was driven primarily by the findings from the GRI, CSAF and STARS indicator comparison. The wording of the guiding principles suggested which key sustainable development performance areas would be addressed in the report, thus aiding with sustainability indicators selection. On campuses with an existing policy, this step would entail using this document to help with indicator selection instead.

Step 4: Engage the Stakeholders

Stakeholder consensus-building on the definition and principles of sustainable development helps to identify an agreed vision of sustainability. To this end, the merits of bringing stakeholders and subject-matter experts together in a workshop discussion were outlined by Donnelly *et al.*, 2007:

a) better way to communicate and explain detailed ideas and opinions
b) good forum for interactive discussion and allows trains of thought to be continuous rather than stopping and starting as with other forms of communication such as the internet
c) having all stakeholders in the one place allowing people to openly discuss issues with individuals over coffee or at breaks

Donnelly *et al.*, 2007, p. 167

Particularly, the inclusion of subject-matter experts (Reed *et al.*, 2006) and high-level decision-makers at this point is important for the report recommendations to be actionable later on (Valentin and Spangenberg, 2000).

At the University of Waterloo, the aim of this step was to draw on stakeholder values and on the sustainability subject matter experts' practical knowledge of the field when finalizing the sustainable development definition and associated guiding principles. To this end, the Sustainable Development Advisory Committee was formed and a workshop-format was chosen to allow for a dynamic discussion and a real-time consensus building on the University of Waterloo's sustainable development definition and guiding principles. At the end of the workshop, the participants further agreed to limit the number of guiding principles to four and recommended to focus data collection efforts on key sustainability performance indicators.

The size of the Sustainable Development Advisory Committee had to remain small to ensure a quality discussion. Thus, a multi-disciplinary team of 11 people comprised of subject matter experts from private, public and NGO sectors, university professors and undergraduate and graduate student representatives were called for the consultation. While the merits of including the University of Waterloo senior administration in the workshop discussion were understood – to ensure the linkage of performance indicators to concrete organizational objectives (Donnelly *et al.*, 2007; Wilson et al., 2007) – it was deemed inappropriate to do so in this case. The workshop was held at the infant stage of the project, during which there was no formal support for sustainability reporting initiative on behalf of the university. Thus, it was important to first ensure the feasibility of fulfilling the task, prior to approaching the senior administration. To this end, preliminary information to be collected was determined based on the workshop discussion and then support for the report from the university staff responsible for tracking this information was established. The senior administration was approached after the first report draft was prepared.

While the municipal and corporate processes (e.g., Maclaren, 1996; Mitchell *et al.*, 2008) do not explicitly call for a draft document to be distributed to stakeholders prior to any discussions, the rationale for doing so was advocated for in Valentin and Spangenberg (2000) work on community sustainability indicators. A more productive discussion among the stakeholders can be achieved if they are provided with a common starting point for discussion. This step and the subsequent steps suggested in the municipal and corporate sectors are identical to the proposed seven-step process: engaging stakeholders in the selection/development of sustainability goals and indicators, collecting data, analyzing results, and publishing the report (Maclaren, 1996; Mitchell *et al.*, 2008).

Step 5: Collect Sustainability Performance Information

Employing purposeful sampling and conducting face-to-face interviews during the data collection stage allows for attainment of in-depth information (Alden *et al.*, 2010; Patton, 2002). Snowballing, or asking for references to obtain further information, is a useful technique (Alden *et al.*, 2010; Patton, 2002). During this stage it is important to gather for both positive and negative stories to ensure transparent reporting and to maintain concise information, avoiding unreadable reports (Alden *et al.*, 2010). In fact, condensation of data must take place from detailed and scientifically-oriented information to a short and user-friendly format to entice public interest in the report (Shields *et al.*, 2002).

At the University of Waterloo, where possible, sustainability performance information for a five-year period was collected to determine trends. Purposeful sampling was employed to conduct in-depth face-to-face interviews with the university staff. Moreover, a snowball sampling strategy was used during the interview process to identify additional interviewees. In addition, publically available documents published by the university were used. In terms of interviews, the general interview guide approach, which involves outlining a set of issues to be explored and using that outline as a checklist during the interview, was used (Patton, 2002). The set of questions for the interview was shared with the interviewee prior to the interview to allow the interviewee time to prepare.

Step 6: Verify Report Accuracy

Using member-checking, peer debriefing, and an external auditor can help ensure data accuracy (Patton, 2002). Every section of the *University of Waterloo Sustainable Development Report 2010* was verified for content accuracy by the staff and faculty members who provided relevant information. Additionally, the entire report was reviewed by the workshop participants to provide any high-level recommendations. The report was then edited by a technical writer to ensure proper grammar and punctuation and by the *University of Waterloo Communications and Public Affairs* personnel.

Step 7: Publish the Report and Welcome Feedback

Since minimizing the environmental footprint is one of the common sustainability goals (Stafford, 2011), it is best to publish sustainability reports online and have only a limited number of copies available in print (Alden *et al.*, 2010). Once the report is available for viewing, it is important to establishing a feedback mechanism to accommodate comments, queries and recommendations. This will improve reporting efforts and help meet stakeholder needs more adequately in the future.

