

ENVIRONMENTAL AUDIT

2008

Mount Allison University

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Preface

Since 1998, in increments of two or three years, Mount Allison students have conducted an environmental audit of the university. The audits evaluate Mount Allison's overall environmental performance, specifically its progress on implementing the Environmental Policy adopted in 1999. The indicators employed in this fifth audit include many of the official indicators set out in that policy as well as benchmarks established through the hard work and wisdom of the former auditors.

Since the publication of the last audit in 2005, climate change has demanded increasing attention globally. In November 2007, the Intergovernmental Panel on Climate Change released its Fourth Working Group I Contribution Working Paper 1A (WG1A) (IPCC, 2007). The report states that the world is warming and that the warming is due to human activities. The report also states that the warming is likely to continue and that the warming will have significant impacts on the environment and society. The report also states that the warming is likely to be more severe in some regions than in others. The report also states that the warming is likely to be more severe in the future than in the past. The report also states that the warming is likely to be more severe in the future than in the past.

and verify claims of sustainability. This fall the new Student Centre (the university's second Green Globes certified building) opened, featuring several of the latest new green building materials and techniques. With the surge of interest in this field and a shortage of expertise, it is important to build in-house expertise in this area. In addition, a progressive transition from reactive to planned maintenance is a necessity.

Energy efficiency has been a top priority for Facilities Management since the last audit; however more can still be done to reduce the impact of the university's energy needs on its budget and the environment. The energy plan currently being developed by the department should contain concrete energy use reduction targets with deadlines for their achievement. The university

"Today universities continue to be organized into dozens of separate

development. In addition, the Environmental Science major has been streamlined, with only 63 required credits in the 2007-2008 Academic Calendar as compared with 75 in the 2006-2007 Calendar.

Significant changes to the Geography and Environment Department with the consolidation included the introduction of a minor in Environmental Science and thesis-based honours degrees in Environmental Studies and Environmental Science. Since the option has been made available, several students have expressed interest in pursuing honours for the 2008-2009 year.

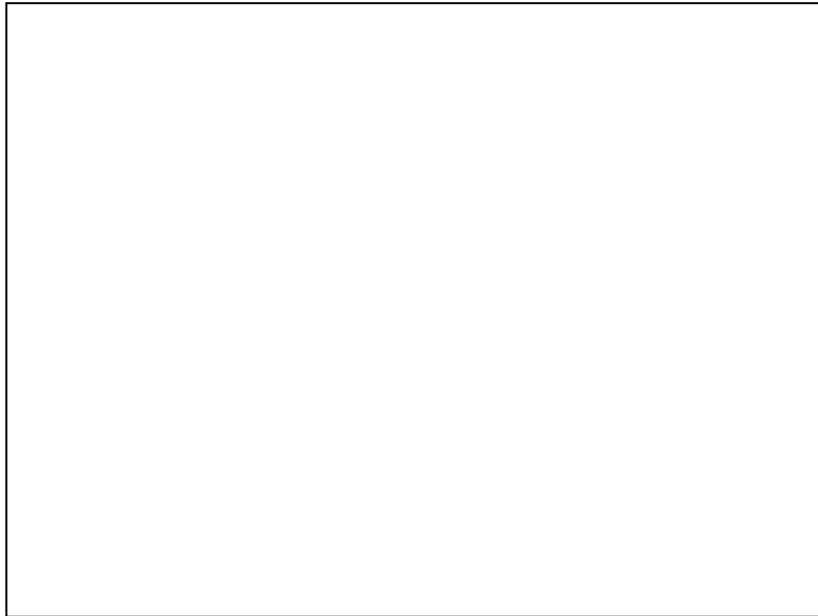
Among other changes to the curriculum, the two introductory courses were renamed from _____ to _____ and _____ (GENV 1201) and _____

The Dollars and Sense of Sustainability

Corporations like Walmart and Starbucks are recognizing the value of adopting more sustainable practices and university commerce and business programs are responding to the growing popularity of green business. For example, St. Francis Xavier offers a course called _____ which explores ways in which businesses can be positive forces towards the realization of global sustainability (St. Francis Xavier University, 2008). UPEI offers a similar upper-level business course called _____ (UPEI, 2008).

Indicator 2. Local community resources, such as the Canadian Wildlife Service are utilized and local regional issues are integrated into coursework.

- € In the past, the Canadian Wildlife Service (CWS) has been an underexploited resource by faculty and students. However, this situation has improved in recent years. Dr. Diana Hamilton (Biology) has collaborated with CWS staff on a variety of projects related to mudflat and salt marsh ecology. Dr. Jenn Baltzer, a recent addition to the Biology Department, also has an interest in field ecology, making future additional collaborative work possible. The Atlantic Canada Conservation Data Centre housed in the President's Cottage is also under utilized by the university.



Mount Allison's Biogeography class doing field work at Mount Uniacke.

- € In 2006, Mount Allison's Coastal Wetlands Institute signed a letter of understanding with the community-based Tantramar Wetlands Centre to reinforce their shared commitment to environmental education. While the letter lays the foundation for future cooperation, nothing concrete has come about as a result of the letter.
- € In 2007, the Bay of Fundy was designated as a World Biosphere Reserve under UNESCO's Man and the Biosphere programme. This could potentially...

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Student Enrollment

Indicator 4. Students taking courses with substantial environmental content.

The Geography and Environment Department, which houses many of the university's environmental courses, is experiencing unprecedented popularity. It now boasts the largest total enrolment levels of any Department in the Faculty of Social Science, ranging from 1026-1127 students over the three years since the last audit. The number of students who have declared majors/minors/honours in Geography/Environmental Studies/Environmental Science has increased by 68% over the course of the three years since the last audit and the increased enrolment has been met with an increase in the number of courses offered. Course offerings in the Geography and Environment Department have increased from 36 in 2005-2006 to 56 in 2007-2008.

Did you know?

Acadia University conducts a survey of its incoming students to gauge their level of environmental literacy and their interest in taking courses with sustainability content.

Widespread Community Education and Outreach **Indicator 5**

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Cool Campuses

The University of Prince Edward Island incorporates its environmental audit into its Environmental Studies programme! In 2005, students in UPEI's ENV 202 course conducted the university's first Campus Sustainability Audit using the as their major term project (UPEI 2005). Oberlin College in Ohio also combines campus and curriculum. Its course ENV 312 aims to complement wider curriculum (the

wider curriculum (the)1i(ec)-5 (t)-1y (r)-1 (me)-1f ()

DID YOU KNOW?

Aramark has been recognized for its efforts to cater to vegetarians! In 2005, the company received the PETA Progy Award for the Best Vegetaria

2005 audit, it has been determined that composting on site does not constitute a cost savings in the short run. The minimum upfront cost of a composter is estimated to be half a million dollars.

Currently, Jennings' used vegetable oil is being taken by PBS. Soon, however, Aramark will be selling the oil to a company called Rothsay for conversion to biodiesel.

All other Jennings Waste enters the Wet/Dry streams. Cardboard boxes are made available for students during peak moving times and plastic ice cream buckets are used by the residences, in particular Thornton and Carriage House, to store food.

Indicator 6. China or reusable plastics are used.

China is used in the dining hall at all times, except in the event that the dishwasher breaks down.

The two retail cafés use black biodegradable dishware made of cornstarch. The dishware is purchased through the Distribution Group BUNZL, however no more information on this product could be found. This is sometimes used in bagged lunches and at outdoor events but because of the high cost of the dishware, it is not always used. The biodegradable dishware has not been well advertised so students may not be aware that it should be put in the green bag and not the blue.

The last audit indicated that the café in the new student centre would be equipped with a dishwasher to allow food consumed inside of the café to be served on china instead of disposable dishware. Although the dishwasher is being installed, the café will continue using the biodegradable plastic dishes because of concerns about the china dishes

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dealing directly with farmers who are not accustomed to meeting the demands of large food service providers. Administrative Services has been working with the Nova Scotia and New Brunswick Departments of Agriculture on capacity building initiatives, including the development of a new course for farmers offered by the Nova Scotia Department of Agriculture.

