Measuring and Reporting Institutional Sustainability

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Abstract

A strong case has been made for the need for organizations and individuals to pursue economic, social, and environmental policies and practices that will reduce the risks associated with present practices, that will be sustainable in the long run, and that will enhance the well-being of future generations. Appropriate indicators need to be monitored and relevant information disseminated to various stakeholders if sustainability is to be achieved. This paper examines exemplary sustainability reports that are being produced by corporations and by universities. Institutional researchers have key roles to play in the development of such indicators, the collection of the data, and the dissemination of the resulting intelligence.

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Introduction

At the Association for Institutional Research Forum in Boston, Dave Newport and I presented a paper “Measure Today, Here Tomorrow: Exploring IR’s Role in Producing Indicators that Will Help Assure Sustainable Institutions and a Sustainable Society” (Litten and Newport). The paper summarized the need for modifying individual and institutional behavior if we are to preserve the quality of the ecological, social, and economic systems on which the well-being of future generations depends. We introduced the sustainability reporting initiatives that are being developed in the corporate sector, which is way ahead of higher education on this front, and cataloged several initiatives in higher education among professional associations and some institutions, to stimulate attention to sustainability issues.

We alluded to some sustainability reporting initiatives in universities and outlined the challenges that we face in developing such reporting within higher education. We said we believed that institutional researchers must play a key role in developing and disseminating information that shows institutional policy makers and external stakeholders that we are moving our institutions toward sustainable policies and behavior. We also said we believed that the Association for Institutional Research should take a leadership role in moving us forward on these fronts, perhaps by joining other professional associations that have already embraced a vision of a sustainable future. We still believe what we said a year ago.

Sustainability monitoring and reporting will be a key element in reducing risks to the well-being of institutions of higher education that come from present unsustainable levels of resource use and waste generation, and from inequitable social conditions. The development and dissemination of appropriate indicators will help institutions manage themselves sustainably and to model such behavior for students and other organizations. Sustainability indicators will assure the sources of the resources on which we depend (legislators, donors, foundations, contractors) that we are managing ourselves responsibly, both as stewards of the resources we’ve been granted and as institutional citizens of a highly interdependent world.

One of the criticisms of the Boston paper was that it did not contain sufficient specific examples of sustainability indicators. A paper that was already very long was, indeed, light on this important topic. In this paper I seek to redress that deficiency. Again, since the corporate sector is far ahead of higher education on this front—even to the extent that awards are now being given for exemplary sustainability reporting—we begin by taking a look at what makes an award-winning sustainability report.

What is sustainability?

We included several definitions of sustainability in the 2004 paper. The most widely-used definition comes from the United Nation’s Bruntland Commission:
Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987).

Another definition, supported by highly technical econometric theory, contains three axioms (Heal, 1998). Sustainable behavior requires:

- A treatment of the present and the future that places a positive value on the very long run.
- Recognition of all the ways in which environmental assets contribute to economic well-being.
- Recognition of the constraints implied by the dynamics of environmental assets.

But my favorite comes from the Iroquois Confederation:

In our every deliberation, we must consider the impact of any decisions on the next seven generations.

**Corporate definitions of sustainability**

In the award-winning reports that are discussed below, corporations have developed their own definitions of sustainability under various names. Two examples:

**Dell.** Sustainability: creating long-term stakeholder value by integrating economic, social, and environmental responsibility into everything we do (Dell Sustainability Report, 2004, p. 9)

**Ford.** Citizenship: creating value for our shareholders over the long term through the delivery of excellent automotive products and services and to do so ethically and responsibly [based on the following principles]:
- **Accountability:** we will be honest and open and model the highest standards of corporate integrity.
- **Products and customers:** we will offer excellent products and services.
- **Environment:** we will respect the natural environment and help preserve it for future generations.
- **Safety:** we will protect the safety and health of those who make, distribute or use our products.
- **Community:** we will respect and contribute to the communities around the world in which we work.
- **Quality of relationships:** we will strive to earn the trust and respect of our investors, customers, dealers, employees, unions, business partners, and society.
Financial health: we will make our decisions with proper regard to the long-term financial security of the Company. (Ford, 2002 Corporate Citizenship Report, pg. 7)

Corporate sustainability reporting awards

Sustainability awards have been developed by the Association of Chartered Certified Accountants (ACCA) in Europe, North America, and Asia. The North American awards are cosponsored by ACCA and Ceres, one of the founders of the Global Reporting Initiative (see below).

Sustainability reporting is being promoted by ACCA because it is viewed as a means of assuring the welfare of organizations that do it.

Sustainability reporting acts as a key driver of good corporate social responsibility performance and plays a vital role in improving not just communication, but also credibility and trust between organizations and their stakeholders. Sustainability reporting also provides a clear framework to allow shareholders and investors to compare companies on their [corporate social responsibility] standing and track performance – both good and bad – year on year. Organizations which continuously fail to recognize the added business value gained by producing environmental reports risk becoming commercial relics. (Jackson).

