

**Mount Allison University
Environmental Audit
2005**



Acknowledgements

Mount Allison University's Fourth Environmental Audit would not have been possible without the help and collaboration of a great number of people:

Rob MacCormack for overseeing the process. His guidance and knowledge were one of our greatest assets.

Perry Eldridge for his seemingly endless technical expertise. His time and attention to us were more than we expected from a man with his responsibilities.

Michael Fox for helping us form a vision. His enthusiasm about

PREFACE

Mount Allison has made headway since the last campus environmental audit (2002). Large scale projects such as the Wet/Dry program were launched, and plans for the Carriage House Sustainable Residence came together, with the official opening in the Fall of 2005. A number of smaller initiatives have also led Mount A in the right direction such as a reduction in pesticide use, increase in

EXECUTIVE SUMMARY

This is the fourth biennial audit conducted at Mount Allison University. Each audit has highlighted our progress in reducing our ecological footprint and outlined areas for improvement, providing strategies on how to do so. This year, changes were made to the structure of the audit to better reflect the environmental situation both locally and globally. Some of the performance indicators were removed, while others were added, and the grading system was removed all together after campus feedback determined that it was not the most effective means of assessment. Overall, the university continues to make progress in most areas, but much work remains in order to achieve a Sustainable Campus at Mt.A. The following is a brief summary of each chapter.

Dining Services

Waste management at Jennings's Dining Hall is exemplary. All wet waste is pulped, and then composted off site, and food is only purchased in bulk to reduce packaging. In the Fall of 2005, students will be required to scrape their own dishes at a sorting station in hopes that less food will be wasted. Large areas for improvement include food purchasing policies and menu planning. Food needs to be procured more substantially from local sources, providing organic options where available. Menus need to focus on serving more sustainable meals (low on the food chain, in season, local and organic) as much as possible. Small steps are being taken to move in this direction.

Water Use

Overall water conservation at Mount A is mediocre. In terms of renovating, and implementing water-saving technologies in new buildings, we are doing well. But little priority is placed on retrofitting old fixtures which are costly and inefficient. Mount A should be concerned about the amount of water it uses, as it has the potential to use much less using some easy to implement strategies.

New Buildings & Renovations

Most work at Mount Allison involves renovations, as very little new construction occurs. When either new constructions or renovations happen on campus, there are efforts made (within the constraints of availability and cost) to implement green building techniques and energy efficient technologies. The university's newest building, Campbell Hall, has received CBIP certification, a commendable feat that will be formally recognized in the Fall. Due to the many ongoing energy reduction efforts, new buildings and renovations is an area that is moving forward environmentally at Mount Allison.

Energy Use

Total energy consumption at Mount Allison has risen over the years, though many efforts have been made to increase the efficiency of the HVAC systems and the buildings on campus. Increased efficiency reduces consumption, which is the overall goal of energy use. Significant effort has been made recently to implement an energy management plan for Mount Allison that will maximize our energy reduction. In 2004 an energy audit was completed by a consulting firm outlining several measures that could be taken to improve efficiency and therefore reduce consumption. A plan has been put in place to implement certain measures and it is now pending approval.

Emissions

From May 2002 to April 2005 36 882 tonnes of CO₂ equivalent emissions have been released into the atmosphere. Emissions levels are not congruent with previous audits due to inconsistency in emissions calculators used for each audit. The calculator used for this audit is the Clean Air Cool Planet CA-CP eCalculator 4.0. The task it facilitates – the collection, analysis, and presentation of data constituting an inventory of the emissions of greenhouse gases attributable to the existence and operations of an institution – provides an essential foundation for focused, effective outreach on the issue of climate change at a college or university, and the basis for institutional action to address it.

Hazardous Waste

Anything hazardous is disposed at Mount Allison according to provincial

Procurement

Procurement activities have improved due to higher environmental standards demanded by consumers and shareholders. Some consideration is given to environmental factors during tendering but the bearing of this factor on the final contract is negligible. Procurement tools that minimize packaging and “green” the supply chain have been recommended to the purchasing manager. The previous recommendation to develop an environmental purchasing policy has been deemed too constricting for the complexities of contract tendering in the short term. Other resources have been made available to provide alternative methods for improving the procurement process.

Academic Opportunities

Mount A is dedicated to the development of the “whole student.” However, the incorporation of environmental content into academic curriculum at Mount A remains concentrated in the environmental studies and science programs, and a few other specific courses in various departments, making up a small percentage of all courses offered on campus overall. Students are able to graduate from Mount Allison without ever having engaged with environmental content, resulting in a general lack of awareness of our consumer impacts.

Stewardship

This is overall the weakest area at Mount A. Although many initiatives are taking place on campus, little has been done to unify them with a common institutional vision of environmental stewardship. Despite having a written environmental policy, it appears that little has been done to create a culture of sustainability, and to ensure that Mount A is living up to its potential. There are several ways that Mount Allison can improve, beginning with the reconstitution of the Environmental Issues Committee, updating of the Environmental Policy, and a signed declaration of environmental responsibility by Senior Administration.

DINING SERVICES

Audit Evaluation

Dining Commons Diet

Indicator 1. Menu planning accommodates several different diet types.

Food Services at Mount A is currently provided by Sodexo whose goal is to promote “balance through healthy living.” (Sodexo, 2004) Their aim is to provide a wide variety of foods that will satisfy the nutritional needs of

Introduction

Wendell Berry once said that “how we eat determines how the earth is used.” For students, staff and faculty at Mount Allison, there is a wide range of fruit, vegetables, sandwiches, salads and desserts available on campus. And yet, when we put food on our tray we rarely ask ourselves: Where does this food come from?

Following the Penn State Indicators Report (Penn, 2000) guidelines for a sustainable campus food system, the following indicators were chosen to measure Mount A’s progress towards a sustainable food system:

1. Dining Commons Diet
2. Dining Commons Waste
3. Dining Commons Policies

Indicator 3. "On demand cooking" is

The few local suppliers at Jennings include Scotsburn (dairy products), Sterling's Apples, and Just Us Fair Trade Coffee (as of Fall 2005).

Jennings is also looking into a local supplier for grains and oats (such as Speerville Mill in Speerville, NB) but no agreement has been reached. Ultimately, the food that is being served in the Dining Hall for the most part is not environmentally sound, as it travels from regions as far as California and South America. The transportation of our food requires a large consumption of fossil fuels, and increases the need for packaging, processing and refrigeration.

Indicator 8. Organic and Seasonal options are served.

In the past, no organically grown food has been served in the Dining Hall. In addition to serving Just Us (Fair Trade, Organic) Coffee beginning in the Fall of 2005, Jennings has made a commitment to the student body to serve 1 to 2 meals per week containing organic ingredients!

Colby College in Maine is a prime example of the potential Dining Halls have to serve 90-95% sustainable foods. New Brunswick and the surrounding provinces have several sustainable farms, including farmer's cooperatives that could supply most of Mount Allison's demands. Supporting sustainable agriculture when the environment and is

In 2005, Jennings has made a commitment to the student body to serve 1 to 2 meals per week containing organic ingredients!

Summary

Dining Services at Mount A is moving in the right direction. Steps are being taken to reduce waste and packaging and procure food from local and organic sources. The food purchasing policy is in need of improvement as it does not consider how far the food travels, how it is produced and processed (i.e., organically or not), and whether the animals and workers are treated fairly. Mount A needs to be concerned about these areas as this will determine whether or not we move toward a sustainable food system, or remain in an unsustainable one.

Goals and Recommendations

Short Term Goals:

1. Make a commitment to support a sustainable food system.

- x Continue looking into local suppliers food items (such as grains and oats) and move towards local sustainable producers for produce, meat, poultry and dairy.
- x Implement a policy that requires the following to be considered when purchasing food;
 - farming practices
 - labour practices
 - distance traveled
 - treatment of animals
 - packaging
- x Students can conduct research of local suppliers, and pilot-test their acceptability in cooperation with Jennings's Dining Hall.
- x When contracts are negotiated with an outside contractor (such as Sodexo), university administration can specify an increase in more sustainable food options and consider the indicators above when making purchasing decisions.
- x Do not to serve fish species at risk.

- x Promote eating low on the food chain by increasing access to vegetarian/vegan food options, and decreasing overall amount of meat served.
- x Increase amount of "sustainable meals" (meals that include at least 1 local and/or organic ingredient) by 30%.

2. Foster student awareness.

- x Provide students with information about their specific food choices and their impacts.
- x Make binder available with nutritional information and ingredients list available near the food stations for quick, easy reference.
- x Make information on food sourcing made available to students through a visual map display.
- x Encourage students to reduce their own waste through campaigns such as "lug a mug," discounting the price of coffee and tea for participants, and through the new waste sorting station (to open in the Fall of 2005).
- x Increase students connection with their food through education campaigns about "where food comes from," invite farmers who provide food for Jennings's to give a presentation, for example.

3. Reduce Waste by 10%.

- x Continue pulping pre and post consumer waste to be composted.
- x Reduce amount of Styrofoam used at the Golden A Café and outdoor functions by purchasing a dishwasher for the café (once moves to new student center), and finding compostable/ recyclable/ reusable alternatives to Styrofoam for outdoor functions (such as Melmac plates and beverages served in cans and bottles).