Growing a Healthy Economy

The Spirit of Nova Scotia is a grassroots movement dedicated to building a sustainable and prosperous future for the province. The organization's Environment Catalyst Team led by Dr. Ralph Martin of the Nova Scotia Agricultural College has recently launched a Fresh Food initiative which aims to create a local food strategy for Nova Scotia. One of the proposed projects is a wholesale produce auction which would connect large buyers, such as universities, with the region's farmers.

Indicator 8. Organic and fair trade options are served.

Currently Dining Services purchases very few organic options largely due to the cost differential between organic and non-organic options.

All of the coffee served by Dining Services is now certified fair trade and organic. The dining hall serves half JustUs! coffee and half Aramark's Espresso brand coffee. The Flying Bean Café serves exclusively JustUs! coffee and the Golden "A" Café serves Espresso coffee. Presently fair trade tea is not served in the retail cafés but the currently served Lipton tea will be replaced by JustUs! tea in Fall 2008. JustUs! is in the process of developing fair trade sugar packets which Aramark intends to purchase for the retail cafés. Fair trade cocoa is used for catering special events and is served in the Golden "A" and the Flying Bean, although it is not well advertised.

- Launch an educational campaign for the biodegradable dishware.

Dining Hall Policies

- Serve one meal a month where all of the food is local organic.
- Work towards 10% organic options. Give preference to local organic and local non-organic items but try to find an organic alternative if an item isn't available in the region.
 - Specific organic items that could be purchased include salad greens, whole wheat pasta from Speerville to replace the current unsatisfactory brand, storage crops (potatoes, cabbage, apples, squash), and beef.
- Establish a food policy that requires the following to be

Veolia: No More Green Hair!

In 2006, after persistent problems with water discoloration and pipe corrosion, Sackville chose to privatize its water treatment system. A multinational company called Veolia was contracted for the management of the t Subtype /Footer /Type /Pagination BDC /CS0 cs 0(o)-7bm1(an)4Tm

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- Use rain and grey water on campus wherever possible, for example, in washrooms and grounds keeping.
- Explore natural filtration systems for grey water, such as living machines, and other technologies for reducing waste water such as composting toilets.
- Re-test waterless urinals since they're capable of saving 100,00L of water annually per fixture. With an array of make and models to select from there's surely one out there that will satisfy our needs, especially when they've been proven not only to reduce water usage but to reduce vandalism, maintenance, and repair as well!

Operational

- Continue to fix leaks in a timely fashion.
- Continue to use drought-resistant landscaping methods.

Educational

- Spearhead a campus-wide educational campaign that informs the community about water conservation methods and their benefits, both environmental and economic.
- Raise awareness about the water efficient fixtures on campus and why they are being installed.

Long Term Goals

- Reduce Mount Allison's waste water by fifty percent.
- Explore water efficient laundry and dishwashing technology when making future purchases.

Indicator Summary

| Indicator | State of Affairs 2005 | State of Affairs 2008 | Short Term Goals | Long Term Goals |
|---|--|--|--|--|
| <p>Total water consumption.</p> <p>Storm and grey water.</p> | <p>Average of 177 million liters (Between 2002/03 and 2004/05)</p> | <p>Average of 128 million liters of water. Good job!</p> | <p>Establish a base line using this year's data and set reduction targets.</p> | <p>Reduce water consumption by 25% over the next 10 years.</p> |

| | | | | |
|---|--|---|---|--|
| Quantity of wastewater treated. | 100% | 100% | Keep it up! | |
| Storm water contaminant separations/collection. | None of Mt. A's storm water drains connect to contamination separation/collection systems. | No change. | | |
| Projects are undertaken to decrease water usage. | Grounds Keeping and Jennings Hall have made significant reductions in water use. | No change. | Spearhead an educational campaign about water reduction and its benefits. Inform CCMs about water efficient fixtures. | |
| Ground water quality. | The King Street remediation project is ongoing and is expected to continue for at least two years. | The King Street remediation is still ongoing. | | Take steps to prevent groundwater contamination (see chapter on Environmental Protection). |
| Backflow prevention. | When renovating laboratories, backflow prevention devices are installed, however, there are many taps that have not been fitted. | No change. | Retrofit at least 50% of the university with backflow prevention. | Retrofit 100% of the university with backflow prevention. |
| Waste water disposal. | Mount Allison does not treat its waste water on site and has not considered doing so. | No change. | | Explore natural filtration systems for grey water, such as living machines. |

*"Without people nothing is possible, but without
institutions nothing is lasting."*


Jean Monnet

A 1%

The Facilities Condition Index (FCI) is a “comparative indicator of the relative condition of facilities” expressed as a percentage. It includes everything from roofs to mechanical systems.

$$\text{FCI (\%)} = \frac{\text{Deferred Maintenance (DM)}}{\text{Current Replacement Value (CRV)}} \times 100$$

| <u>If the FCI is:</u> | <u>Condition Rating:</u> |
|-----------------------|--------------------------|
| 0 to 5% | - Good |
| 5 to 10% | - Fair |



What is Green Globes? (Sounds like a variety of grapes!): "Green Globes is the only interactive, online green building assessment and design protocol (Green Globes)."

How it works: Mt. A either performs the assessment, which will then be certified by an independent third-party verifier, or the university can choose to have the verifier perform the assessment and certify it online simultaneously. "Buildings that receive a certification assessment score of above 55% are given a rating of three to

Summary

Institutions of higher education are looked to for leadership on green building as they have historically been hubs for the climate science research that opened society's eyes to the threat of climate change. To outsiders, our facilities symbolize the type of individuals who dwell inside. Let it be a beacon of our dedication to concrete action.

"Demand for green design services in some areas is outpacing available knowledge base, and mistakes are

- Integrate faculty/student research into design.
- Use open-concept designs to decrease construction by replacing individual offices with cubicles and setting aside a series of meeting rooms whenever possible.
- Develop environmental performance goals prior to the start of any project.
- As well as continuing to hire contractors who are LEED certified, invest in our employees by offering to finance their training in a CaGBC standard to build capacity independent of outside organizations and to protect our own interests.

Minimize physical impact of building.

- Reduce contamination and erosion during construction.
- Conduct class impact assessments for smaller projects.
- Use maintenance free materials i.e. paperless, mold resistant dry wall.
- Build reflective or vegetated rooftops to reduce heating and cooling loads.

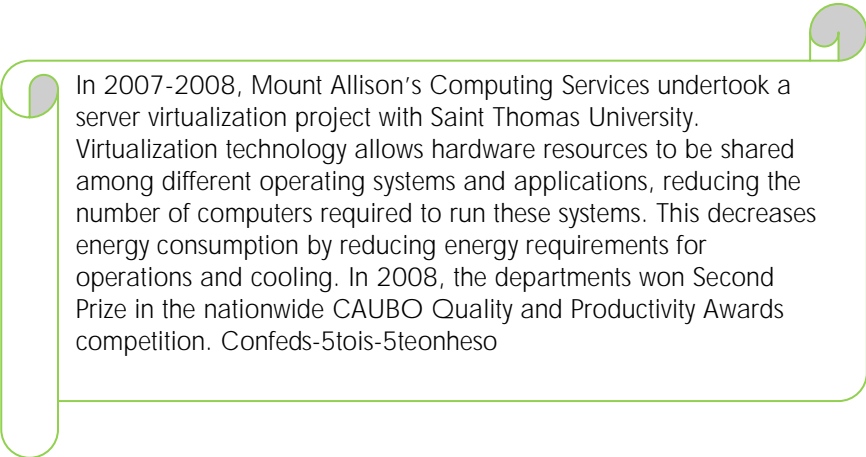
Maximize stewardship potential through facilities.