The market supports this view because the companies included in the Dow Jones Sustainability Index tend to outperform the more general Dow Jones indexes.

Higher education, which is moving belatedly toward sustainability reporting, will benefit greatly by implementing the reporting standards that are manifest in exemplary reports in the corporate sector. Therefore, we turn first to the criteria that award sponsors believe contribute to excellence in sustainability reporting.

Criteria for award-winning reports in the corporate sector

The criteria for award-winning reports differ slightly across geographic regions. The criteria for the European awards are divided into two equally-weighted categories—contents and reporting principles (ACCA Global). The specific weights within each category are shown below:

Contents
- CEO statement (5%)
- Executive summary and key indicators (5%)
- Profile (5%)
- Reporting and accounting policies (5%)
- Vision and strategy (5%)
- Governance structure and management systems (10%)
- Performance (15%)

Performance (15%)
Reporting principles
Relevance (5%)
Reliability (5%)
Clarity (5%)
Timeliness (5%)
Completeness (5%)
Verifiability (10%)
Overall impression (10%)

The North American awards are based on the following criteria:

Completeness (40%)
Including: full specification of products/services, sustainability targets, rationale for indicator choice, description of stakeholder-engagement process, acknowledgement of implications of reporting.

Credibility (35%)
Including: contact information for report preparers and board members responsible for sustainability, description of management system and its relation to business processes, internal audit processes, application of standards such as GRI, third-party statements.

Communication (25%)
Including: layout/appearance, understandability/readability, accessibility to various audiences, summary information, ease of navigation through report, appropriateness of graphs/illustrations/photos, integration with financial reporting.

Global Reporting Initiative

The Global Reporting Initiative (GRI) is a multi-sector effort to establish a framework for sustainability reporting that focuses on the “triple bottom line” (economic, social, and environmental performance) for corporations (see “Measure Today, Here Tomorrow . . .” for more details on the GRI). It has become the basic standard for sustainability reporting. Conformance to the GRI is a positive factor when sustainability reports are judged. GRI compliance contributes to both completeness and credibility. The number of corporate and organizational reports that reference the GRI increased from 23 in 1999 to 625 in 2004.

The GRI is being adapted for specific industries. The creation of an adaptation of the GRI for higher education will be an important development in the advancement of higher education sustainability reporting.

Corporate Award-Winning Reports

Let us look at the winners of the 2003 North American awards for sustainability
reporting, especially the top award winner (the 2004 awards will be announced shortly). Two award winners are Canadian–Suncor (overall winner) and Dofasco–and three are based in the United States–Ford, Dell, and Kinko.

**Suncor:** Best Sustainability Report. The sustainability report of Suncor characterizes the company as “a Canadian integrated energy company startegically focused on developing one of the world’s largest petroleum resource basins.”

Suncor’s report begins with common components of a GRI-compliant report: description of the corporation’s governance structure, management systems, auditing procedures, and mechanisms for assuring stakeholder involvement and input (meetings, surveys, focus groups, et cetera). It identifies seven “commitments” (goals) and indicates milestones with respect to these goals (trends, not absolute levels):

1. improve workplace safety
2. enhance employee well-being
3. develop a social responsibility management system
4. reduce greenhouse gas emissions
5. minimize environmental impacts
6. invest in renewable energy choices
7. develop partnerships to promote sustainable development

Detailed graphs and text describe Suncor’s performance with respect to:

A. Social
   - health and safety (injury-related lost time per hours worked)
   - turnover (annual percent)
   - compensation (total wages)
   - workforce diversity (racial/ethnic composition)
   - community contributions (corporate and foundation contributions–absolute levels)

B. Environmental impact
   - emissions (greenhouse gas emissions, sulphur dioxide, nitrogen oxides, VOCs–absolute and per unit of production)
   - energy usage (gigajoules–absolute and per unit of production)
   - water usage and recycling (cubic meters used and recovered for reuse–absolute and per unit of production)
   - land use and biodiversity (hectares used for production)

C. Economic
   - production (volumes of natural gas, crude oil, refined products)
   - share price (compared to equity price indexes)
   - earnings*
   - cash flow*
   - assets*
• debt
• tax payments
*all in Canadian dollars

D. Integrated performance

• Suncor production trends compared to Canadian economic indicators
• regulatory contraventions
• major incidents (formal EHS incidents).

Each section contains a summary table that compares 1998 and 2004 levels on each indicator and, via a upward, sideways, or downward-facing arrow, indicates whether the company is making progress. These arrows show Suncor making progress in 16 areas, holding in 3, and negative movement in 7. Almost one half of the positive trends are in the economic area; in the environmental section, there are more negative than positive trends.

In a “transparency” section, the report provides detailed annual tables for five years that contain data from the preceding sections. Data that have been examined by the firm’s auditors are indicated with a check mark.