Long Term Goals:

1. Have 90-95% of meals procured by local and or organic sources.

2. Eliminate all disposable dishware.

3. Compost pre- and post-consumer waste on site.

- x Redesign pulping system so that all compostable materials are

Indicator Summary

Indicator	State of Affairs 2002	State of Affairs 2005	Short Term Goals	Long Term Goals
Diet				
Menu planning accommodates several diet types.	n/a	Vegetarians are accommodated in the meal rotation. Other diets are accommodated on a per student basis.	Focus on serving more "low impact" meals (low on the food chain and produced as locally and organically as possible).	Serve 90-95% food procured from local and organic sources.

plastics are used.

Food at the Golden A
Café is served on
Styrofoam and
picnics/outdoor functions
also use Styrofoam.

have a Styrofoam recycling

Our Food Stream Starts Here.

Producer

Processor
Transporter
Distributor

Dining Hall

Consumer

Waste Stream a
Waste that is flushed

WATER USE

conservation is still essential to preserve water quality. Since the last audit, Mount Allison's overall water use has decreased (See appendix 1). Mount Allison continues to do a great deal to decrease the amount of water used, and to protect our aquifers from waste and storm water.

Introduction

Mount A is the Sackville's largest consumer of water so it is understandable that we have a large impact on the bodies of water we draw from, and discharge into, as well as the infrastructure used to treat our water.

Our water is drawn from the Tantramar River Watershed (pictured left, in white), a groundwater supply which is treated and pumped by the town of Sackville. Even though our water table is not at an immediate risk of depletion according to the Department of Water and Public Works, water

Indicator 6. Efficiency of fixtures

- x All new fixtures installed are energy efficient (“low flow”).
- x There are conscious efforts to retrofit inefficient fixtures (“worst first”) promptly.
- x Alternatives to water consuming appliances have not been seriously considered (such as composting toilets). Waterless urinals were pilot tested, but not implemented because of a concern of “odour.”

Indicator 7. Motion Detectors Installed

- x As new buildings are built, and renovations are made, motion detectors are installed on sinks, toilets, and drinking fountains, however there is no plans to retrofit all bathrooms on campus with this technology.

Storm and Waste Water (Quantity)

Indicator 8. Quantity of waste water produced

- x Unknown.

Indicator 9. Quantity of wastewater treated

- x 100% treated by the Town of Sackville.

(Sewage Lagoons, Sackville NB)

Storm and Wastewater (Quality)

Indicator 10. Stormwater contaminant separation/collection

- x Currently none of Mount A’s storm water drains connect to contaminant separation/collection systems.

Projects and Education

Indicator 11. Projects are undertaken to decrease water usage

- x Grounds keeping has reduced their water use significantly.
 - Drought resistant landscaping techniques used
 - Efficient sprinkling/irrigation technology used
- x Jennings’s Dining Hall has a commendable water reduction strategy.
 - Water Recycling Systems in place
 - Flow Control Devices used
 - Staff Training includes water efficiency techniques
- x No records of water saving measures are compiled including a list of all water saving features included in new and renovated buildings.
- x No education campaigns have been conducted on campus to encourage water conservation.

Protection

Indicator 12. Ground Water Quality

Mount A’s ground water source comes from the Tantramar River Watershed, of which the quality is good. The area of concern for Mount A is the King Street Parking Lot. See box below for discussion.

Operational

- x Continue prompt detection and repair of leaks.

Educational:

- x Use CHSRI as *amode* for efficient technologies that could potentially be implemented on campus in the future (especially low flow/pausable showerheads, low flow toilets and sink fixtures, etc).
- x Spearhead education campaigns for water conservation (in the form of a “challenge,” or incentive program) (As part of the campaign, those interested could tour CHSRI).
- x Educate public about university’s environmental efforts through news releases and “open houses” (especially in CHSRI) and increase visibility of the water system.

- x Reuse gray-water (water that has been used for washing) instead of sending it down the drain (i.e.,) to the treatment plant.
- x Use Living Machines “to process building wastewater on site...[this] offers a cost-competitive technological alternative to conventional wastewater treatment facilities with remarkable educational benefits”.

2. Develop Proactive Strategy to Protect Groundwater.

Long Term Goal:

1. Eliminate Waste Water at Mount A!

By following some simple guidelines and implementing some energy efficient technologies, the university will be shocked at how much water, and money, we will save! Some of the steps, many of which we have already taken, include:

- x Install low flow shower heads, toilets, and faucets campus wide.
- x Use water saving technologies when it comes to dish and clotheswashing.
- x Install composting toilets throughout campus. This will save the unnecessary mixing of two valuable resources: pure water and human manure (See appendix 2).
- x Collect rainwater from campus rooftops to be used for washing purposes (rather than drawing from the town source).

contaminant separation/collection		connect to contamination separation/collection systems.		
Projects are undertaken to decrease water usage	Projects are undertaken to reduce leaks.	Same. In addition, Grounds have made a significant reduction in their water usage (see grounds section), and Jennings Dining Hall has water saving equipment and policy including staff training.	Implement education programs for staff and students.	--
Ground Water Quality	n/a	The King Street remediation is ongoing, started in 2003 it is expected to continue "cleaning up" the contaminated water for another two years at least.	Continue focusing on cleaning up King Street in the short term.	See prevent ground water contamination.
Backflow Prevention	n/a	When renovating laboratories, backflow prevention devices are installed, however, there are many taps that have not been fitted.	Install all labs with backflow prevention devices immediately.	--
Waste Water Disposal	n/a	Mount Allison does not treat its waste water on site and has not considered doing so.	Go beyond government regulations! Develop a proactive strategy to protect groundwater including stormwater management. Look into Living Machines as an alternative, and a learning opportunity for students, faculty and staff.	Implement one Living Machine at the Sustainable Residence.

NEW BUILDINGS & RENOVATIONS



- x T8 and compact fluorescent bulbs are now installed everywhere on campus – incandescent bulbs can be found in some of the older buildings and not-renovated buildings on campus, but these will be replaced over time.
- x Avard Dixon, the Dunn building and Campbell Hall are outfitted with ‘watt stopper’ sensors (further details can be found in the Energy Use Report).
- x Low off-gasing carpets are used with water based adhesive. There is a limited availability of colours for adhesive free carpets making them aesthetically inappropriate.
- x Non-toxic or organic paints are being looked into. The painting cycle is currently 12 years or more so paint selection may not be high on the list of priorities.
- x Run-off from building construction is carefully monitored and monitoring specifications are outlined in the documentation of each project for the contractor to follow.
- x Contractors are allowed to re-use materials from projects on the project they are working on, or for their own personal use.
- x Construction waste is recycled by Westmorland or by Fero Waste Management in Moncton.

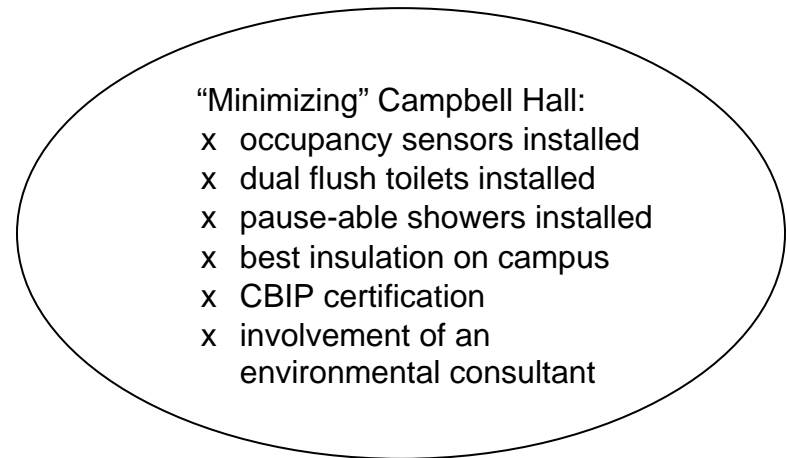
In general the university tries to be the most energy efficient in its buildings with the best payback. Without a proven payback period it is difficult to get funding for some of the large up-front costs of environmental materials and technologies.

Due to a lack of regional availability few green building materials are used on campus. Even when certain materials are available (like adhesive-free carpets), aesthetics are often a ~~fuel~~ barrier to their use. And, there are some other issues, including: will the material last as long as its non-environmental counterpart, how easy is it to maintain, is it locally available, and who will install it (carpets specifically)? Indoor materials are currently selected for least toxicity and ease of cleaning as custodial staff is limited. Other green practices have been subject to negative feedback from users. For example, someone removed all the low-flow shower heads that were installed in Hunton, so no more were used in any other residences. Un-insulated buildings present a problem in terms of

their energy use. Several of the older satellite buildings on campus have little or no insulation. While it is very difficult to redo insulation a climate like Sackville's is not conducive to un-insulated living. There are therefore, a number of challenges associated with implementing green building techniques and energy efficiency at Mount Allison.

No buildings on campus are currently certified by any green building certification bodies but it is in serious consideration for future major building projects. The CBIP certification of Campbell Hall should be applauded and is another indication of the university's commitment to green building. Mount Allison will be receiving a plaque in recognition of this building.