- Strengthen chain of reporting to decrease(t)-4 (io2 (d(w)-4 (a)-4 (i)-2 (r)-1 [(r)-13 (ns)-7p t)-4 (o)-11 (ns)-7e(n)-12 (t)-8 (i)-2 (m)3e. a)-4 ()])T01 Tc 0 Tw6.67795 0 Td x

Indicator Summary

| Indicator | State of Affairs 2005 | State of Affairs 2008 | Short Term Goals | Long Term Goals |
|--|--|-----------------------|------------------|-----------------|
| <p>Response time for building maintenance and repairs is monitored and minimized.</p> | <p>Repairs are prioritized according to necessity. The FCI of Mt. A is far from what it should be,</p> | | | |

I have no doubt that we will be successful in harnessing the



In 2007-2008, Mount Allison's Computing Services undertook a server virtualization project with Saint Thomas University. Virtualization technology allows hardware resources to be shared among different operating systems and applications, reducing the number of computers required to run these systems. This decreases energy consumption by reducing energy requirements for operations and cooling. In 2008, the departments won Second Prize in the nationwide CAUBO Quality and Productivity Awards competition. Confeds-5tois-5teonheso

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Indicator Summary

| Indicator | State of Affairs 2005 | State of Affairs 2008 | Short Term Goals | Long Term Goals |
|---|---|---|------------------|--|
| <p>Total energy consumption has decreased.</p> | <p>Energy consumption has increased but a plan is in the works to maximize reductions in consumption.</p> | <p>Some areas of campus have decreased while others have increased.</p> | | <p>Collaborate with other universities in the region on energy saving projects, such as a regional Campus Climate Challenge.</p> |

Sub-indicator:

1. A baseline has been established as a standard against which improvement in energy consumption can be measured.

No baseline has been established. However, this should be accomplished in the near future.

2. Buildings are constructed or renovated incorporating energy efficient technologies.

New buildings and renovations on campus use state of the art energy efficient technologies.

3. Buildings not in use are closed.

Any buildings not used during

4. The HVAC systems are

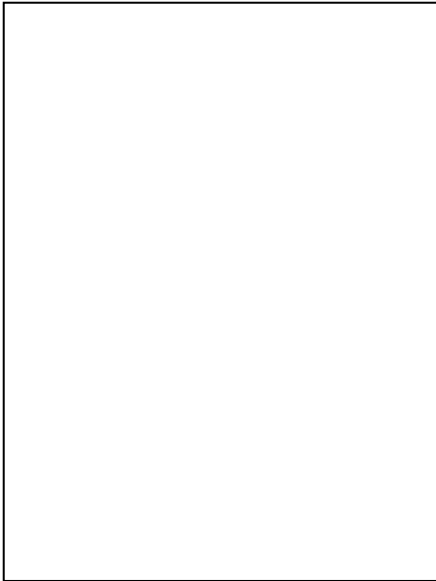
| Indicator | State of Affairs 2005 | State of Affairs 2008 | Short Term Goals | Long Term Goals |
|---|---|-----------------------|------------------|-----------------|
| monitored and repairs are done in a timely fashion. | system monitors the HVAC system and repairs are usually performed the same day they are detected. | | | |



"The earth has a fever. And the fever is rising. The experts have told us it is not a passing affliction that will heal by itself. We asked for a second opinion. And a third. And a fourth. And the consistent conclusion, restated with increasing alarm, is that something basic is wrong. We are what is wrong, and we must make it right."

Al Gore upon accepting the 2007 Nobel Peace Prize

Chapter 6 - Air Emissions



Since the last audit, the urgency of climate change has demanded increasing attention globally. In November 2007, the Intergovernmental Panel on Climate Change released its fourth Climate Change Assessment which dispelled once and for all uncertainty about the link between human activity and climate and called attention to the very real consequences of inaction. If this assertion was not enough, oil shortages and sky rocketing energy prices give us little of

total emissions. The volumes of gasoline and diesel used in the calculator were estimated from amounts spent at the pump per year and converted using average Canadian fuel prices for that year. It is important that information be documented as both a measure of cost and quantity to

standardized calculation system and an emissions trading program.

- Join other North American universities in working towards carbon neutrality.



"Kilometers are shorter than miles. Save gas. Take your next trip in kilometers."

George Carlin

Chapter 7 - Transportation

Introduction

In a matter of three years, human travel habits have sent food prices soaring and prompted the province of British Columbia to establish a carbon tax. Other provinces, including New Brunswick, are proposing to follow. If NB were to adopt BC's rate, it would mean an extra \$0.024/litre of gas or \$10/tonne of GHG emissions. For transportation to be affordable, flexibility is essential.

With its small pedestrian-friendly campus, Mount Allison has one of the lowest carbon footprints of any Canadian university when classes are in session. However, in-between semesters and during holidays, we burn more than our fair share of fossil fuels! 9% of our student population is international and 20% of our Canadian students are not from the Maritimes, requiring them to travel long distances in order to get here. Even more miles are accumulated in an effort to recruit these far flung students.

Mount Allison also participates in a plethora of international programs. The university sends an average of 23 students on exchange programs annually and receives many more. During Reading Week, school groups are globetrotting in order to lend a hand, experience other cultures, or just to enjoy themselves. These scenarios do not seem to satisfy the paradigm "thinking globally and acting locally", especially when one considers that the amount of fuel used in a Jumbo Jet could drive an average car four times around the world! But not to despair, there are ways to offset our travel bug tendencies.

Walking and cycling are the primary modes of transportation for campus community members (CCMs). The Transportation Survey conducted by Carla VanBesaleare's Data Analysis I class in 2005 reported that 70% of CCMs walk to the university. Of the 2105 students who participated in the survey, 85% lived within a 5km radius of Mount Allison. 82% of the 165 faculty members and 71% of 174 staff members surveyed lived in Sackville as well (although usually greater than 5 km away from campus). However, the survey revealed that even students, faculty, and staff who live in town do not necessarily leave their cars at home: 2.5%, 29%, and 40%, respectively, drive. Lowering these figures would improve air quality while minimizing traffic noise and congestion.

One way to work towards this goal is by promoting carpooling. Mt. A's Carpool Tool is an online database that was developed for the university free of charge by the University (t)-4 (Lo) (w)-18 (er)d [b (f)-9 (2)-2 (z)-12 (Un)-2 (i349 - n



sizeable carbon footprint. Projects in progress include travel bursaries that would be available to subsidize student ground travel, bus tours for prospective students leaving from regional high schools, expanding the Future Student webpage, Facebook, and subsidizing travel for members

What is a Flexible-fuel vehicle??? "(FFVs) are designed to run on gasoline or a blend of up to 85% ethanol (E85). Except for a few engine and fuel system modifications, they are identical to gasoline-only models... However, since a gallon of ethanol contains less energy than a gallon of gasoline, FFVs typically get about 20-30% fewer miles per gallon when fueled with E85 (www.fueleconomy.gov)."

That doesn't sound like a car!

Veggie oil is only suitable for longer trips, and therefore not appropriate for university vehicles which are constantly starting and stopping. These vehicles have a convertor and use conventional oil to heat up the engine before switching over to vegetable oil.

Biodiesel

In operation, diesel is required to start and stop the engine. Usually a mixture of 80% petro-diesel and 20% biodiesel (typically slightly refined veggie oil) is used, which must be kept in separate tanks for proper ignition. There is legitimate concern about the naturally occurring paraffin in biodiesel coagulating, but this problem can be solved by adding a specialized anti-gel agent for biodiesel or using winterized diesel—this is either already adjusted at the distributor before it is delivered to the pumps or can be done ad-hoc on-site. Not all warranties on diesel vehicles provide coverage for bio-diesel substitution.

Failure to maintain reliable inspection and fuel log books continues to be a problem, making it difficult to quantify improvements in this area. The 5 minute idling allowance, outlined in the policy, is too lenient given that leaving a vehicle running for more than 10 seconds uses more fuel than it takes to restart the engine.