The final section compares the contents of the Suncor report with the components of the Global Reporting Initiative.
Here are the judges’ comments on the Suncor report’s award-winning properties

- Conveys solid corporate understanding of and commitment to sustainability…
- …alignment with GRI…as well as specified report content…
- . . . substantive President’s message that describes in detail results achieved, current challenges, and milestones for progress
- Presents and interprets the most relevant performance data and targets…
- Includes absolute and normalized data…with five or more years for many indicators. Unique in providing systemic indicators
- Clearly presented verification process, with excerpts from Auditor’s observations and useful labeling of audited indicators

**Dell:** Best Environmental Report. The foci of Dell’s report are similar to Suncor’s. It provides extensive descriptions of the policies and procedures that Dell uses to assure attention to sustainability within its operations. A distinctive component of Dell’s report is a graph that shows the percentages of its suppliers that have achieved certification by the International Standards Organization for their EHS and OHS systems. The Dell report has a few graphs that show emissions, electrical usage, and recycling rates, but is not nearly as data-intensive as the two Canadian reports.

**Ford:** Commendation for Sustainability Reporting. Ford’s report contains extensive graphs that show both the environmental performance of its manufacturing facilities and of its products. It specifies both targets (e.g. 25 percent change in vehicle fuel efficiency and 2% green energy usage) and success in meeting the targets. As in Suncor’s report, Ford uses arrows to indicate positive, negative, and neutral trends. A distinctive component of Ford’s report is survey data from employees and the public on Ford’s performance as a company.

**Dofasco:** Commendation for Innovative Reporting. “Canada’s most successful steel producer” according to its annual report. Dofasco’s report is a more traditional annual report that contains substantial detail on the financial performance of the company. It also has the social and environmental components of the Suncor report, and contains more detail in these areas than Suncor’s report. For example, in community contributions, it shows both corporate and employee contributions and indicates what percentage of the contributions go to the local communities in which the corporation operates. Pollutants sent to water and to land are graphed separately by substance.
**Kinko:** Best First-Time Report. Produced by Fedex-Kinko’s Office and Print Services, this report covers the areas included in those mentioned above. Innovative components partly reflect the nature of the industry, including the trees saved by using recycled paper content, and the eco-efficiency of the company’s vehicle fleet and its energy consumption. One indicator shows the results of a survey of employees’ values regarding the corporations environmental behavior.

**Higher education sustainability reports**

Increasing numbers of institutions of higher education are publishing sustainability reports. Table 1 is a very limited listing of such reports. Most of these have been produced within “offices of sustainability” or by “environmental or sustainability councils/committees.” A number have been produced by students in a course. To date, we know of none that have been produced by the core institutional intelligence and reporting function—the office of institutional research—although in some cases the OIR has contributed data to the report.

Table 1
A Sampling of Sustainability Reports in Higher Education (United States and Canada)

<table>
<thead>
<tr>
<th>Institution</th>
<th>Title</th>
<th>Producing entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michigan State University</td>
<td>Campus Sustainability Report</td>
<td>Office of Campus Sustainability</td>
</tr>
<tr>
<td>Pennsylvania State University</td>
<td>Penn State Indicators Report</td>
<td>Green Destiny Council</td>
</tr>
<tr>
<td>University of Florida</td>
<td>University of Florida Sustainability Indicators</td>
<td>The Greening UF Program, School of Building Construction</td>
</tr>
<tr>
<td>University of Vermont</td>
<td>Tracking UVM</td>
<td>Environmental Council</td>
</tr>
<tr>
<td>University of North Carolina</td>
<td>Campus Sustainability Report</td>
<td>UNC Sustainability Office</td>
</tr>
<tr>
<td>University of British Columbia</td>
<td>Progress Toward a Sustainable Campus</td>
<td>Campus Sustainability Office</td>
</tr>
<tr>
<td>University of Michigan</td>
<td>Sustainability Assessment and Reporting for the University of Michigan’ Ann Arbor Campus</td>
<td>Master’s thesis, School of Natural Resources and Environment</td>
</tr>
</tbody>
</table>
We shall examine four of these reports that represent a variety of approaches to monitoring and reporting on institutional sustainability: “Tracking UVM” from the University of Vermont’s Environmental Council, “University of Florida Sustainability Indicators” from the University of Florida’s Greening of UF Program, “Campus Sustainability Report” from Michigan State’s Office of Sustainability and University Committee for a Sustainable Campus, and RMIT University Annual Report 2003 from the Royal Melbourne Institute of Technology.

In this paper that is written for institutional researchers, we shall focus more on the institutional activities that are monitored and the measures that are used than on the processes for producing these reports or the governance structures and policies that are designed to make these institutions sustainable. Effective embracing of sustainability as a guiding principle requires attention to these other matters. They are best discussed, however, in another paper.

University of Vermont

“Tracking UVM” is a handsome publication that focuses on the environmental impact of the university. It was developed by the Environmental Council in partnership with government and non-profit agencies within the city of Burlington and the state of Vermont. The report lists nine “stakeholder” departments on campus and eight community or regional agency or groups who “helped shape” the report. The report provides data on land and water use, energy and air pollution, and solid and hazardous waste. Preceding the detailed graphs and discussions in each of these sections is a summary table that reports four indicators in each of the three areas, with symbols that represent positive trends, negative trends, and stable conditions or inadequate trend data.