Construction waste is generally recycled as outlined in the Solid Waste section.



Summary

Increasing efforts to improve energy efficiency have resulted in improvements in the environmental impact of new buildings and renovations at Mount Allison. While some material selection may be limited the university works with what is available within financial constraints to maintain and improve its buildings. Funding can be a major challenge to incorporating ‘green building’ into a campus but energy efficiency and waste reduction will result in payback periods for

Indicator Summary

Indicator	
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ENERGY USE

improve its energy efficiency. Also included in this report are implementation plans, payback periods and funding opportunities.

- x **Energy Coordinator.** This position will be filled once the job description/duties are completed and approved.
- x **Boiler improvements** Steam flow from the boilers has been measured since 2003 and a program to tune them up was implemented in 2004. As well steawas

Introduction

Energy production can represent significant damage to the earth. Most energy in Canada is produced by burning fossil fuels. Fossil fuels are a non-renewable resource and we can expect to see the peak of production of our most popular fossil fuel, oil, in the next decade. Not only is limited availability an issue, the pollutants released by burning fossil fuels have significantly altered the earth's climate since the onslaught of the Industrial Revolution. Energy use strategies often focus on efficiency, which is crucial, but soon enough we will have no choice but to limit our reliance on fossil fuels and switch to renewable technologies in order to meet our energy needs.

Mount Allison has made a number of energy efficient choices in past decades, mostly based around financial savings. Since the last audit, a number of measures have been taken to improve the efficiency of energy production on campus:

- x **Energy Audit.** An energy audit was done in 2004 which includes a number of steps that the university could take to

Audit Evaluation

Indicator 1. Total energy consumption has decreased

Mount Allison's energy comes from two locations. Steam is produced in the central heating plant (CHP), (see appendix 4) and electricity is purchased from NB Power. The school uses four main fuel types in the CHP: No.5, Bunker A, Heavy Fuel Oil; No. 2 Light Oil; Low Sulfur Diesel; Propane.

Total energy and fuel consumption since the last audit is as follows:

Years (Jan. – Dec.)	Electricity (kWH)	Steam Flow	No. 5, heavy oil (Litres)	No 2. light oil (Litres)	Low Sulfur Diesel (Litres)	Propane (Litres)
2003	11 289 852	58 615 710	2 269 765	75 930.5	5 920.9	29 194.4
2004	11 930 961	55 587 309	2 330 916	75 569.6	7 866.5	26 076.5

(See appendix 5 for trends in electricity and fuel oil consumption since 1998.)

The following sub-indicators were used to quantitatively assess the rise or decline of the school's total energy consumption:

Sub-Indicator I. A baseline has been established as a standard against which improvement in energy consumption can be measured.

The university has yet to establish a baseline of consumption or energy use that could provide benchmarks from which goals could be set. The current practice is simply to “use what we need”. In order to decrease our impact we should carefully examine our energy use and strive to need and use less.

Sub-Indicator II. Buildings are constructed or renovated incorporating energy efficient technologies.

In all cases the university strives to be the most energy efficient with the best payback. Without a proven payback period, it is difficult to justify the expense of implementing energy efficient or renewable energy technologies. Mount Allison has made significant use of energy efficient

technologies, including ‘Watt Stopper’ sensors, dual-flush toilets, low-flow showers (where possible), day/night thermostat setback settings, and a recent move towards microwave ovens over conventional ovens, demonstrated in Mount A's newest residence, Campbell Hall.

Over the last several years the following steps, on top of those mentioned earlier, have been taken to improve energy efficiency in campus buildings:

- x ‘Watt Stopper’ technology. Avarad Dixon, the Dunn building and Campbell Hall all have sensors installed in their lighting systems that measure light and heat and operate the lights accordingly.
- x Automatic temperature reductions. Thermostats have a day/night setback that automatically sets the temperature back to 18 degrees at night and can be manually reset to 21 degrees during the day.
- x T8s over T12s. The university replaces all T12 fluorescent bulbs with T8s as replacements are needed.
- x LED exit lighting. The majority of exit signs on campus are LED rather than incandescent.

Sub-Indicator III. Buildings not in use are closed.

Any buildings not in use during the summer months are closed. In the (setHyl



Summary

Energy consumption at Mount Allison has increased, but energy efficiency is a high priority in the main areas of consumption on campus.

IV. The HVAC systems are monitored and repairs are done in a timely fashion.	n/a	A sophisticated computer system monitors the HVAC system and repairs are usually performed the same day they are detected.	--	--
Alternative energy sources are used.	The university has begun investigating alternative energy sources including solar shingles and a wind turbine, despite the cost difference. More research needs to be done on the feasibility of using renewable energy sources on this campus. Renewable energy technologies have not been incorporated into buildings on campus.	Investigations into alternative energy sources have so far been disappointing. The proposed wind turbine site was not appropriate, and solar panels have been found to be too expensive.	Use one alternative fuel source.	Fossil fuel free!
Government initiatives are monitored to ensure participation in relevant programs in the areas of pollution reduction and energy efficiency.	Government initiatives are monitored by staff in the Facilities Management department.	Government initiatives are monitored on an individual or departmental basis.	75% participation.	100% participation.

AIR EMISSIONS

Introduction

Since the Kyoto Protocol climate change has been at the forefront of today's global issues. This trend of global warming is melting ancient glaciers and ice sheets, endangering the survival of species and ecosystems, and increasing the frequency of weather disasters like floods, droughts, heat waves, wildfires, and tornadoes. As the Canadian government strives to reduce overall emissions 20% by the year 2012 it is up to Universities and other educational institutes to set the standard, putting the same sustainable methods taught in their classrooms into practice on their own campuses.

The 2005 Environmental Audit calculated Mount Allison's air emissions using the Clean Air Cool Planet CA₂ Calculator v4.0 (see appendix 8). The task it facilitates – the collection, analysis, and presentation of data constituting an inventory of the emissions of greenhouse gases attributable to the existence and operation of an institution – provides an essential foundation for focused, effective outreach on the issue of climate change at a college or university, and the basis for institutional action to

Indicator 3. Emission levels resulting from Solid Waste

The total tonnage of solid waste removed from campus for the period

- x Continue to restrict the use of automobiles on campus.
- x Create a section on air quality in the environmental policy, complete with performance indicators.
- x Bike or walk whenever possible.
- x Consider car pooling whenever driving is necessary.
- x Reduce energy and heat consumption whenever possible. (See chapter on Energy.)
- x Commit funds and fully support the implementation of alternative energy sources which do not create air pollution (eg: wind and solar energy) where economically feasible.

Long Term Goals:

- x Endorse an emissions reduction target for Mount Allison that meets or surpasses Canada's Kyoto Protocol commitment of 6% below 1990 levels.
- x Request that Sodexo purchase more food from local sources. This will reduce emissions resulting from transportation.

Indicator Summary

Indicator	State of Affairs 2002	State of Affairs 2005	Short Term Goal	
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HAZARDOUS WASTE

Introduction

Hazardous wastes come in a variety of forms and have a variety of negative impacts on the environment. “Hazardous wastes usually have one or more of the following characteristics; they are:

- x Corrosive: they eat or wear away at many materials
- x Flammable: they easily ignite
- x Reactive: they can cause an explosion or produce deadly vapours
- x Toxic: they are poisonous to humans and animals”

Improper disposal of hazardous wastes can result in pollution of the earth's





Goals and Recommendations:

Short Term Goals:

1. Minimize hazardous waste on campus.

- x Continue with microscale chemistry and efforts to utilize natural solutions for chemical analysis rather than creating chemical solutions. Using natural solutions will not only limit chemical use and therefore waste, but would also be a good tool for integrating environmental aspects into chemistry courses (for instance, comparison of soils from the King St. remediation site compared to soil on campus could demonstrate the polluting effects of the former foundry, See chapter on water use for details).
- x Formalize policy surrounding cleaning products to ensure environmentally friendly practices continue.

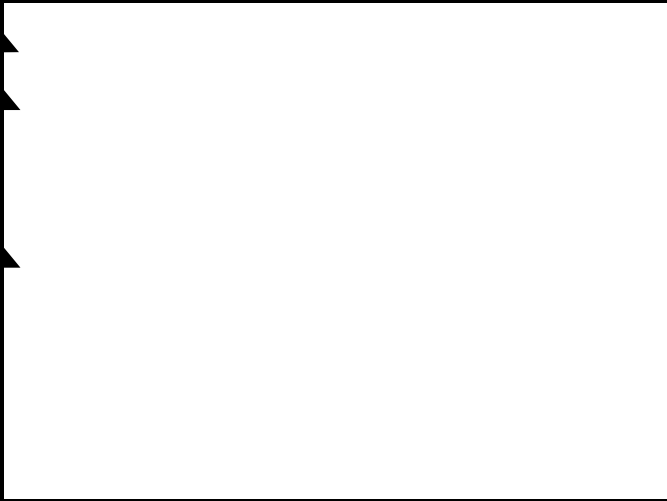
2. Fully monitor all hazardous materials on campus.

- x Create a university wide database that includes all hazardous materials used on campus.