Indicator 4. Status of Mount Allison commuter program.

During the 2007-2008 year, the membership of Mount Allison's Carpooling System did not grow because a registration e-mail reminder was not sent out in September. The method itself is ineffectual in reaching CCMs, particularly staff, who do not always use their Mount Allison e-mail accounts. In September 2005, 13 faculty and 10 student carpooling tags were released but more importantly 40% of student

What are "critical mass" bike rides? They are world-wide events to celebrate and promote active transportation. Participants have been taking to the street on the last Friday of every month since the first critical mass took place in San Francisco in September 1992.

- Organize an Active Transportation Awareness Day, which challenges CCMS to leave their vehicles at home or at least carpool with the desired effect of creating a car-free campus.
- Reduce allowable idling time in the Facilities Management Vehicle Policy from 5 minutes to 10 seconds.
- Limit discretionary air travel by offering incentives to take the bus or train.
- Research worthwhile offset programs in which to participate and include offsets in travel allowances for employees.

Long Term Goals:

- Provide incentives for carpooling including guaranteed emergency rides home and gas subsidies.
- Better publicize and expand Mount Allison's carpooling database to include

Indicator Summary

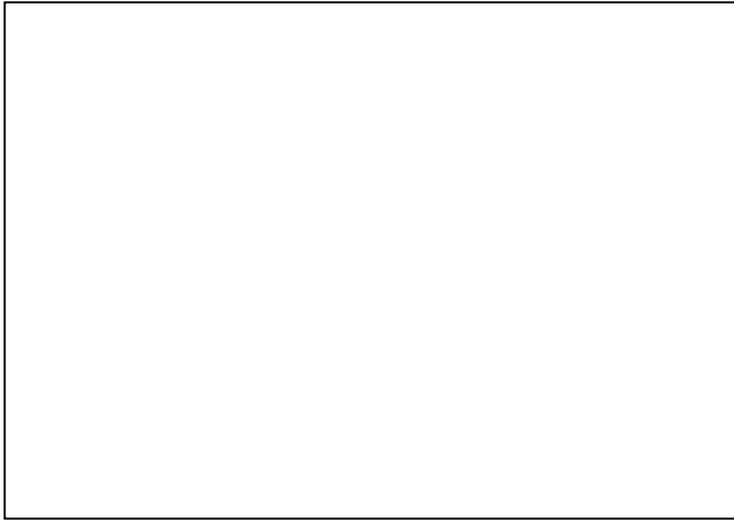
| Indicator | State of Affairs 2005 | State of Affairs 2008 | Short Term Goals | Long Term Goals |
|--|---|--|--|---|
| Bike racks are available at academic and residence buildings. | There are 14 bike racks located across campus. Plans for additional bike racks as future construction on campus progresses. | 2 additional bike racks will be available in front of the New Student Centre | Support Critical Mass bike rides by organizing an Active Transportation Awareness Day. | Help students establish a bike co-operative and/or bike rental and repair service. Install covered bike racks or redesign current ones. |

Emission levels are taken into consideration in the purchase of vehicles.

Emission levels were considered for the only vehicle acquisition since the 2002 audit. Due to heavy work requirements of the vehicle, no hybrid or alternative vehicle was

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"The waste of plenty is the resource of scarcity."
Thomas Love Peacock



inaugural “house meetings”, members of Eco-Action give a brief but spirited introductory lesson. Faculty and staff primarily live in the county and it is assumed that they have had sorting experience at home.

Audit Evaluation

Indicator 1. There is an effective waste reduction program.

Individual supervisors and departments have shown initiative, but their efforts receive little attention in isolation even though they often end up saving the university money. (See Table 4.1 Overview of Current and Planned Solid Waste Diversion Initiatives).

Indicator 2: The Wet/Dry program is utilized effectively.

The compliance rate (a measure of the degree of necessary resorting) is 22.229 0 Td mpie un

- Incorporate a dramatic wet/dry presentation into Orientation Week.
- Advertise the waste paper notepad program and put one in every mailbox in September along with a notice.
- Integrate solid waste management into strategic planning to prevent logistical problems (See Dining Services).

Seek custodial input as they're primary players in maintaining the success

- Donate deposit returns, except for those from residences, to an environmental fund. Advertise this on recycling bins.
- Help promote grassroots efforts, for example, the Mt. A Buy, Sell & Trade Facebook Group, Mt. A Student Co-op, "Garage Sale" days.
- Develop an inventory of excess furniture and post it on the intranet for departments and other campus organizations to browse through.
- Acquire (buy or rent) a roll-off container for the recycling and transfer of construction wastes in order to participate in WASWC's construction and demolition program, which has a tipping fee of \$22/tonne as opposed to \$59.95 for mixed loads.
- Have a Dump and Donate bin year round.
- Add dry bins to washrooms.
- Eliminate paper recycling bins which are placed only in select locations around campus.
- Purchase both a dry and wet waste compactor to increase weight distribution per load and decrease the amount of trips to PBS and WASWC.
- Conduct regular garbage audits in a joint effort between Facilities Management and enthusiastic students.

Long Term Goals

- Use the consultant-led waste audit as a springboard for a more comprehensive internal auditing process.
- Eliminate loose bins in both indoor and outdoor public areas and replace them with Wet/Dry/redeemable units.

Indicator Summary

"I write down everything I want to remember. That way,

- Support Services has been looking into potential alternatives to paper course packs; however it must wait for Access Copyright to resolve copyright issues for the digital market before electronic course packs can be seriously considered.
- The bookstore will bind one-sided paper into notepads for campus community members free of charge.
- External Relations is working on putting the _____, the alumni magazine, online. Currently, hard copies of the magazine, which is printed three times a year, are being sent to 19 000 recipients! The department also uses recycled paper in its publications whenever possible. The new Faculty of Arts and Faculty of Social Sciences flyers are printed on 50% recycled (15% postconsumer content) content FSC certified paper. Although th(0)-5 (0)-5((on)-0.00m)-6 (f)3 (l)-Td (t)-(l)-Ti8 (r6 (l)-2 (s)1l)-2 (e.)-4 (F)-8 (5Mdaco (e)JJ 0 Tc 0 Tw 4.482 0 Td ()Tj -0.003 Tc 0.003 Tw 0.289 0 Td



The university has tested recycled paper with 30% and 100% post consumer content and found it to be unsatisfactory. The paper, which has a less uniform thickness and quality than virgin paper, was causing the high-speed printers in Reprographics to jam. This resulted in large amounts of the more expensive recycled paper being wasted. Reprographics will be getting a new high-speed printer this year which will be able to accommodate a wider range of paper thicknesses and may be more compatible with recycled paper.

To facilitate purchasing and storage, Support Services wanted to maintain a uniform paper type for all of its printers which is why virgin paper is also being used in the convenience printers and copiers, even though they can usually process recycled paper effectively.

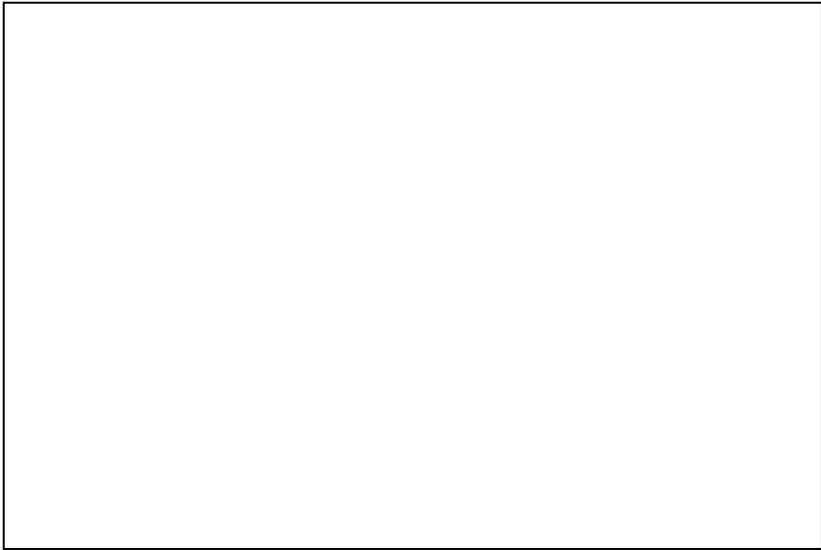
Coloured paper, which is available from Reprographics for special projects, typically has 30% post-consumer content and/or is FSC and/or Rainforest Alliance certified.