The *University of Waterloo Sustainable Development Report 2010* was written to create awareness about sustainability performance on the main campus among the university's key stakeholders – current and prospective students, staff, faculty, administration, alumni and community members. The

report was made available online at the *Public Accountability* http://uwaterloo.ca/accountability and *Sustainability* http://www.sustainability.uwaterloo.ca web pages on August 3, 2011. A news article announcing the release of the report was published on August 8, 2011: http://www.bulletin.uwaterloo.ca/2011/aug/08mo.html. To minimize its potential environmental footprint, no copies of the report were printed. A contact of the person to communicate feedback regarding the report was provided at the end of the report.

Conclusion and Future Research

Sustainability reporting in the higher education sector is perhaps limited as a result of the lack of step-by-step sector-specific guidance. By drawing on the literature aimed at the corporate and municipal sectors, and by entwining the campus sustainability literature about assessments, this chapter addresses this gap by presenting the seven-step process for developing a first-time sustainable development report for a higher education institution. The new 2012 initiative by the United Nations asks that universities report regularly as part of the Commitment to Sustainable Practices of Higher Education Institutions for Rio+20 (UNCSD, 2012), so could use this chapter's insights to help guide the universities who are new to reporting.

Aside from the specific process differences between the proposed seven-step process and the reviewed literature from the municipal and corporate sectors, there are other considerations that arise from campus sustainability literature. The latter often suggests employing a group of students to carry out data collection (Bardati, 2006; Helferty and Clarke, 2009). Emphasis on having a sustainability coordinator to guide the effort is also noted (Alden *et al.*, 2010; Herremans and Allwright, 2000). While there are educational merits of engaging students in the sustainability report creation, there might be no system in place, or willingness to organize such effort. There also might be administrative pushback to allocate resources to establish a sustainability coordinator position at the institution. This study demonstrates that sustainability reporting task can be carried out by one graduate student. However, it is important to note that the student must have sufficient guidance, which in this case was achieved by the researcher having two Master's supervisors and Sustainable Development Advisory Committee. Equally important is to establish support for sustainability reporting among key information gate-keeper staff in charge of the sustainability performance data. The university's previous commitment to the *Ontario Universities: Committed to a Greener World* pledge helped facilitate this process.

The *University of Waterloo Sustainable Development Report 2010* provides an example of possible report content and format when following the seven-step process. The four important practical lessons learned from following this process are:

1. It is possible to carry out sustainability reporting on a scale of a large institution by one person in under one year's time.
2. The key determinant to the successful completion of the *University of Waterloo Sustainable Development Report 2010* was the early support of the staff who managed pertinent information. This is because the majority of information needed for the report was not publically available.
3. Due to the unofficial nature of the initiative, the University of Waterloo senior administrators were only approached once the first draft of the report was prepared. While this approach worked well at the University of Waterloo, due to the close-knit relationships between senior administrators and the rest of the staff which ensured that the information collected was relevant to the decision-makers, this approach might not work for other institutions.
4. The most significant driver of support for the report was the short and targeted list of most pertinent indicators for which sustainability performance information was collected. This finding arose from the discussions with the University of Waterloo staff about reasons that prevented sustainability reporting at the university in the past and reasons why this time the report was welcomed. Some sustainability assessment frameworks, with their hundreds of indicators, are hard to justify.

In terms of future research, drawing from the University of Waterloo experience, a set of about 30 indicators would be the most optimal for a continual reporting effort on behalf of the institution. The new effort on behalf of the STARS, the Princeton Review, Sierra magazine and Sustainable Endowments Institute to reduce survey fatigue and collect one set of information has helped standardize indicators in North America (AASHE, 2012). Still, more research is needed to find a short list of indicators that are applicable globally.

Another area where further research would be valuable would be to gage whether mandatory sustainability reporting across HE institutions is a good idea and what topics would be included. The move to require disclosure of sustainability details for investors in the corporate sector could be replicated by governments requiring HE institutions to complete sustainability assessments and reporting. In Canada, some aspects of sustainability reporting (in its social dimension) are already mandatory nation-wide, as the case with employee fatalities, and injury frequency and severity rates. The province of British Columbia also requires public institutions to report on greenhouse gas emissions (Glor-Bell and Clarke, 2011). Other critical aspects of sustainability performance could be of value for mandatory reporting.

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Dr. Amelia Clarke has been working on environment and sustainability issues since 1989. She is now a faculty member in the School of Environment, Enterprise and Development (SEED) at the University of Waterloo, Canada, and is Director of their Master of Environment and Business (MEB) program. Her main research areas include: campus environmental management, community sustainable development strategies, collaborative strategic management, and youth-led social entrepreneurship. She holds a PhD in Management from McGill University. Amelia Clarke was also the President of Sierra Club Canada from 2003 to 2006 and founded the Sierra Youth Coalition in 1996. For more information or to contact Dr. Clarke, see: http://www.environment.uwaterloo.ca/seed/faculty-staff/clarke/