Long Term Goals: Eliminate unnecessary

Indicator Summary

Indicator	State of Affairs 2002	State of Affairs 2005	Short Term Goal	Long Term Goal
Chemical wastes are minimized.	n/a	Expense of chemicals and their disposal provides incentive to keep wastes minimal.	Minimize hazardous waste on campus.	Eliminate unnecessary hazardous waste disposal.
<u>Sub-Indicator:</u> I. Microscale laboratories used.	The micro-scale method is implemented in the majority of chemistry classes at Mount A.	Same.	All appropriate instances utilize microscale chemistry.	Same.
II. Natural solutions are used instead of chemicals where ever possible.	n/a	Natural solutions are used in certain classes.	All appropriate instances utilize natural solutions.	Same.
Effective, environmentally friendly cleaning supplies are used.	A few Environmentally friendly cleaning supplies are being purchased but the use of these products is optional. Most products are still purchased with price foremost in mind.	Custodial staff uses only biodegradable cleaning products. Non-toxic solvents have replaced varsol for cleaning in Fine Arts. Drain cleaner presents no environmental issues.	All cleaning products are environmentally friendly.	Same.
All hazardous wastes are properly monitored and disposed of.	Hazardous Materials are monitored in series of smaller database systems. University-wide monitoring database has not yet been created.	There is currently no database that includes all hazardous materials used on campus. All disposal and transportation practices follow provincial and federal regulations.	Full monitoring of all hazardous materials on campus.	Go above and beyond regulations.



management is individual behaviour which is near impossible to monitor or control. As mentioned, education is the key to making waste management as effective as possible. Mount Allison would benefit from increased awareness throughout the entire university community and a university-wide strategy to reduce overall waste as most efforts in this area are individual or departmental.

The wet/dry system represents the major improvement for Mount Allison in terms of waste management. Not only does it ensure our waste is dealt with in a responsible manner, but it has also allowed for more detailed record keeping. Starting in February 2004 the university started paying for waste per tonne. This will allow Mount Allison to better develop a waste reduction strategy based on yearly trends of waste production. This system also requires solid education fo

Indicator Summary

Indicator	State of Affairs in 2002	State of Affairs 2005	Short Term Goal	Long Term Goal
There is an effective waste reduction program.	n/a	There is no waste reduction program on campus.	10% reduction.	30% reduction.
The wet/dry program is utilized effectively. (Assessed through educational efforts.)	In order to increase participation, participants require more information, and increased number of bins.	The wet/dry program has been implemented university wide, eliminating the need for a separate recycling program unless the university is interested in claiming redeemables for possible financial gain, something that is already in practice in the residences.	75% perfect sorting.	100% perfect sorting.
Furniture is offered for sale or donation prior to disposal.	Effort is made to make furniture available for sale or donation.	Furniture is stored and either re-used around campus when necessary or put in the university sale.	Furniture waste reduction.	Same.
Construction waste is recycled and re-used as much as possible.	n/a	Construction waste is offered to contractors for re-use. Otherwise it is recycled by Fero or Westmorland.	Construction waste reduction.	Same.

Basic Waste Flow

So, this is how it goes...



PAPER CONSUMPTION

We need to address our Nation's mounting garbage problem by generating less garbage, particularly paper waste.
-Wendell H. Ford

Introduction

One of the biggest issues of waste production in a university setting is paper use. Helmut Becker, Director of Computing Services reported student printing to be in excess of 500 000 pages last year in his department alone. Computing services and some department heads and faculty deans informally encourage professors to accept assignments electronically and to use WebCT, but formal avenues exist to ensure such practices. Paper waste was a complaint in almost all interviews regardless of the subject of the interview.

As well as examining how much paper is being consumed, the university must look at what type of paper is being consumed. There are a number of options available for the recycled content of paper. What is most important to consider is how much *post-consumer* content is present in the paper. Paper companies may claim to be making recycled paper, but without significant post-consumer content there is no reduction in overall waste production, an important consideration in paper use. Ideally the university would purchase recycled paper with 100% post-consumer content.

The following indicators were used to gauge the impact of Mount Allison's paper consumption:

Audit Evaluation

Indicator 1. There is an effective program to reduce paper consumption.

There is no program to reduce paper consumption on campus. Some departments make efforts to reduce their paper consumption, but these are individually or departmentally based and there is no university-wide strategy. (See Appendix 9 for graphs of paper consumption.)

Paper reduction efforts in the library:

- x Paper interlibrary loan forms will no longer be available in September 2005.
- x The librarian is working towards an integrated borrowing system with all other Atlantic universities that will expand the library's collection without necessitating the purchase of more books or journals in hardcopy form.
- x All books are catalogued electronically and the library is close to spending more on digital information than hardcopies (similar to UNB which already spends more on digital than on hardcopy).

The library makes no efforts to encourage students to reduce their paper waste in printing and photocopying because all copiers and printers are under the purview of Administrative Services.



Other campus efforts:

- x The university will be requesting double-sided printing as the default for each department unit in the new copier contract.
- x Students pay for each sheet of paper they print or copy on providing incentive to reduce the amount they print and copy.
- x The university maintains a strict 'no junk mail' policy and newspaper flyers are prohibited. The mass mailing service is priced very high to discourage requests for access to the student mail system.

- x Many faculty and staff make use of double sided printing and photocopying, and some departments have adjusted their default setting on their printers to do so.
- x Course calendar printings have reduced from 9 000 copies per year to 5 000 copies due to increased usage of the web calendar. As well, only new students receive a copy for registration.
- x The 2004/05 printings of *The Record* (campus alumni magazine) were done on 25% recycled paper with at least 10% post-consumer content.

Double-sided "printers" on campus (the people not the machines):

- x Social sciences department
- x Library staff
- x Computing services staff
- x Facilities Management staff

Indicator 2. The university purchases 100% post consumer content recycled paper.

Prior to April 29, 2005, Mount Allison used only virgin white paper. Testing was being done with 30% post-consumer content recycled paper but a new paper supplier presents financial issues as their virgin paper is significantly cheaper than their recycled. This testing of recycled paper was a positive step, but whether or not Mount Allison continues with recycled paper remains to be seen. At the time of this audit Support Services was waiting for input from all department heads regarding their preference for recycled or virgin paper before making the choice.

Summary

Though there are a number of individual efforts to reduce paper consumption on campus, there is little continuity and collaboration among them. These efforts have, however, been beneficial as paper consumption has gone down by over 2 million sheets per year since 1998. All members of the university community would still benefit from university wide policies surrounding paper use. Such policies would

represent a commitment by Mount Allison as an institution to reduce, rather than just individuals at Mount Allison doing so. Consistent paper reduction would not only reduce waste, but would also cost the school less money as they would need to buy less paper.

Want to know more?

The production process of recycled paper and virgin paper are almost identical, and most recycled paper contains some virgin material so that it is strong enough. However, recycled paper production uses less water and energy, creates less air and water pollution, requires few or no trees and provides jobs. The initial financial cost of recycled paper may seem more expensive than virgin paper but the savings to the environment reduce the overall cost in a number of ways. (See Appendix 10 for details.)

Goals and Recommendations:

***Short & Long Term Goal:* Reduce paper waste through reduced paper consumption.**

- x Continue defaulting all printers and photocopiers on campus to double-sided printing.
- x Formalize a university-wide policy stating that professors must accept the following:
 - o Double sided assignments
 - o Electronic assignments
 - o Double sided exams
- x Encourage faculty and staff to do the following:
 - o Use WebCT.
 - o Re-use paper printed on one side.
 - o Share documents among departments when more than one person has to read the same thing.
- x Re-use old envelopes.
- x Establish a paper waste reduction program.
- x Encourage students to do the following:



Indicator Summary

Indicator	State of Affairs 2002	State of Affairs 2005	Short Term Goal	Long Term Goal
<p>There is an effective program to reduce paper consumption.</p> <p>The university purchases 100% post consumer content recycled paper.</p>	<p>Paper waste continues to be a major issue at Mount Allison, paper consumption has steadily risen over the past six years.</p>	<p>There is no paper waste reduction program.</p>	<p>10% reduction.</p>	<p>30% reduction.</p>
<p>Number 5 paper contains 30% post-consumer and 20% pre-consumer</p>				

TRANSPORTATION

Introduction

Every morning, 2058 students and 339 faculty and staff make one common, but very important, decision; “How should I get to campus?” Most of us rarely give it a second thought, but collectively, our commuting choices have a greater impact than we often realize in the

The new bike racks were installed by the grounds keeping crew whenever there was new construction being done on campus buildings. Each residence also has storage rooms where students can store their bikes.

Bike Racks in 2002	Bike Racks in 2005
x Bell Library	x Jennings
x Crabtree	x Windsor Hall
x Music Conservatory	x Bennet Building
x Athletic Centre (2)	x University Centre
x University Centre	x Avarad-Dixon
x Dunn Building	x Music Conservatory
	x Bell Library
	x Barclay Building
	x Dunn Building (2)
	x Athletic Centre (2)
	x Truman House
	x Bennet House

The number of bike racks on campus demonstrates the university's commitment to facilitate transportation. Without research, however, the extent of alternative transportation on campus is difficult to assess because there is no recent information on the subject. The fall survey will give a better indication of how additional bike racks effect commuting. Despite the lack of information, Mount Allison should strive to educate and encourage alternative transportation.