Each of the three sections follows the same format. As an example of the kinds of data contained in the UVM report, we’ll look at the detail contained in the Energy and Air Pollution section. This section opens with a map of where each type of energy used by UVM is produced. It is followed by graphs that show how energy in general is used, how electricity is used, energy use trends, percentage of energy that is from renewable sources, and emissions from energy use. This is followed by a detailed timeline of energy-saving initiatives and a discussion of “best practices” at the university. The final panels of each section list the concerns that community stakeholders expressed about UVM’s energy usage and emissions, and a specification of recommended next steps in reducing energy usage, moving to renewable energy sources, and reducing emissions. Further research on these topics is also discussed. Two pages from the UVM report are shown in the Appendix.
The report ends with a section on Academics and Culture in which environmental majors are listed, enrollments in environmental programs are traced, and survey data are reported that show how students view environmental issues.

**University of Florida**

The University of Florida is the only institution of higher education in North America that I know that has produced a report that sought to be compliant with the components of the Global Reporting Initiative. It was produced in 2001 and was compliant with the penultimate set of GRI standards. It has not been updated.

In addition to the GRI-required statement from the president and specifications of the organization’s mission, vision, management structure, it contains the following set of indicators:

- **Environment**: energy, material usage, water, emissions/waste, recycling, transport (parking spaces, public transit passenger trips), biodiversity (land ownership and conservation areas).
- **Economic**: revenues, investments, wages/benefits, community development (job creation, community service, indigent care, educational outreach).
- **Societal**: workforce retention rates, health/safety, non-discrimination, training/education
- **Education**: faculty composition, undergraduate student body (test scores and composition), graduate student body (applications, composition), campus safety

**Michigan State University**

MSU’s Campus Sustainability Report has three sections of indicators—social, economic, and environmental—plus a introduction, a discussion of “What is sustainability?”, an executive summary, and a concluding section “Where do we go from here?” The education indicators, which are in a separate section in the UFL report, are folded into the social indicators. MSU’s report is the most extensive of the four that I have selected as examples. It contains 67 graphs and 9 tables. Each section also contains exemplary summaries of the indicators in the section. The Appendix to this paper contains the MSU table of contents, some sample summaries, and some sample graphs.

The environmental indicators in the MSU report are similar to those in the UVM and UFL reports. The financial indicators are more extensive than the UFL set and include some innovative measures.
such as undergraduate costs and the number of hours of work required to pay those costs and employees’ financial contributions to the university. The economic section also has an indicator on financial aid expenditures (an important financial measure that differentiates universities from corporations). A major omission, from a sustainability perspective, is an indicator that shows the proportion of revenues that are allocated to financial aid, or net income. This is a critical measure for institutional financial sustainability.

The social indicators in the MSU report are especially innovative. In this section, the indicators related to educational outcomes and student welfare advance the adaptation of sustainability reporting to higher education in important ways. These educational/student measures address a concern that we’ve heard, but to which we do not give credence, that sustainability reporting may distract attention from the core mission of institutions of higher education. As noted in “Measure Today, Here Tomorrow . . . “ universities will be sustainable only if they perform their educational missions successfully. Therefore, any relevant set of sustainability indicators for colleges and universities must include indicators that reflect their educational missions.

The social indicators section includes measures that are common to sustainability reports: employee counts, racial and gender distributions, employee sick leave and injury data. There are some innovative measures as well: age distribution, university wage levels (average and minimum), and criminal activity on campus.

Educational/student indicators include traditional measures such as enrollment counts, demographic composition of the student body, retention and graduation rates, and degrees granted. This section also contains several graphs on alcohol consumption and its consequences, a social sustainability phenomenon that greatly concerns stakeholders within and outside of universities. A notable absence in this set of social indicators are measures of student evaluations of their educational experiences (see below, RMIT’s report).

Royal Melbourne Institute of Technology

The RMIT sustainability indicators are integrated into the general annual report of the institution as a separate section. The sections of the report are:
RMIT in 2003: statements from officers and the governing council, plus some basic statistics,
Academic Review: reports on the three divisions of academic programs plus a subsection on teaching, program completions, and academic services,
Students, Staff and Communities: discussion of student services, completions, research and research partnerships, international programs, community extension programs, workforce data and policies, awards received by faculty,
The sustainability section focuses on four aspects of sustainability: social, environmental, financial, and governance. The contents of each section are listed below. Both data and a discussion of the data are provided for each sustainability indicator. With the exception of the governance indicator, three years of data are shown for each indicator.