Goals & Recommendations

Short Term Goals

- Develop a comprehensive paper reduction strategy to educate CCMs about the importance of paper reduction and steps they can take to minimize their impact (such as making applications digital where appropriate, scanning, tiling their print jobs when they are just needed for records, etc.).
- Include in the strategy a policy requiring professors to accept double-sided assignments and exams and electronic assignments.
- Make shorter exam booklets available for students who request additional paper, eliminating the need to distribute full booklets to students who do not require them.
- Ensure that faculty members have adequate assistance to successfully transition from WebCT to Moodle.

- Continue to test different brands of recycled paper when the new high-speed printer arrives. If the recycled paper is still unacceptable in Reprographics, consider purchasing paper with postconsumer content for the convenience and departmental copiers only and switch to FSC certified paper for the high-speed printers.
- When the _____ is placed online, provide the option for alumni to unsubscribe from the hard copy.
- Reevaluate the number of hard copies of the



completely full to keep our costs to a minimum. Likewise, anything that

- Use natural solutions beyond Chemistry i.e. baking soda and vinegar for cleaning, walnut oil and Oil of Wintergreen for Fine Arts.
- Keep a good inventory of materials and don't stockpile because the disposal costs exceed the purchase costs by a considerable margin and there's inadequate storage space.
- Dispose of wastes immediately at the completion of a project and don't abandon them for someone to blindly deal with later.

campus) once it is determined that the tree cover on the main campus is sufficient.

Water Conservation

Indicator 4. The landscape is designed to be drought resistant.

As indicated in the last audit, landscaping is designed to increase water efficiency. Plant varieties that require little water are chosen and mulch and compost are applied to increase water retention.

Overall, there is little to no irrigation done on campus. Unless the season is particularly dry, the only plants that are watered are trees, flowers, and shrubs in the first year after planting and all annual varieties. Of the sports fields, only the Park St field is watered regularly. It has a sprinkler that is on a timer and is shut down if there is sufficient rain.

Education

Indicator 5. The grounds are used for educational purposes.

While several classes, especially in the Biology, Fine Arts, Drama, and Geography Departments do take advantage of the grounds, given the size of the campus and the effort by the Facilities Management to maintain it, the property remains underutilized.

The Grounds Superintendent has been working with a professor in the Biology Department to create signage to draw attention to key features, such as trees. Planting a garden in the old MacGregor lot (see Dining

x Dig a garden on the MacGregor lot as an educational space

appl)

Indicator Summary

| Indicator | State of Affairs 2005 | State of Affairs 2008 | ShortTerm Goals | LongTerm Goals |
|--|--|------------------------------|----------------------------------|-----------------------|
| Pesticides are used on campus only when required. | Mt. A uses a technique called Integrated Pest Management, applying pesticides (on sports fields) as a last resort. | No change. | Continue to explore and test pro | |

grounds garbage truck and the security/stodial truck and kits with an absorbent capacity of 215L will be kept in the Grounds Shop and the Heating Plant. A full department set of MSDS sheets will accompany each kit.

If the main heating tank leaks into the surrounding environment, Facilities Management staff members do not handle the cleanup. Depending on the size and nature of the spill, the remediation may be contracted out to a qualified company or undertaken by the oil supplier. If a leak of the main heating tank is suspected, the Department of Environment and Local Government requires that certain tests be administered. Procedures to be followed in the event that a leak is discovered are outlined in the New Brunswick Petroleum Product Storage and Handling Act. As dictated by the act, persons charged with the cleanup must arrange for the immediate removal of leaking systems, take all reasonable steps to prevent further leakage, and recover escaped oil and contaminated soil before installing a replacement storage tank or line. The Department of the Environment may also order that affected water be decontaminated.

Indicator 3. Preventative measures for potential risks.

In reality, the risk of a leak of the main heating tank is minimal. The oil tank is double-walled and vacuum sealed. If the tank springs a leak, the eruum sle rs dic dr (u)-18(p)--4 (e)4 (d w)-12 (c)n (d)-12 (an)4 (d)2 (l)a-9 (de7 (s)-2



Indicator Summary

| Indicator | State of Affairs 2005 | State of Affairs 2008 | Short Term Goals | Long Term Goals |
|--|-----------------------|---|--|---|
| The reporting system for environmental risks. | Yes. | Same. | | Conduct a campuswide risk assessment. |
| Risk control procedures. | No. | Facilities Management is currently developing a Hazardous Materials Spill Response Policy to better enable its staff to respond to spills. As part of the policy's requirements, spill kits will be kept in the grounds garbage truck, the security/custodial truck, the Grounds Shop, and the Heating Plant. | Put the new policy forward for approval and implement it as soon as possible. | |
| Preventative measures for potential risks. | No. | Same. | Install concrete in the fuel handling areas of the Heating Plant and Grounds Shop. | Construct a containment dyke for the heating tank and the Grounds Shop's diesel tank. |
| Employee training for environmental risk incident. | No. | Once the new policy is adopted, basic spill response training will be mandatory for all FM staff and spill responders will receive. | | |

The Lorax said

combination of the two. Usually Mount Allison uses a tender for products they have bought before and will be buying again. The RFP process is more flexible and is usually used when a decision cannot be based solely on price.

Although purchases are done under the scrutiny of Financial Services and the Purchasing Manager, purchasing decisions are consistently made by our faculty and staff within the parameters established by the policies created by Financial Services and endorsed by senior management.

Indicator 1. In the purchase of products, the following factors are taken into consideration:

- ‡ 5 HG X Packaging
- ‡ 5 HF \ FOHG FRQWHQW LQ PDWHULDOV
- ‡ 5 HGXFHG FRQVXPSWLRQ
- ‡ (Environmental performance such as energy savings
- ‡ & RQVWUXFWLRQ DQG ORQ JHRYHAW \ UHF \ Plastics in Packaging (instead of virgin materials, PVC)

Last year, the Purchasing Manager began negotiating with Corporate Express on packaging reduction. Currently, all products are shipped in cardboard boxes through Midland Courier. While these boxes usually do contain recycled material, their use generates a massive amount of waste when you consider that they deliver to Mount Allison alone 23 times per week! In other regions, the company has tested sending orders in reusable plastic containers which are returned for future orders. However it was determined that with the complexity of the mailing system at Mount Allison, boxes might get lost along the delivery chain. Corporate Express will accept used cardboard boxes and reuse them up to three times.

Because of the many layers of decision making involved in the procurement process and variety of factors that must be considered, it is sometimes difficult to place a heavy weight on environmental factors. Nevertheless once other conditions such as function, quality, and price are met, as much consideration as possible is given to a product's environmental impact when negotiating a contract. For example, specifications for furniture for the new Student Centre included

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From Cradle-to-Cradle: Interface Flooring Systems

The world's largest manufacturer of carpet is on a mission: to eliminate waste by 2020. By 2004, Interface had reduced its landfill bound waste by two-thirds below the previous decade's levels! Efforts towards "closing the loop" have included the conversion of recycled plastics in Packaging (instead of using virgin PVC), experimentation with polylactic acid an organic plastic made from cornstarch, and the use of thermal energy from methane gas in landfills. The company has several LEED certified plants and showrooms and its Entropy line of carpet tiles allows only worn tiles to be replaced instead of the entire carpet (Turner, 2007).

this is done, they usually receive a lower weight as compared with the weight assigned for price.