One long term method of carrying this out would be to construct a network of bike paths across campus that would be separate from pedestrian traffic. The University of Illinois' Urbana-Champaign campus has established a sophisticated network of bike lanes and bike parking facilities. The bike lanes are removed from sidewalks and roadways and are well marked. This network has reduced building costs that would otherwise have gone to accommodate vehicular access. It has also improved the aesthetics and environmental quality of the Urbana-Champaign campus.

An Environmentally Friendly Way to Travel

When traveling on business you should keep in mind that a large source of emissions is from air travel – which is also one of the fastest growing sources of global warming gases in the world. What is more, aviation fuel

Indicator #2: Emission levels are taken into consideration when purchasing campus vehicles

There has only been one vehicle acquisition since the last audit and while emissions levels were taken into consideration before the purchase they did not have much bearing on the decision. The heavy work requirements of the vehicle limited such options as bio-diesel and hybrid vehicles.

As green vehicle options continue to develop and increase in the automotive industry future acquisitions for the university may include low emission vehicles.

There is a bicycle at Facilities Management for employee transportation across campus which reduces the use of other vehicles for short trips. No additional bicycles have been recommended for this audit as current use does not suggest a need.

Indicator #3: Policy effectiveness of vehicle policy

...can improve efficiency and consistency, as ... The current policy is focused towards these ... The policy have been neglected since it was first implemented. A review of the policy and re-training of employees of whom the policy directly applies to could be of great benefit for Facilities Management's operations.

The current university vehicle policy was approved in May 1998 to ensure safety and efficiency is maintained while employees operate university vehicles. The policy can be found on the Mount Allison website under the Vice-President Policies.

Elements of the policy include Responsibility, Operation, and Care and Maintenance. While overall operation and maintenance of the vehicles is satisfactory, there are some parts of the policy that are not adhered to. In particular, extended periods of idling, unnecessary vehicle use, and inconsistent vehicle log books are the major faux-pas'.

Indicator #4: Status of Mount Allison Commuter program

Information gathered from previous surveys indicates that the majority of students, and a high percentage of faculty and staff, live within a 5 kilometre radius of campus. This close proximity suggests that commuting by car to campus is only a behavioural stigma, rather than a geographic necessity.

Since Mount Allison campus is specifically focused on pedestrian and cyclist activity (vehicle access to campus buildings is strictly for university service/maintenance vehicles) it would be logical to have a commuting program that would compliment the unique design of campus. Programs such as the government of Canada's *Commuter Options: The Complete Guide for Canadian Employers* are ideal, low cost tools to implement this change.

Organizing a commuter survey during the school year has been recommended to Facilities Management in order to provide an accurate

baseline for measuring commuter activity. Once a baseline has been made, goals can be set and commuting trends can be monitored for change.



(See appendix 11)

Summary

The university's vehicle fleet is the same composition as the previous audit. A used 4x4 truck was acquired last year to replace an older model. Usage of the vehicles has remained roughly the same for the past three years.

The vehicle policy should be reviewed by Facilities Management employees. Updating and reaffirming the policy may decrease unnecessary use, reduce idling, and encourage drivers to maintain vehicle logbooks.

The university has done a mediocre job providing car pooling options. An unutilized drive board is located in the STUD and informal car pool groups have formed in some departments. It is recommended that a comprehensive commuter program is implemented to improve employee commuting options.

Goals and Recommendations:

Short Term Goals:

- x Implement a commuting program such as “The Complete Guide for Canadian Employers”.
- x Support, through the allocation of funds, the purchasing of zero or lower emission vehicles.
- x Stage an “Alternative Transportation” day to build awareness on campus.
- x When possible, arrange to use one vehicle for multiple tasks (e.g. custodial deliveries combined with carpentry deliveries).
- x Plant hedges in areas where people cut corners to prevent the problem of pedestrian damage to turf and tree roots.
- x Unless absolutely necessary, all members of the university community should avoid driving their vehicles onto the campus.
- x

Indicator Summary

Indicator	State of Affairs 2002	State of Affairs 2005	Short Term Goals	Long Term Goals
Bike racks are available at academic and residence buildings.	7 bike racks located across campus.	14 bike racks located across campus. Plans for additional bike racks as future construction on campus progresses.	Continue to add bike racks to all buildings.	Develop a bike path network across campus, specific to bike use.
Emission levels are taken into consideration in the purchase of vehicles	Emission levels have been considered during vehicle purchases but price and durability are two criteria that have been limiting purchasing options, particularly with hybrid 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 suitable.	Continue efforts in this area.	Purchase a zero emissions vehicle.
Vehicle operators adhere to Facilities Management policy	n/a	The majority of operating procedure in the policy is followed by employees. The few problem areas can be resolved with re-training or by implementing the recommended commuter programs.	Review and revise the vehicle policy and decrease idling time from 5 minutes to 30 seconds.	--
Status of Mount Allison Commuter program	n/a	An informal drive board in the STUD was used in a minimal capacity for a brief period of time. While the board still exists in the STUD it is no longer used.	Implement a comprehensive commuter program on campus.	--

Since the last audit, trim mowing has been significantly reduced. Facilities Management have been able to reduce the amount of trim mowing from 2 employees mowing all summer long, to one or two employees mowing for a day once every few weeks! Beds have been reshaped to accommodate ride on mowers, and walls have been constructed to reduce the need for weed-whacking and push mowing.

Summary

Facilities Management is contributing to decreasing our campus ecological footprint. A major move away from chemical pesticides exemplifies the changes happening in this department. Composting, conserving water, and using drought resistant landscaping are all commendable projects. Areas for improvement include encouraging the grounds to be used as educational and recreational spaces, and communicating more effectively with the campus community.

Ensure that grounds are managed sustainably

1. Plan for the future

- x Set out a clear environmental vision (see the “Stewardship” section) that includes details on how the grounds should be managed sustainably taking into account diversity, conservation, and education.

2. Create “accessible” greenspaces for the university community to enjoy

- x Create spaces, such as native plant gardens, butterfly gardens, medicine wheels, picnic areas, etc. that will encourage the community to use, and respect, the grounds at Mount A.

3. Ensure Landscaping is Low Input

- x Continue implementing low-input species of plants and trees (especially native species)
- x Look into alternatives to lawn (in certain areas, natives ground covers could replace high-input turf)

Goals and Recommendations:

Short Term Goals

4. Improve Communication

- x Improve communication with the university community, especially students about Facilities Management plans/changes and how students can get involved.

Long Term Goals:

1. Make Mount Allison 100% Pesticide Free!

- x Continue to limit the use of pesticides, and look into proactive alternatives such as compost tea and worm castings

Indicator Summary

Indicator	State of Affairs 2002	State of Affairs 2005	Short Term Goals	Long Term Goals
Pest Management				
Pesticides are used on campus only when required	Pesticides are currently used when pests are sited on campus. Spraying is limited to the problem area. The football fields continue to be sprayed with pesticides each year.	Until 2000 sprayed considerable amount of campus; now use a technique called Integrated Pest Management, using pesticides (as a spot application in sports fields) as a last resort.	Look into proactive alternatives to chemical pesticides such as compost tea and worm castings.	Make the campus 100% pesticide free.
Yard Waste				
Yard waste is composted and used as mulch	n/a	Yard waste (such as grass clippings) are composted on site, and used as mulch/fertilizer.	Keep it up!	--
Design				
Native species of plants are incorporated into campus landscape	n/a	Native species are widely planted on campus which is incorporated into the overall drought resistant landscaping being used. Currently, about ½ the trees on campus are native species.	Continue to plant native species of plants and trees. Consider alternatives to grass (in some areas) with a native ground cover that requires less input.	
Drought resistant landscaping used	n/a	This technique is being used. Watering is only done on the sports fields, and on some beds when plants are newly transplanted.	Keep it up!	--
Education				
Grounds used as an educational space	n/a	Grounds continues to partner with several departments on campus (Biology, for example) to use campus grounds as a laboratory, space for art installations and performances, etc.	Make campus grounds more accessible to all students by: -Planting educational gardens (with native species, or medicinal herbs for example). -Encouraging the campus to engage with the grounds through programs such as "Adopt A Plot," or "Friends of the Garden".	--

Grounds Keeping n/a
communicates with
campus community

There is no formal system to let the university community what is being planned by the grounds crew (i.e, the cutting down of a diseased tree).

RISK PREVENTION

“For the first time in the history of the world, every human being is now subjected to contact with dangerous chemicals, from the moment of conception until death.” ~ Rachel Carson, *Silent Spring*, 1962

Introduction

We are very fortunate to have such a beautiful campus and to be situated in such a lovely town as Sackville. With that said, it is the university's responsibility to take all precautions to protect the campus and town from any risks created as a result of university operations. Mount Allison needs to identify potential environmental risks and determine ways to handle them in the case of occurrence.

This chapter reports on the university's various environmental risks and outlines training and mechanisms that are in place to ensure continuous due diligence and compliance with government regulations. Having the proper response procedures for potential risks also reduces the university's exposure to prosecution and enhances the University's reputation as a responsible corporate citizen.

Audit Evaluation

Indicator 1. The reporting system for environmental risks.