Social
- Share of first preferences (admissions choices)
- Student satisfaction levels
- Full-time employment
- Enterprise formation (businesses started by alumni)
- Research activity
- Enrollments and completions
- Occupational health and safety incidents
- New staff by gender
- Staff turnover

Environmental
- Survey data on the importance of environmental sustainability to students
- Electricity consumption (absolute and per capita)
- Gas consumption (absolute and per capita)
- Water consumption (absolute and per capita)
- Greenhouse gas production (absolute and per capita)

Financial
- Revenues by type
- Expenditure by type

Governance
- Listing of university council members and their committee memberships, and their attendance records at each.

Four pages from the RMIT sustainability section are shown in the Appendix.

How do higher education sustainability reports stack up?

As noted above, the purpose of sustainability monitoring and reporting is to assure that institutions reduce risks to their immediate well-being and reduce the risks that humanity faces as a result of the impacts that institutions and individuals have on the complex ecological, social, and economic systems on which we rely (sustainable means
not being done-in or compromised).

Corporate reports have the edge over higher education reports on some fronts. They endeavor to conform to an international reporting standard that facilitates cross-organization comparisons. Some contain data that have been verified by independent auditors, which increases credibility. On the other hand, corporate reports tend to contain many romanticized photographs and to be more slick, which makes them look more like public relations pieces.

Neither corporate nor higher education reports tend to incorporate industry performance data, which limits the capacity to benchmark against best practices. And neither relate performance to sustainable benchmarks—e.g., performance that can be sustained over the long run. Instead they tend to focus, at best, on trends. Reduction of adverse affects (e.g., pollution, energy use) is a step in the right direction, but it may not represent long-term sustainability. The latter is difficult to specify, but we need to relate our performance to models of sustainable performance that are emerging.

A summary, normative measure

Sustainability is a complex phenomenon. Current reports have multiple indicators of the various aspects of sustainability. They are correspondingly voluminous and laborious to utilize. A summary measure of sustainability will greatly improve our means of inserting the issues of sustainability into our “critical institutional indicators” and “dashboards.” Summary indicators for the social and financial areas await development. A promising summary environmental indicator is the ecological footprint. This has not appeared yet in sustainability reports and will probably need considerable refinement before it has full validity and reliability.

The ecological footprint (Wackernagel and Rees) is a measure of the natural resources required to support the lifestyle of an individual, a family, or an institution. It equates resources with the landmass required to produce them. It has a normative aspect that compares the resources (or footprint) used by an institution with the amount of usable acreage in the world relative to the population of the world. As James Merkel points out, per capita available acreage is a function of the size of the world's population; procreation practices will determine the latter (Merkel).
Ecological footprints have been calculated for both the University of Redlands (Venetoulis) and Colorado College (Wright). Neither were official institutional undertakings; they were the efforts of faculty and students. Each project concluded that a partial accounting of present levels of resource use revealed unsustainable patterns of resource usage. The illustration on the preceding page from the Redlands project shows, via a graph, how institutional behavior relates to various levels of sustainability, which depend in turn on the frame of reference adopted (e.g., ideal sustainability requires no more acreage to support the university than the acreage that it actually occupies; weak sustainability requires acreage equivalent to per capita acreage available within the United States; strong sustainability measures consumption within the context of global population and acreage).

How can an institutional researcher best move forward on the sustainability front?

The examples given above provide viable, and attractive, models for incorporating sustainability indicators into annual reports, factbooks, and institutional dashboards. In the increasing number of institutions of higher education that have appointed sustainability coordinators, the institutional researcher has a ready collaborator in developing sustainability indicators for use in institutional monitoring and reporting. Obtaining the initial data, which can be time consuming, has often benefited from the involvement of an environmental studies class.

Certainly one of the critical elements in successfully orienting a college or university toward sustainable practices and toward modeling sustainability for students and society, is an embracing of this core value by trustees and senior level administrators. Many examples of this level of institutional commitment are available as exemplified in the reports that are cited above. As noted in “Measure Today, Here Tomorrow . . . ,” trustees, higher education professional associations, and political interests are beginning to press these sensibilities on institutional leadership.

Conclusion

The day is fast approaching when higher education will need to embrace fully the challenges of sustainable institutional behavior and transparent reporting. Given the central role that institutional researchers play in the development and dissemination of intelligence regarding institutional performance, the profession will have a key role to play in providing the intelligence we need to become sustainable institutions. I would like to think that one of the readers of this paper will win the first award for higher education sustainability reporting and that the Association for Institutional Research will be one of the sponsors.
References (see below for sustainability reports)


Sustainability Reporting Resources

General

Global Reporting Initiative: www.globalreporting.org
Sustainability Reporting Resource Center: www.ecoquality.com/resources.html

Corporate Reports

Dofasco: www.dofasco.ca/INVESTORS/annual_report/env_energy_2.htm
Kinko: not on the Web
Featured Higher Education Reports

University of Vermont:  www.uvm.edu/greening/trackinguvm.html
University of Florida:  www.sustainable.ufl.edu/indicators.pdf
Michigan State University:  www.ecofoot.msu.edu//files/pdfs/sustainability.pdf
  (includes a great list of links and resources)
Royal Melbourne Institute of Technology:  not on the Web
Appendix

University of Vermont Indicators

Summary

Between 1990 and 2000, UVM has made significant efforts towards reducing the impact of its activities on the environment. These efforts have resulted in significant reductions in energy consumption, water use, and waste generation. Additionally, UVM has implemented a number of programs to promote sustainability and encourage environmentally-friendly practices.