Indicator 2. Development of an environmental procurement strategy.

Some environmentally sensitive procurement is already taking place at Mount Allison. However, no official strategy for green procurement has been developed. Furthermore, no environmental requirements have been included in Mount Allison's Purchasing Policy to bring it in line with the Environmental Policy.

"There's a danger that consumers see 'eco-friendly' as 'worker-friendly,' and they're not the same thing."
Kevin Thomas, Maquila Solidarity Network

overcome these disclosure issues, Mount Allison should join the list of 17 Canadian institutions who have implemented Net Zero policies.

Summary

According to Kevin Lyon (2000), Purchasing Managers are the university's "gatekeepers" with the burden of ensuring that anything that gets in the door is environmentally sound. In reality, Mount Allison has multiple gatekeepers, with many faculty and staff making purchasing decisions for their respective departments. While the Purchasing Office has taken steps to include environmental specifications when negotiating contracts and individual CCMs have opted for green products, a comprehensive strategy is needed to bring the entire organization on board. This would involve amending the Purchasing Policy to include environmental and ethical standards and taking steps to inform ourselves about the environmental impacts of the products we are buying.

Goals & Recommendations

Short Term Goals

- x Have the Purchasing Manager communicate information to staff and faculty about available green products
- x Consider the full life cycle of all products being purchased. For products that can be recycled or that require special disposal (eg. compact fluorescent light bulbs), negotiate the return of used items to vendors. Similarly, continue to negotiate the return of product packaging as a means of reducing the burden on Mount Allison's waste management system and

Indicator Summary

| Indicator | State of Affairs 2005 | State of Affairs 2008 | Short Term Goal | Long Term Goal |
|---|--|---|--|---|
| <p>Environmental factors are taken into consideration in purchasing.</p> | <p>More consideration is given to these factors, mainly as a result of customers and shareholders demanding higher environmental standards and more accountability from suppliers.</p> | <p>When drafting RFPs, environmental specifications are often included This has been facilitated by an increase in available green products and the knowledge of consultants.</p> | <p>Continue to work with Corporate Express on packaging reduction and product recycling. Consider the whole life cycle of a product in contract negotiation.</p> | <p>Work with other ISI members on including environmental specifications in contracts for products purchased in bulk. Conduct research to enhance environmental specifications. Make use of internal resources: involve faculty and students in the research.</p> |
| <p>Development of an environmental procurement strategy.</p> | <p>No environmental procurement strategy exists at this time.</p> | <p>Same.</p> | <p>Develop an environmental procurement strategy Communicate this strategy to all vendors/contractors and the entire campus community. Amend the Purchasing Policy to bring it in line with the Environmental Policy. Include the stipulation that purchasers be willing to pay a premium of 10% for green products.</p> | |

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“The story of university sustainability is certainly about getting more green buildings and teaching people about the benefits of demand management. But these are only the benefits of demand management. But these are not only the seeds of a revolution. For these seeds to take root and flower, we must address the character of the institutions in which these individuals work, structures of power that let certain things happen but not others (M’Gonigle & Starke, 2006:144).”

Chapter 14 - Stewardship

Introduction

The 2005 Environmental Audit reported that Mount Allison lacked a clear overarching vision for sustainability. While steps were being taken in many areas to green the campus, these initiatives were fragmented, typically coming from the bottom up rather than from the highest levels of administration.

Three years later, our research suggests that this climate could be changing. After a period of inactivity, the Environmental Issues Committee was reconstituted by Director of Facilities Management, Rob MacCormack. In 2006, Dr. Brad Walters assumed the leadership of the committee and, inspired in large part by the writings of former student Yonatan Strach, set out to redefine its mandate. Originally tackling specific issues on a case-by-case basis, the committee has evolved towards addressing the underlying problems of governance and stewardship. This reorientation of the committee was met by a receptive audience. With the appointment of Dr. Robert Campbell as university president in 2006, the environment was reaffirmed as an administrative priority for Mount Allison in the university’s Strategic Statement. This chapter attempts to paint a picture of overall campus stewardship, from the grassroots rumblings of student activism where many ambitious

ideas are born to the senior administrators who ultimately determine the university’s course of action.

Indicator 1. Student environmental concern

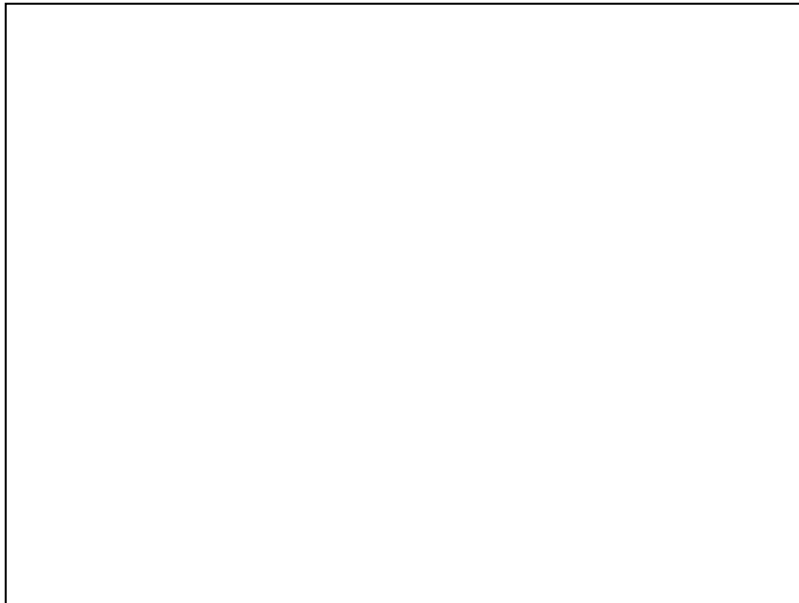
Following a lull period, student environmental activism at Mount Allison seems to be resurging.

In 2005, after years in the works, Mount Allison opened the doors of its first Sustainable Residence Initiative. As already mentioned, the house

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to explain how the sorting system works and the benefits of the program. Sackville now boasts an impressive 98% compliance rate, in part due to the efforts of these students.

In 2007, following an eye-opening presentation by journalist Gwynne Dyer, a new student group, DELTA, was born. DELTA is committed to bringing about political action on climate change. Last year, its focal project was a pan-Canadian youth petition committing its signatories to voting with candidates' environmental platforms as a major deciding factor. Other initiatives included awareness raising activities and meet and greets with local politicians.



of indicators. Another proposed amendment dictates that the committee report to the Vice President Administration. However, the newly amended policy has not been presented to the Board of Regents for approval.

Resources and Incentives

Commitment Phobia?

Over 350 universities in 40 countries have signed the Talloires Declaration of Environmental Responsibility (See Appendix 14.2). Composed in 1990, the Talloires Declaration is a ten-point action plan for incorporating sustainability and environmental literacy into teaching, research, operations, and outreach at colleges and universities (USLSF, 2008). Beginning in 2007, universities in the United States have signed on to the American Colleges & University Presidents' Climate Commitment. With more concrete goals than Talloires, the PCC requires that universities complete an emissions inventory, prepare a plan for becoming carbon neutral with target dates and milestones, take immediate steps to reduce GHGs from a list of short-term actions, integrate sustainability into the curriculum, and make the plan, inventory, and progress reports publicly available (PCC, 2008). Following the lead of the American universities, in March of 2008 the presidents of six British Columbia Universities signed the University and College Presidents' Climate Change Statement of Action for Canada.

could be set aside in an Environmental Trust Fund. A small fee (in the range of \$5-\$10) could be applied to student fees which would go into this fund, or towards a specific environmental project chosen by students. To recognize the students' commitment, the university should agree to match the students' contributions.