Reporting environmental and health and safety risks is an ongoing process which requires consideration for past, current and potential impacts.

Mount Allison bases its reporting and risk assessment on two main factors: government regulations and exercising due diligence. These are the two foremost considerations when determining whether or not to perform a risk assessment. Considerations for reporting risks include:

- x Identification of activities which may have potential beneficial or adverse impacts on the environment and on health and safety
- x Creation of procedures for evaluating the potential impacts of new projects
- x Identification of potential impacts associated with changes or modifications to university facilities
- x Identification of the potential scope and severity of impact related to mechanical or other system failure and associated remedial considerations

Currently Mount Allison is adhering to, or in the process of adhering to, all regulations which apply to universities under the Canadian Environmental Protection Act (1999) (see appendix 13).

Indicator 2. Risk control procedures.

While universities are required to continually evaluate potential risks and identify new risks as they arise the list of environmental risks for a university such as Mount Allison is relatively small. There is only one major environmental risk at Mount Allison: a spill of the main heating tank. Other environmental risks include:

- x Asbestos removal (see Asbestos box)
- x Water contamination and backflow (See Water Chapter)
- x Hazardous chemicals (See Hazardous Materials chapter)

Dyke Specifications

Containment features such as dykes must be constructed around tank or drum storage areas in accordance with the Guidelines as listed below.

- x the impoundment within the dyke system enclosing one or more tanks is calculated as the total enclosed volume minus the volume of up to the height of the dyke of all tanks other than th

Goals and Recommendations:

Short and Long Term Goal: To exercise due diligence in all university operations that have a potential environmental risk.

- x Construct a containment dyke around the heating bunker
- x Develop an emergency response training program for heating plant technicians
- x Conduct a risk assessment of the entire campus

Indicator Summary

Indicator	State of Affairs 2002	State of Affairs 2005	Short Term Goals	Long Term Goals
The reporting system for environmental risks.	n/a	yes	Continue to exercise due diligence in university operations.	Do a risk assessment on campus.
Risk control procedures.	n/a	no	Develop internal spill control procedures.	--
Preventative measures for potential risks.	n/a	no	Construct a containment dyke for the heating bunker.	Continue to evaluate potential risks and develop preventative measures accordingly.
Employee training for environmental risk incident.	n/a	no	Develop an emergency response training program for heating technicians.	Conduct emergency response training every two years at least.

PROCUREMENT

When making procurement decisions many elements need to be taken into consideration. Factors such as raw materials acquisition, production, manufacturing, packaging, distribution, operation, and disposal of the product have an impact on the environment. Benefits of choosing products that have a lesser or reduced effect on the environment include: superior risk management, eco-efficiency, stronger supplier relationships, and improvements in environmental performance.

Good examples of the benefits of “green” products are energy-efficient vehicles and renewable energy which cut greenhouse gas emissions and harmful air pollutants while lessening our dependence on imported oil.

Introduction

With new legislation for Kyoto and higher expectations from consumers it is inevitable that the supplier chain will need to turn over a new “green” leaf. With more accountability comes more disclosure, making it easier to source products to their corporations.

Corporations have also begun to see the benefit of greening their practices and improving the supply chain. *Purchasing professionals create contracts that include those environmental dimensions requested by consumers and shareholders and required by governments, at the same time as maintaining or even reducing costs. It shows that, both logically and strategically, they are our “environmental gatekeepers.”* (Buying for the Future, 2000)

Is the purchasing process ignoring fundamental social and environmental issues? Above all, could new purchasing initiatives based on environmental principles be significantly more cost- and resource-effective for the university?

Pollution Prevention/Environmental Impact Considerations

- x Energy efficiency and conservation
- x Natural resource depletion
- x Forest and ecosystem protection
- x Water efficiency
- x Waste minimization
- x Hazardous waste reduction
- x Toxic material content
- x Adverse effects to workers, animals, plants, air, water and soil
- x Recyclable content
- x Recyclability of waste resources
- x Resource conservation
- x

Audit Evaluation

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

requesting certain standards or criteria when submitting a request it is possible to reduce a large list of available products to a short list of the most environmentally sound products.

Additional benefits of educating Mount Allison employees include energy savings, reduce waste streams, and minimal packaging.

Education on the part of the requester is just as important as the education of the purchaser as the two work hand in hand to determine appropriate criteria for a contract. Consumer consciousness programs can improve employees' knowledge of green alternatives for traditional products.

Goals and Recommendations:

Short Term Goals:

- x Develop an environmental procurement strategy to "green" the supply chain
- x Implement a consumer consciousness program to improve faculty and staffs' understanding of purchasing decisions

Long Term Goals:

- x Sign the CERES Principles
- x Establish an Environmental Purchasing Policy which stipulates that recycled, non toxic and renewable product alternatives be favoured by the purchasing department whenever the product is less than 5% more expensive than its conventional alternative.

Summary

Despite limited purchasing power, initiatives can be taken to make our supply chain more environmentally friendly. Developing an environmental procurement strategy is the initial step towards greening the supply chain. Other techniques, such as environmental purchasing policies or amending declarations such as the CERES principles, have been shown to further environmental plans, but it should be noted that some of these techniques can constrict purchasing choices rather than increase eco-friendly options.

The CERES Principles

The Coalition for Environmentally Responsible Economies (CERES) was formed in 1989 to promote responsible corporate environmental conduct. Shortly

(See Appendix 14 for a more detailed copy of the CERES Principles.)

Indicator Summary

Indicator	State of Affairs 2002	State of Affairs 2005	Short Term Goals	Long Term Goals
In the purchase of products, the following factors are taken into consideration: a) reduced packaging; b) environmental performance c) reduced consumption; d) construction and longevity.	Minimal consideration was given to these factors due to price, quality, warranty, and durability taking precedence.	More consideration is given to these factors, mainly as a result of consumers and shareholders demanding higher environmental standards and more accountability from suppliers.	Continue to take environmental factors into consideration on an inter-university purchasing level. Mount Allison's own purchasing benefits from our purchasing associations increasing standards.	Establish an environmental purchasing policy.
Development of environmental procurement strategy.	n/a	No environmental procurement strategy exists at this time.	Develop an environmental procurement strategy to stimulate environmental initiatives along the supply chain.	--
Staff and faculty's environmental consciousness of their purchasing requests.	n/a	No efforts have been made to improve the environmental consciousness of faculty and staff.	Implement a consumer education program to improve the purchasing decisions of university employees.	--

ACADEMIC OPPORTUNITIES

"Institutions of higher education bear a profound moral responsibility to increase the awareness, knowledge, skills and values needed to create a just and sustainable future."

- x A new professor has been hired to coordinate the environmental science program. This new addition to the faculty is a large accomplishment (particularly for a small university) which adds new talent and leadership to the program.
- x Recent faculty additions to the Social Sciences have keen environmental interests. While environmental interest was not a criteria for hiring, this increased support from faculty will help push environmental progress.
- x The McCain post-doctoral grant (floating one year doctoral position which moves from department to department) is reserved for Geography next year. Since Environmental Studies is closely linked with Geography, this will increase the human resources of the department.
- x Two additional seats were created at departmental meetings for the Environmental Studies and International Relations coordinators. These programs, which involve environmental and social issues, now have more influence on departmental decisions.

The main contribution to an improved environmental curriculum has been the gradual, but significant increase in concerned faculty across campus. Over the past 5-6 years an increasing number of professors have contributed by teaching environmental courses of one kind or another in all disciplines. One very recent example is the hiring of Zoe Finkel, the new coordinator for Environmental Science.

The Environmental studies program has made the most progress since the last audit in terms of enhancing the environmental curriculum at Mount Allison. Two years ago the Environmental studies coordinator received a budget specific to his department. The coordinator has also experienced continuing growth in all classes and 2006 will see the largest number of graduating majors yet (10-12 are due to graduate with majors in Environmental Studies).

The environmental contribution of Mount Allison's curriculum is not exclusive to Environmental Studies and Science, but it is centered in these two departments. Increased support is necessary to enhance the

profile and course offerings of these two departments. Faculty from all disciplines would benefit from education on incorporating environmental issues into their courses.

Summary:

Since the 2002 Audit environmental academics has lost pace in many areas of the university. This is not to say that environmental curriculums have not progressed, but they have not achieved the same level of success experienced since the first audit (1998) and have assumed a much more conventional progression process.

The progress which has taken place the last three years is due to individual interest much more than institutional commitment. This suggests that while there are faculty and staff who support environmental progress, administrative leadership on these issues is insufficient.

Goals and Recommendations:

Short Term Goal: Integrate more environmental content into curriculum.

- x Educate faculty in all disciplines on environmental issues so they may integrate them into their courses.
- x First year courses, in particular, should be "greened" due to their high enrollment.
- x The environmental audit can be used to integrate environmental issues into various courses.

Long Term Goal: Every graduate should have a basic understanding of environmental responsibility.

- x Use university projects as an educational tool. For example, a business course could analyze the cost benefits of a waste management program.
- x Every student should complete a Sustainability Literacy Survey and Sustainability Pledge.

- 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.