By implementing these efforts, UVM has demonstrated its commitment to sustainability and has set a positive example for other institutions. The university's success in reducing its environmental impact is due to the cooperation and dedication of its faculty, staff, and students.

This report provides a detailed overview of UVM's sustainability efforts and the results achieved. It highlights the importance of continued effort and innovation in order to further reduce the university's environmental impact.

Land and Water Use

<table>
<thead>
<tr>
<th>Land and Water Use</th>
<th>Energy and Air Pollution</th>
<th>Solid and Hazardous Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main campus land use</td>
<td>Energy sources</td>
<td>Trash generation</td>
</tr>
<tr>
<td>Little change in use of green space; data not available</td>
<td>Electricity sources became cleaner; 20% renewable in 2000</td>
<td>Trash totals increased 29% since 1990</td>
</tr>
</tbody>
</table>

Transportation

- Carbon emissions: Unchanged
- Recycling: Increased

Waste use

- Energy use: Unchanged
- Hazardous waste: Unchanged

Water use

- Energy use: Unchanged

Stormwater management

- Air pollution from heating: Unchanged

Grading System

- Little change in use of green space; data not available
- Energy sources became cleaner; 20% renewable in 2000
- Trash totals increased 29% since 1990

Trends

Campus land use: what share is parking?

Campus Land Use in 2002 (Academic Core Campus)

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sidewalks</td>
<td>3%</td>
</tr>
<tr>
<td>Roadways</td>
<td>3%</td>
</tr>
<tr>
<td>Buildings</td>
<td>9%</td>
</tr>
<tr>
<td>Parking lots</td>
<td>18%</td>
</tr>
<tr>
<td>Greenspace</td>
<td>72%</td>
</tr>
</tbody>
</table>

Percent of land used for parking is 18%, which is higher than the national average of 10%. This indicates that there is a need for more efficient use of land in the future.

More parking indicates more commuting miles

Main Campus Parking Spaces 1990-2000

Total parking spaces increased by 6% (3.4% spaces) over the decade as new buildings created new demand for parking. However, without policies to minimize new parking, the increase would have been far greater.

Student parking spaces decreased by 29% (76 spaces) following the creation of the bike system, a policy that last year students are not permitted to have parking spaces, with some exceptions. Meanwhile, the number of students decreased 8%.

Faculty and staff parking increased 40% (353 spaces). Faculty and staff travel an average of 16 miles each way to UVM. Although UVM encourages multiple alternative transportation options, such as carpooling and public transportation (one page 8), regional efforts are needed to increase transportation opportunities in the greater Burlington area.

UVM commuters travel about 21 million miles per year, equivalent to driving a quarter of the distance to the sun, or 86 times to the moon. Faculty and staff commuting account for 75% of these miles. These estimates may be challenging but they can be useful for targeting specific actors to reduce commuting miles.

Page 6 / Tracking UVM 1990-2000
University of Florida Indicators

6.16 Objectives, programs, and targets for materials replacement
In compliance with RCRA waste minimization objectives, the University of Florida targets a 10% reduction objective.

Water

6.12 (a) Total Water Use
Water is reported in liters consumed. Dollar amounts spent on water are given below the corresponding fiscal year.

6.12 (b) Water Use per Capita
Water used per University Capita per Year

6.98 (b) Student Diversity
Approximately 45,000 students currently attend the University of Florida, including 32,680 undergraduates and 12,434 graduate and professional students. They come from every county in Florida, every state in the United States, and over 100 foreign countries.

6.99 (c) Diversity Trends

"University of Florida Sustainability Indicators, August 2001"
Michigan State University Indicators

The total number of degrees — bachelor’s, master’s, doctoral and professional (unindicated) — have all increased from 1994 levels, with the most significant increase in master’s degrees (27%). Doctoral degrees granted have remained over time but are about what they were in 1994.

The number of women receiving degrees has increased in all categories, most notably with a 39% increase in professional medicine degrees.

Study Abroad

In addition to the academic rigor of university 36, MSU students have been actively pursuing personal, cultural and social enhancement opportunities through study abroad programs, service learning, student organizations and extramural spots. The number of student credit hours spent in study abroad programs has more than doubled since 2003-04. With over 15,000 credit hours spent abroad in 2003-04, Michigan State University offers the largest study abroad program of any university in the U.S., including the first study abroad program ever to Antarctica in 2003-04.