In 2007, Brad Walters' Contemporary Environmental Issues class surveyed 103 students, 33 faculty members, 18 staff members, and 17 administrators to determine their level of environmental literacy and concern. The survey asked both general questions about climate change and more specific questions about Mount Allison's efforts. When asked if they would be willing to pay a fee to be put towards climate change initiatives, 30% of students indicated "yes" and 44% said "maybe". 22% of staff and 70% of administrators said "yes" (see Appendix 14.3 for select survey results).

Structural Framework

Indicator 6. The university has an environmental committee or task force to enforce the policy and to strengthen future initiatives.

The Environmental Issues Committee was reconstituted in 2005. Its major focus since its reestablishment has been on redefining its mandate and discussing future directions. Its current activities include advising on the Campus Carbon Mission Summit and environmental speaker series and working towards a Carbon Policy for Mount Allison.

In June, 2008, the student auditors and representatives of Facilities Management attended a day-long Atlantic Campus Sustainability Meeting where the groundwork was laid for regional cooperation. Mount Allison will be hosting a second meeting as a lead-up to the Campus Carbon 0-Mission Summit in September.

Indicator 7. Sense of Place

"... one can detect a correlation between the intellectual detachment of the academy from the natural world, and its own physical detachment.

An insulation is built right into the structure of the university, hardwired into its physical and intellectual life." (M'Gonigle & Starke, 2006: 64).

While some courses do incorporate the local ecology, economy, and history into their coursework, these efforts represent the individual interests of certain professors as opposed to institutional commitment to regional studies. As indicated in the chapter on Academic Opportunities, local resources such as the Canadian Wildlife Service, the Atlantic Canada Conservation Data Centre, the Tantramar Wetlands Centre, and the Atlantic Wildlife Institute remain underutilized.

Outside of the classroom, there seems to be a lack of engagement between Mount Allison students and the Sackville community. There is also evidence that students do not feel a sense of ownership for campus facilities. Groundskeeping Manager, Andrea Ward, reported that outdoor vandalism is on the rise. It takes an estimated two people, one day per week to clean up student vandalism.

The procurement of local food for the dining halls is a positive step towards reengaging with the university's surroundings and supporting the regional 21 Tc 0.0 (h)-4 (i)2 (3 (u)-18 (n003 Tw)-4 (i-11 (m)3 (m)3 (u)-18 (ni)-2 (t)-8 (y)3

sustainability at Mount Allison. As part of the process, Michelle Strain, Director of Administrative Services, has compiled a list of sustainable practices, campaigns, and research as well as a list of potential future campaigns or projects in progress. In July, the consultants will conduct one-on-one interviews with campus community members as well as group brainstorming sessions to determine how best to publicize past initiatives and which actions to implement in the future.

To further heighten the profile of environmentalism at Mount Allison, a Sustainability MTA logo has been adopted by Administrative Services for use in appropriate publications and promotional items and also to be printed on some items sold at the bookstore.

Leadership Development and Training

Indicator 9. The university invests time and money to offer training programs that foster environmental sensitivity and leadership.

No programs have been offered.

Over the summer, EcoAction members have partnered with Administrative Services on a campus-wide education campaign to promote environmental stewardship.

Summary

Since the last audit, the environmental agenda at Mount Allison has been imbued with new energy at all levels. Now the challenge for the university is to channel it effectively. To maximize efforts, communication and cooperation need to improve between different areas of campus and between the campus and the broader community. Within the university environment, this could be addressed by creating reporting mechanisms for the EIC, better publicizing the audit, and having past initiatives more visible.

- x Continue to make funding available for environmental initiatives. Borrow from the Capital Assets Fund for major environmental projects. After the project is paid off, put a portion of energy and water savings from the project into an Environmental Trust Fund.
- x Place a suggestion box on campus for students, staff, and faculty, to pitch their ideas for environmental projects on campus. Implement deserving projects and recognize the contributor.
- x Identify, initiate, and join partnerships that are advantageous to the university and help it implement the Environmental Policy. Partnerships could take the form of student internships collaboration on teaching and research, shared office space, etc. Specifically reach out to the Tantramar Regional High School, the Atlantic Wildlife Institute, the Canadian Wildlife Service, the Tantramar Wetlands Centre, and the Atlantic Canada Conservation Data Centre.
- x Include the statement “all students upon graduating will possess the knowledge, skills, and values to work towards an environmentally sustainable future Blueprint for a Green Campus” in the university’s mission statement.
- x Hire a Sustainability Coordinator to oversee the implementation of the Environmental Policy and audit recommendations.
- x Have appropriate departments (Administration, Facilities Management, Academic Faculties) officially respond to audit recommendations that concern them.
- x Following the publication of the audit, have the Sustainability Coordinator work with students to realize the recommendations. Departments should be brought together for education sessions and focus groups to discuss simple ways to promote stewardship on campus.

- x Raise awareness about the costs associated with student vandalism on campus.
- x Ensure that the new communications program accurately reflects Mount Allison’s environmental initiatives and that we continue to “walk the talk”. Recognize deserving achievements but avoid “greenwashing”!

Long Term Goals

- x Develop a Centre for Sustainability which would house an office of sustainability and the Geography and Environment Departments as well as serving as a meeting space for student environmental groups. The centre could also lease office spaces to regional environmental organizations.
- x Work with other universities in the Atlantic region on making it a sustainable campuses hub. Possible future steps include the adoption of a uniform environmental auditing framework and cooperating on green purchasing.

Indicator Summary

| Indicator | State of Affairs 2005 | State of Affairs 2008 | Short Term Goals | Long Term Goals |
|--------------------------------|-----------------------|--|---|-----------------|
| Student environmental concern. | N/A | Student environmental activism has been resurging. SAC and other student representation at Environmental Issues Committee Meetings have been inconsistent. | Improve student participation in the EICThe SAC should make a commitment to | |

In 1961 the isotope carbon-12 was selected to replace oxygen as the standard from which atomic masses of all other nuclides of elements are measured. Its mass number is 12. This relates to the widespread concern over the formation of Greenhouse gases on the planet, of which the most infamous is CO₂.

Overall, we need better reporting and recordkeeping to keep the Environmental Audit a valuable resource and prevent it from turning into a tedious exercise. More files need to be passed on between auditing teams to limit redundancy so that more time can be spent on the vital analysis and interpretation of the findings. However, we are blessed to have a high degree of interest and cooperation in this project across campus.

Top 12 Recommendations

- x Consistent messages for the Wet/Dry sorting system—always having both bins side-by-side and having them well labeled
- x Adopt a green purchasing policy that takes into account the whole life cycle of a product (materials, processing, disposal, and packaging). Educate COMs and vendors accordingly.
- x Adopt a food policy which redefines local, includes sustainable seafood, and takes into consideration other issues (organic, animal treatment, packaging, and seasonality even when it is not local, etc.). Serve local and organic meal a month in Jennings Hall to prove that it is possible!
- x Adopt a carbon policy with emissions targets and work towards carbon neutrality (offsets for travel, low emission fleet, extend carpooling program, investment in renewable energy)

Conclusion

A reading of this audit should reveal that Mount Allison is taking many steps to incorporate sustainability into its daily operations. When food is purchased for the dining hall, Dining Services considers how many miles it must travel from farm to plate. When new buildings are built, or old ones renovated, Facilities Management installs new efficient technologies. When weeds rear their heads in unwanted places, Grounds' first response is organic pest control. These steps, while seemingly isolated, reflect an important evolution in the culture of our institution towards doing sustainability naturally. The individual efforts of campus community members, however small, should therefore be recognized and more should be done to educate CCMs about ~~the~~ ~~as~~ they can take.