STEWARDSHIP

Introduction

Stewardship is about taking care of the resources that have been entrusted to us. It is our responsibility to take care of our surrounding natural environment (air, land, water, etc) by ensuring that whatever actions we take do not disrupt natural ecosystems. When we build a new building, make food orders, landscape, and throw away waste, we must ensure that we are doing it with the lowest environmental impact as possible.

The focus of campus environmental stewardship is about creating a sustainable campus which includes everything from conserving natural resources, serving locally produced foods, and creating a culture of environmental responsibility.

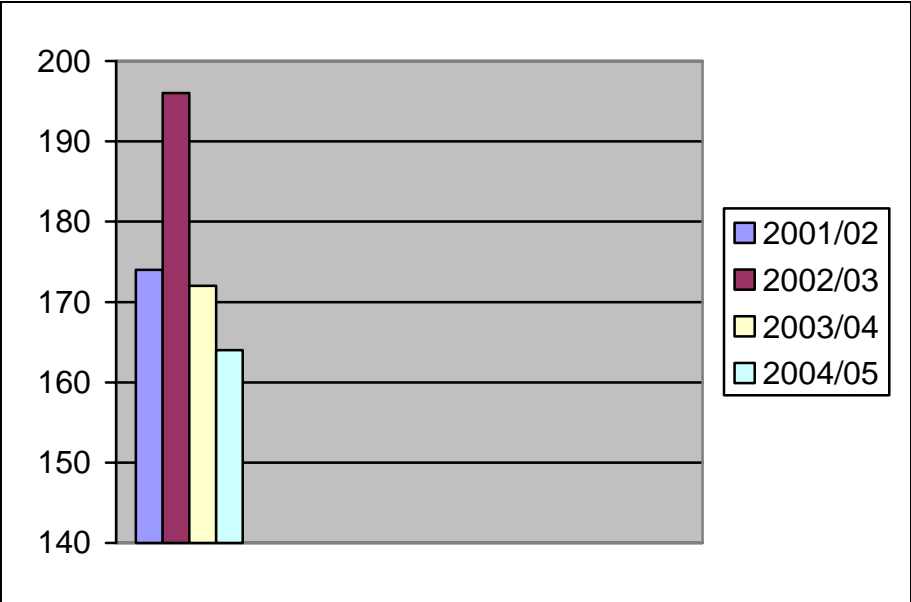
in need of implementation. The Environmental Issues Committee needs to

Conclusion

Based on the evaluation of each chapter's performance indicators, Mount Allison is performing on par with most other universities of its size. Areas ranging from water use, to hazardous waste, to paper consumption reveal that we do not stray from the status quo when it comes to being an

Appendix 1

Overall Water Use (Million Litres)



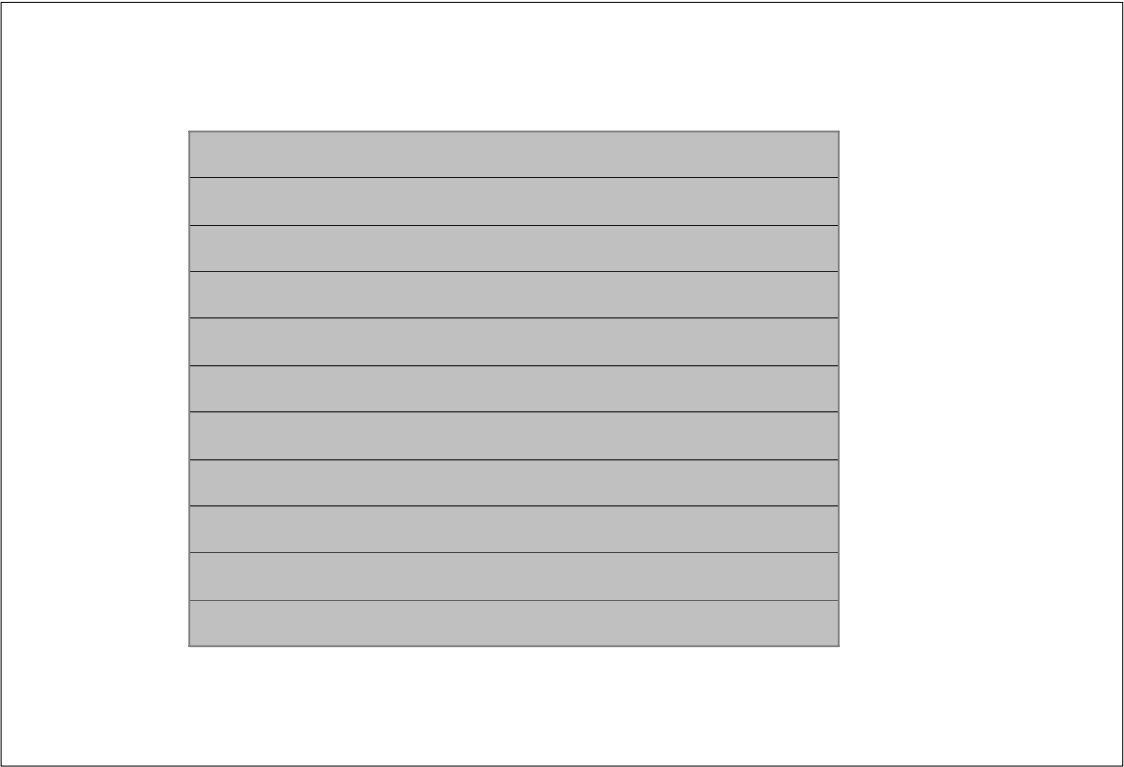
Appendix 2²

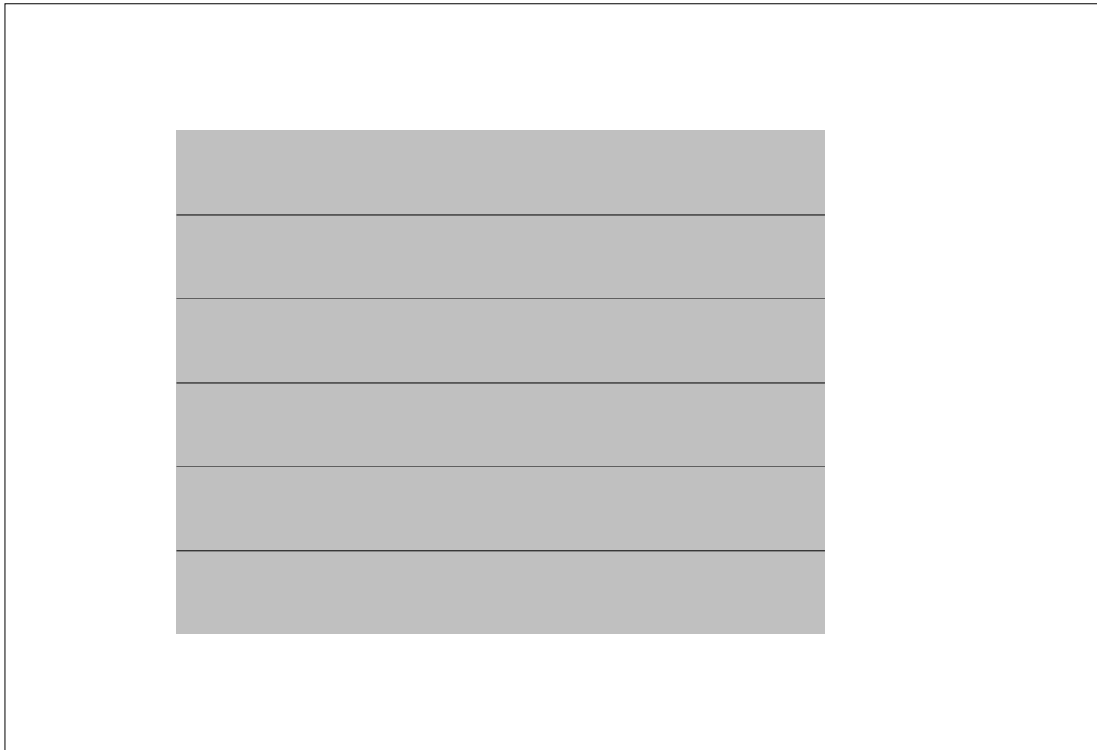
² Taken from the humanure handbook
http://www.weblife.org/humanure/chapter2_1.html

Appendix 3

Living Machines

“A Living Machine (capital letters, it's a patented invention) is a series of tanks teeming with live plants, trees, grasses, algae, koi and goldfish, tiny freshwater shrimp, snails, and a diversity of microorganisms and bacteria. Each tank is a different mini-ecosystem designed to eat or break down waste. The process takes about four days to turn mucky water crystal clear.”









Appendix 7

DID YOU KNOW?

This room uses 'Watt stoppers'. These intelligent sensors use passive infra-red and ultrasonic technology to sense occupancy through movement and heat and turn the lights on & off accordingly.

This technology saves the school electricity and money and improves our environmental performance.