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100

First Year Retention and Graduation Rates Overall and for Minorities

<table>
<thead>
<tr>
<th>Year</th>
<th>Retained</th>
<th>1st Year Retained</th>
<th>Graduated</th>
<th>1st Year Graduated</th>
<th>6-Yr. Minority Retained</th>
<th>6-Yr. Minority Graduated</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>50%</td>
<td>40%</td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>10%</td>
</tr>
<tr>
<td>2001</td>
<td>55%</td>
<td>45%</td>
<td>15%</td>
<td>25%</td>
<td>35%</td>
<td>15%</td>
</tr>
<tr>
<td>2002</td>
<td>60%</td>
<td>50%</td>
<td>20%</td>
<td>30%</td>
<td>40%</td>
<td>20%</td>
</tr>
<tr>
<td>2003</td>
<td>65%</td>
<td>55%</td>
<td>25%</td>
<td>35%</td>
<td>45%</td>
<td>25%</td>
</tr>
<tr>
<td>2004</td>
<td>70%</td>
<td>60%</td>
<td>30%</td>
<td>40%</td>
<td>50%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Number of Days of Use of Alcohol, Tobacco, or Other Drugs in the Past 30 Days

<table>
<thead>
<tr>
<th>Year</th>
<th>Days Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>50</td>
</tr>
<tr>
<td>2001</td>
<td>60</td>
</tr>
<tr>
<td>2002</td>
<td>70</td>
</tr>
<tr>
<td>2003</td>
<td>80</td>
</tr>
<tr>
<td>2004</td>
<td>90</td>
</tr>
</tbody>
</table>

Number of Days Used

<table>
<thead>
<tr>
<th>Year</th>
<th>Days Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>10</td>
</tr>
<tr>
<td>2001</td>
<td>20</td>
</tr>
<tr>
<td>2002</td>
<td>30</td>
</tr>
<tr>
<td>2003</td>
<td>40</td>
</tr>
<tr>
<td>2004</td>
<td>50</td>
</tr>
</tbody>
</table>

Source: National Collegiate Health Survey, MSU 2000

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Number of Degrees Conferred

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Men</th>
<th>Total Women</th>
<th>Total Doc.</th>
<th>Total Grad.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2,000</td>
<td>2,500</td>
<td>1,500</td>
<td>1,000</td>
</tr>
<tr>
<td>2001</td>
<td>2,100</td>
<td>2,600</td>
<td>1,600</td>
<td>1,100</td>
</tr>
<tr>
<td>2002</td>
<td>2,200</td>
<td>2,700</td>
<td>1,700</td>
<td>1,200</td>
</tr>
<tr>
<td>2003</td>
<td>2,300</td>
<td>2,800</td>
<td>1,800</td>
<td>1,300</td>
</tr>
<tr>
<td>2004</td>
<td>2,400</td>
<td>2,900</td>
<td>1,900</td>
<td>1,400</td>
</tr>
</tbody>
</table>

Source: University Housing

Job Placement

With a growing emphasis on higher education as an employment tool, a look at job placement trends would provide important information. Each year the MSU Career and Placement Services department surveys recent graduates to see how they have done. The following three graphs give some indication of the trends. Above the data is that the responses are not consistent every year. Both the overall response rate and the proportion responding by college vary and therefore could alter interpretation of the data. It is probably safest to look at the graphs broadly. Graduates with a baccalaureate degree have found employment 65-70% of the time during the past decade, while another 20% of them have chosen to pursue further education. The remaining 15-20% either choose not to work or continue to look for work.

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Bachelor Degree Employment Status

<table>
<thead>
<tr>
<th>Year</th>
<th>Employed</th>
<th>Continuing Education</th>
<th>Unable/Poor Job Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>60%</td>
<td>30%</td>
<td>10%</td>
</tr>
<tr>
<td>2001</td>
<td>65%</td>
<td>25%</td>
<td>10%</td>
</tr>
<tr>
<td>2002</td>
<td>70%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>2003</td>
<td>75%</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>2004</td>
<td>80%</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>
Michigan State University, continued


- The overall budget has continued to increase over the past decade at a fairly steady rate (an average of 4.2% per year).
- The largest portion of state funding comes from state appropriations (-53%), with student tuition and fees close behind (-32%).
- Of the total university operating budget, the largest proportion is spent on instruction (-32%), auxiliary enterprises (-14%), research (-10%), and public service (-13%).
- Research funds and gifts have grown by 78%.
- Since 1994, the overall cost of attendance for students rose by 54.5% for Michigan residents and 38.1% for nonresidents, bringing the total cost of attendance to $13,372 (residents) and $22,380 (nonresidents).
- Since 1993, scholarships and financial aid funds have grown by 138%.
- Since 1999-00, MSU Health Care costs have risen by an average of 7% per year, reaching $34 million in 2001-02.
- As part of MSU’s fund raising campaigns, employee contributions increased 51% between 1999 and 2002.

As this report goes to print Michigan State University, like its sister institutions in the state of Michigan, is struggling with financial hardships. This is due to the downturn in the national and state economy that is leading to deficits and thus cuts in state appropriations. The graph shows that the overall budget has continued to increase over the past decade at a fairly steady rate (an average of 4.2% per year).