That being said, an overemphasis on these individual steps has the potential to detract from the bigger picture. It bears

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Dr. Paul Bogaard, Philosophy, May 20, 2008

Dr. Michael Fox, Geography & Environment Department Head, May 23, 2008

Dr. Stephen McClatchie, VP Academic & Research, July 7, 2008

Dr. Jeff Ollerhead, Dean of Science, June 10, 2008

Dr. Frank Strain, Professor of Economics & IR Programme Coordinator, May 21, 2008

Dr. Robert Summerville Murray, Dean of Social Sciences, May 16, 2008

Dr. Hans vanderLeest, Dean of Arts, June 10, 2008

Photo of the vegetarian station from the External Relations Department
Photo of the pulper from the 2cg Waste Audit

Water Use

Persons interviewed

Perry Eldridge, Technical Services Manager, June 11, 2008

Gary Fox, Veolia Water, July 22, 2008

Photo of students from Eco Action

Air Emissions

Persons Interviewed

Perry Eldridge, Technical Services Manager, June 11, 2008

Andrea Ward, Grounds Manager, June 12, 2008

Robert Inglis, Controller – email correspondence

Michelle Strain, Director of Administrative Services – email correspondence

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Photo of smokestack from 2005 Auditors

Transportation

Persons Interviewed

Perry Eldridge, Technical Services Manager, June 25, 2008.

Matt Sheridan, Jonah, Admissions Manager, July 3, 2008.

Cindy Spicer, Coastal Wetlands Institute Technician, June 18, 2008.

Carla VanBeselaere, Economics Professor, June 17, 2008.

Judith VanRooyen, Bookstore & Departmental Support Services Manager, July 14, 2008.

Andrea Ward, Grounds Superintendent, June 4, 2008.

Paula McCloskey, Town of Sackville Parks and Recreation – email correspondence

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Photo of Mark Payne on bike from Vanessa Yu

MTA Carpool Logo courtesy of Carla VanBeselaere

Solid Waste

Persons Interviewed

Laura Brown, WASWC Public Relations, June 9, 2008.

Audrey Kenny, Custodial Manager, June 11, 2008.

Paul DelMotte, Windsor Theatre Production Manager, June 4, 2008.
Stephen Duffy & Roger Smith, Chemistry Head & Laboratory Manager, May 20, 2008.
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Thaddeus, Holownia, Fine Arts Head,
Dan Steeves, Printmaking Technician/Instructor, May 20, 2008.
John Peters, Pool Administrator, May 21, 2008.

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Photo of lab from External Relations Department

Grounds Keeping

Person Interviewed

Andrea Ward. Grounds Manager, June 12, 2008

Photo of mowed field from Vanessa Yu

Environmental Protection

Persons Interviewed

Perry Eldridge, Technical Services Manager, June 25, 2008

Rob MacCormack, Head of Facilities Management, July 14, 2008

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Photo of the boiler room from Perry Eldridge

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Stewardship

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Dr. Brad Walters, Environmental Studies Programme Coordinator, June 23, 2008
Dr. Michael Fox, Geography and Environment Department Head, May 23, 2008
Dr. Robert Campbell, University President, June 5, 2008
Michael Currie, SAC President, Marianne Greene, Past SAC President, and Mark Brister, SAC VP External, June 6, 2008
Matt Sheradin-Jonah, Manager of Admissions, July 3, 2008
Michelle Strain, Director of Administrative Services, May 29, 2008
David Stewart, VP Administration, June 25, 2008
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Appendices

Appendix 1.2- Faculty Environmental Research

- x **Zoe Finkel**(Geography and Environment) Oceanographic research on climate change, marine biogeochemistry, marine macroecology and macroevolution

x



Appendix 2.2

Canada's Sea Food Guide

From Sea Choice http://www.seachoice.org/files/asset/file/37/SeaChoice_Alertcard.pdf

Appendix 3.1 - Water Cistern

Appendix4.1 - Features of the New Student Centre

Replacements/Improvements

- x Better insulated windows (thermally broken rain screen window system with bronze double glaze, argon filled, lowemissivity coating)
- x Reduced solar heat gain and glare (high efficiency solar reflective glazing)
- x Increased light diffusion (Solera glazing)
- x Increased thermal resistance of flat roof areas
- x Attempt to increase average thermal resistance of walls
- x More efficient heating (cast iron heating panels with electric zone valves and wall mounted thermostats or sensors, floor radiant heat, radiant ceiling panels)
- x Increased flexibility of building controls in computerized building management system (main network in accordance with ASHRAE BACnet protocol, local panels are common protocol)

Appendix 6.1 – Air Emissions

Food production contributes to GHG emissions in many ways, from farm maintenance to live stock methane release to the transportation of the food. For this reason-CA averages the food emissions in the population input in the calculator.

Appendix 7.1- Summary of Vehicle Fleet

| Department | Type & Quantity | Tasks |
|--|--|---|
| Facilities Management x Grounds Keeping | 4x4 truck (x2)* tractor (x3)* passenger lawn mower (x2)* sweeper (x1) | 1 tonne-garbage ¾ tonne-snowplow -landscaping |
| x Trades -ur | 8-cyllinder truck(x1) 6-cyllinder tuck (x2) | plumbing -t d C electric & HVAC -primarily driven on campus (46km/day) -occasionally picks up parts from Home Hardware, Amherst, and Moncton |
| x Custodial | truck (x1) | -transports supplies from central storage room in Facilities Management building -used for security at night |
| Administrative Services x Bookstore | | |

Appendix 10.1-Guidelines for the Disposal of Waste Chemicals

Courtesy of Roger Smith, Safety Officer Academic Departments.

Solvents are collected as Hydrocarbon or Halogenated wastes, care should be exercised to avoid cross contamination of these two separate waste streams.

All other chemical wastes are to be collected in individual containers and clearly identified with the

Appendix 10.2- Battery Disposal Operations

At Mt. A: A driver from Natural Harbors inspects batteries to see if they have been taped in groups to prevent the (+) and (-) charges from interacting before the container is sealed and brought on board OR the

Appendix 11.1 - Mount Allison's Integrated Pest Management (IPM) Procedure

(as determined by Grounds Superintendent Andrea Ward)

STEP 1: A STANDARD is set to determine the amount of insects, diseases, and weeds which are acceptable

STEP 2: The levels are then MONITORED

STEP 3: The "CULTURAL METHOD" is used whenever possible to ensure the plants are as healthy as possible. This involves keeping a minimum of 4 inches of topsoil on the beds. Kelp, compost, and fertilizer are also used to increase the health of the plants. Water is appropriately added.

STEP 4: If, at this point, pests, weeds, or disease become an issue, MECHANICAL METHODS are used (parts of the plant are removed, wire brushes remove scale, flame thrower burns weeds, high pressure water ~~are~~ insects, or insects are physically picked off plants)

STEP 5: If this doesn't work, and the problem increases to a level that was not deemed acceptable, ORGANIC means are considered first (such as insecticidal soap, and horticultural oil).

STEP 6: If that doesn't work, and the problem is considered threatening (i.e., Dutch Elm spreading from one tree to another potentially destroying several large trees), COMMERCIAL PESTICIDES are used.

Appendix 14.1

Is Mount Allison University doing anything to take action on climate change?

- f* Students 62% say yes, 26% don't know, 7% say no
- f* Faculty 55% say yes, 42% don't know, 3% say no
- f* Staff 66% say yes, 28% don't know, 5% say no
- f* Administration: 82% say yes, 6% say no

f How would you rate Mount Allison's action on climate change?

- x* Students reasonable (33%), sufficient (19%), insufficient (6%), impressive (3%)
- f* Faculty insufficient (27%), reasonable (18%), sufficient (9%)
- f* Staff reasonable (28%), insufficient (17%), impressive (11%), sufficient (11%)
- f* Administration reasonable (47%), impressive (24%), insufficient (18%)

Would you be willing to pay a fee if the money were put towards climate change initiatives?

- f* Students 44% say maybe, 30% say yes, 23% say no
- f* Faculty 42% say yes, 39% say maybe, 12% say no
- f* Staff 66% say maybe, 22% say yes, 5% say no
- f* Administration 70% say yes, 24% say maybe, 6% say no