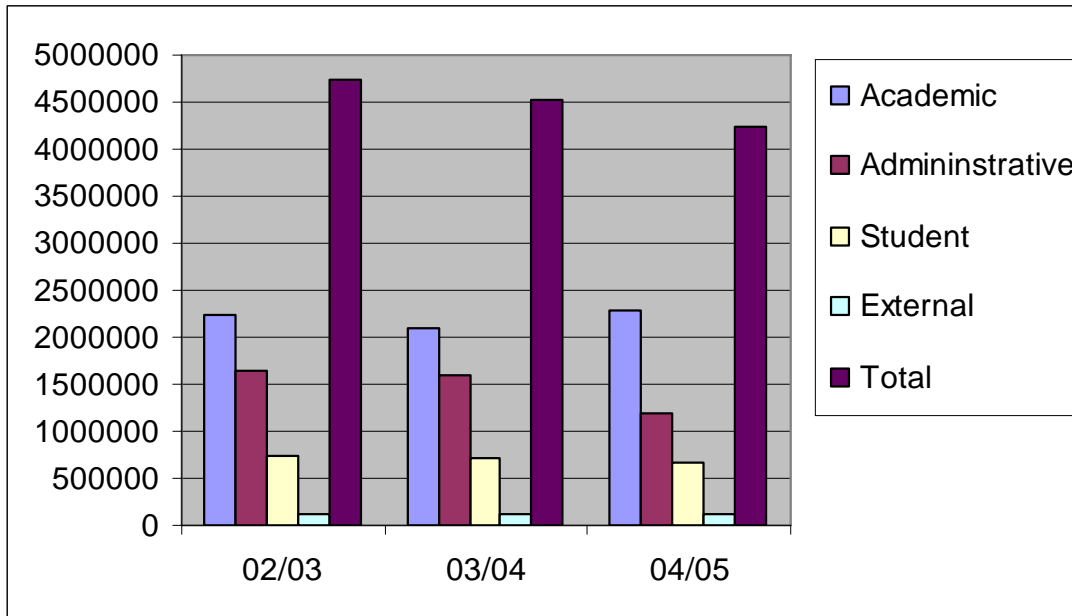
Appendix 8

Campus Greenhouse Gas Emissions Inventory Toolkit CA-CP eCalculator v4.0 Canadian Version

This CA-CP Campus GHG Emissions Inventory Calculator is the Canadian version of a tool that has been used at over 20 schools since 2001, mostly in the Northeastern U.S. The task facilitates – the collection, analysis, and presentation of data constituting an inventory of the emissions of greenhouse gases attributable to the existence and operations of an institution – provides an essential foundation for focused outreach on the issue of climate change at a college or university and the basis for institutional action to address it.

Paper Consumption³

Year	02/03	03/04	04/05
Academic	2231831	2106168	2275565
Administrative	1644133	1596144	1188044
Student	740309	713671	661250
External	123227	109517	116641
Total	4739500	4525500	4241500



³ Information courtesy of Judy VanRooyen

Appendix 10

1. Paper begins with wood chips. Wood chips are made of cellulose wood fibres and the binding agent lignin. Making pulp from these wood chips is the first step in paper

THIS IS HOW RECYCLED PAPER IS MADE:

1. You use paper products and save them for recycling.
2. The paper is collected and sorted.
3. Then it is delivered to a paper mill.
4. Where it is prepared for de-inking.
5. In de-inking, paddles beat the paper to pulp and remove old ink, glue and staples.
6. A screen shakes the pulp into a flat wet mass which is moved to...
7. Heated drying rollers which squeeze water out of the pulp and dry it into new paper and cardboard.
8. The new paper and cardboard are then delivered to printers and box makers...
9. Who use it to make new products.

Source:

Appendix 12

Mount Allison's Integrated Pest Management (IPM) Procedure (as determined by ground keeping manager 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 a problem, MECHANICAL METHODS are used (parts of the plant are removed, wire brushes remove scale, flame thrower burns weeds, high pressure water removes 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

Appendix 13

The following paragraph is the Emergency Reporting Section found on page 3 of Schedule A in your current Approval to Operate (4648):

EMERGENCY REPORTING

8. The Approval Holder, operator or any person in charge of the Facility shall immediately report to the New Brunswick Department of the Environment and Local Government where:
- there has been, or is likely to be, an unauthorized release of solid, liquid or gaseous material including wastewater, petroleum or hazardous materials, to the environment;
 - there has been a violation of the Air Quality Regulation, the Water Quality Regulation or any Approval issued thereunder; or
 - a release of a contaminant or contaminants of such magnitude or period that there is concern for the health or safety of the general public, or there could be significant harm to the environment.

During normal business hours contact the:

Moncton Regional Office
(506) 856-2374

After hours, or when there is no answer at the Regional Office contact the:

Canadian Coast Guard
1-800-565-1633

All reports shall include:

- a description of the source, including the name of the owner or operator;
- the nature, extent, duration and environmental impact of the release;
- the cause or suspected cause of the release; and
- any remedial action taken or to be taken to prevent a recurrence of the violation.

The following paragraph is the Emergency Reporting Section that will be included in your re-issued Approval to Operate (which will be completed within the next few months):

EMERGENCY REPORTING

Immediately following the discovery of an environmental emergency, a designate representing the responsible party shall notify the Department in the following manner:

During normal business hours, telephone the applicable Department Regional Office. Personal contact is made (i.e. no voice mail messages will be accepted) and provide as much information that is known about the environmental emergency. The telephone number for the Regional Office is provided below:

Moncton Regional Office (506) 856-2374

After hours, telephone the Canadian Coast Guard. Personal contact is made and provide as much information that is known about the environmental emergency. The telephone number for the Canadian Coast Guard is 1-800-565-1633.

Within 24-hours of the time of initial notification, a faxed copy of a Preliminary Emergency Report shall be filed by a designate representing the responsible party to the applicable Regional Office within the Department and the Department's Central Office using the fax numbers provided below. The Preliminary Emergency Report shall clearly communicate as much information that is available at the time about the environmental emergency.

Within five (5) days of the time of initial notification, a faxed copy of Detailed Emergency Report shall be filed by a designate representing the responsible party to the applicable Regional Office within the Department and the Department's Central Office using the fax numbers provided below. The Detailed Emergency Report shall include, as minimum, the following: i) a description of the problem that occurred; ii) a description of the impact that occurred; iii) a description of what was done to minimize the impact; and iv) a description of what was done to prevent recurrence of the problem.

Moncton Regional Office (506) 856-2370

Appendix 14

Ceres Principles

In the fall of 1989, Ceres announced the creation of the Valdez Principles (later renamed the Ceres Principles), a ten-point code of corporate environmental conduct to be publicly endorsed by companies as an environmental mission statement or ethic. Imbedded in that code of conduct was the mandate to report periodically on environmental management structures and results. In 1993, following lengthy negotiations, Sunoco became the first Fortune 500 company to endorse the Ceres Principles. Today, the tide has changed dramatically. Over 50 companies have endorsed the Ceres Principles, including 13 Fortune 500 firms. By endorsing the Ceres Principles, companies not only formalize their dedication to environmental awareness and accountability, but also actively commit to an ongoing process of continuous improvement, dialogue and comprehensive, systematic public reporting. Endorsing companies have access to the diverse array of experts in our network, from investors to policy analysts, energy experts, scientists, and others.

Protection of the Biosphere

We will reduce and make continual progress toward eliminating the release of any substance that may cause environmental damage to the air, water, or the earth or its inhabitants. We will safeguard all habitats affected by our operations and will protect open spaces and wilderness, while preserving biodiversity.

Sustainable Use of Natural Resources

We will make sustainable use of renewable natural resources, such as water, soils and forests. We will conserve non-renewable natural resources through efficient use and careful planning.

Reduction and Disposal of Wastes

We will reduce and where possible eliminate waste through source reduction and recycling. All waste will be handled and disposed of through safe and responsible methods.

Energy Conservation

We will conserve energy and improve the energy efficiency of our internal operations and of the goods and services we sell. We will make every effort to use environmentally safe and sustainable energy sources.

Risk Reduction

We will strive to minimize the environmental, health and safety risks to our employees and the communities in which we operate through safe technologies, facilities and operating procedures, and by being prepared for emergencies.

Safe Products and Services

We will reduce and where possible eliminate the use, manufacture or sale of products and services that cause environmental damage or health or safety hazards. We will inform our customers of the environmental impacts of our products or services and try to correct unsafe use.

Environmental Restoration

We will promptly and responsibly correct conditions we have caused that endanger health, safety or the environment. To the extent feasible, we will redress injuries we have caused to persons or damage we have caused to the environment and will restore the environment.

Informing the Public

We will inform in a timely manner everyone who may be affected by conditions caused by our company that might endanger health, safety or the environment. We will regularly seek advice and counsel through dialogue with persons in communities near our facilities. We will not take any action against employees for reporting dangerous incidents or conditions to management or to appropriate authorities.

Management Commitment

We will implement these Principles and sustain a process that ensures that the Board of Directors and Chief Executive Officer are fully informed about pertinent environmental issues and are fully responsible for environmental policy. In selecting our Board of Directors, we will consider demonstrated environmental commitment as a factor.

Audits and Reports

We will conduct an annual self-evaluation of our progress in implementing these Principles. We will support the timely creation of generally accepted environmental audit procedures. We will annually complete the Ceres Report, which will be used against an endorser in an

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1. All information about WASWC was taken from a tour conducted June 1, 2005 and the 2004 Annual Report. Additional information and details about WASWC can be found at <http://www.westmorlandalbert.com/>