INCOME

These changes corresponded to increased enrollments, state appropriations, and research funds. We have a strong base of state appropriations in many years and the forecast for potential budget cuts given the state’s budget difficulties as this report goes to press. The largest portion of state funding (53%) comes from state appropriations (-53%) with student tuition and fees close behind (-32%). MSU was a leader in controlling the rise in tuition costs over the past five years in response to MSU President McRobbie’s “Tuition Capstone,” which held tuition increases at or below inflation (assuming state appropriations at or above inflation).

In an email to the university community this spring, President McRobbie noted that a generation ago, state appropriations covered more than 75% of the cost of education in Michigan while current appropriations (2003-04) cover less than 50% of the costs. As noted in the following graph (Figure 34), when appropriations decline, tuition and fees tend to increase to make up the difference.

Air Emissions

As indicated in the graphs below, we have a significant amount of air emissions coming from our production of electricity and steam. While our cogeneration systems effectively doubles our efficiency over a typical coal-fired electrical utility plant, the emission of emissions regulated by government in substantial Nitrogen oxides (NOx) emissions have remained fairly stable over the past decade, and the sulfur dioxide (SO2) emissions that dipped in the late 90s have begun to rise again in recent years.

Figure 37: Emissions in Tons for Sulfur Dioxide and Nitrogen Oxides

Figure 38: Emissions in Tons for Particulates and VOCs

In short, NOx emissions are the largest followed by NO. Lesser in quantities are the particulates and volatile organic compounds (VOCs). Emissions prior to 1998 were calculated by the Michigan Department of Environmental Quality. Issue 1998, at the request of
Royal Melbourne Institute of Technology Indicators

1. Share of First Preferences

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2002</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMIT</td>
<td>35%</td>
<td>34%</td>
<td>35%</td>
</tr>
<tr>
<td>National</td>
<td>20%</td>
<td>21%</td>
<td>21%</td>
</tr>
</tbody>
</table>

2. RMIT Student Satisfaction

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2002</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMIT</td>
<td>80%</td>
<td>82%</td>
<td>85%</td>
</tr>
<tr>
<td>National</td>
<td>75%</td>
<td>75%</td>
<td>75%</td>
</tr>
</tbody>
</table>
| Source: RMIT Student Experience Questionnaire, Graduate Competency, and Satisfaction Survey.

3. Aggregate Satisfaction

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2002</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMIT</td>
<td>85%</td>
<td>86%</td>
<td>88%</td>
</tr>
<tr>
<td>National</td>
<td>82%</td>
<td>82%</td>
<td>84%</td>
</tr>
</tbody>
</table>

4. Electricity Consumed

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2002</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity (GJ)</td>
<td>202,773</td>
<td>204,188</td>
<td>184,921</td>
</tr>
<tr>
<td>Per FTSU/EFTS and FTE staff</td>
<td>4.77</td>
<td>4.71</td>
<td>4.57</td>
</tr>
<tr>
<td>Per m² of GFA serviced</td>
<td>0.41</td>
<td>0.49</td>
<td>0.47</td>
</tr>
</tbody>
</table>

Source: Property Services, Energy, Electricity, Climate Change.

5. Gas Consumed

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2002</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity (GJ)</td>
<td>133,410</td>
<td>117,150</td>
<td>113,274</td>
</tr>
<tr>
<td>Per FTSU/EFTS and FTE staff</td>
<td>3.14</td>
<td>2.74</td>
<td>2.80</td>
</tr>
<tr>
<td>Per m² of GFA serviced</td>
<td>0.50</td>
<td>0.29</td>
<td>0.29</td>
</tr>
</tbody>
</table>

Source: Property Services, Energy, Climate Change.

6. Water Consumed

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2002</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity (KL)</td>
<td>214,862</td>
<td>300,283</td>
<td>298,703</td>
</tr>
<tr>
<td>Per FTSU</td>
<td>5.06</td>
<td>7.01</td>
<td>7.37</td>
</tr>
<tr>
<td>Per m² of GFA serviced</td>
<td>0.50</td>
<td>0.73</td>
<td>0.76</td>
</tr>
</tbody>
</table>

Source: Property Services.

7. Greenhouse Gas Produced

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2002</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions (tonnes CO₂ equivalent)</td>
<td>88,323</td>
<td>83,999</td>
<td>77,833</td>
</tr>
<tr>
<td>Per FTSU</td>
<td>2.07</td>
<td>2.05</td>
<td>1.92</td>
</tr>
<tr>
<td>Per m² of GFA serviced</td>
<td>0.21</td>
<td>0.22</td>
<td>0.20</td>
</tr>
</tbody>
</table>

Source: Property Services.

*Estimates only. Final quarter 2003 figures not yet available.

GJ - Gigajoules (10000000 kilojoules)
KL - Kilolitres (1000 litres)
CO₂ - Carbon dioxide
EFTS - Equivalent Full-Time Student Unit; EFTS - Equivalent Full-Time Student; FTE - Full-Time Equivalent (staff)