3 sustainability

3 SUSTAINABILITY

3.1 Definition

In 1987, the World Conference on Environment and Development defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). Since then, sustainability has been understood as the need for all development to take place in an environmentally, socially and economically responsible fashion – over the long term, rather than the short term.

This chapter will focus on the environmental side of the equation although it is understood that social and financial sustainability are of equal importance.

3.2 Purpose

In every community, universities are entrusted with the role of catalyst for change, acting as a source and champion of innovation in the development and application of knowledge, technology and ethics. As a major community leader, employer and educator, Saint Mary’s influence ranges from the community to the national scale. In light of this impact, it is clear that the transformation of the campus into a catalyst for environmental sustainability should be an integral part of Saint Mary’s mission. Increasingly, students, faculty and staff have strong views about the health of the environment, and have expressed their opinion about the use of pesticides, the sourcing of food on campus, the origin of clothing sold in the bookstore and the preservation of the natural environment around campuses. Universities themselves are increasingly realizing that environmental initiatives not only result in a healthier environment in the long term, but can have an effect on the bottom line within a relatively short term. For instance, energy savings as a result of the replacement of light bulbs with power-saving models or window replacements yield recognizable savings in operating costs.

A sustainable campus can:

- Enhance the reputation of the institution and serve as a recruiting tool for faculty, staff and students;
- Provide opportunities for research and information sharing;
- Help fulfil Canada's commitment to reduce greenhouse gas emissions;
- Contribute to a healthier campus and local environment.

Because sustainability impacts virtually every aspect of campus growth and operations, sustainability principles have permeated the entire Campus Plan. This section captures and summarizes key initiatives that should be pursued to make Saint Mary's a leader in sustainability, both among Atlantic institutions and Canadian universities. The Campus Plan should be accompanied by a Saint Mary's Sustainability Strategy. Following the adoption of the Campus Plan, Saint Mary's should contemplate the preparation of a comprehensive sustainability strategy built on a highly developed consultation strategy which leads to a set of detailed and precise principles, goals, targets, actions and an implementation plan against which progress can be measured.

3.3 Sustainability in Universities

A worldwide movement exists to promote sustainability in universities. In 1990, a diverse group of university presidents and chancellors signed the Talloires Declaration in Talloires, France. Since then, the declaration has been signed by over 300 university leaders in over 40 countries. The University Leaders for a Sustainable Future promotes the declaration and acts as a repository of information for best practices in this domain.

Please note that the emphasis placed on campus planning and operations in the remainder of this chapter is not intended to diminish the importance of incorporating sustainability in the curriculum.

3.4 A Comprehensive Approach

For the implementation of sustainable guidelines to be effective, a comprehensive, systematic and strategic approach should be pursued. This means that every process and activity on campus is reviewed for its environmental impact, taking into account social and economic implications. The following components are suggested as part of this approach:

The Talloires Declaration

Universities have a major role in the education, research, policy formation and information exchange necessary to make these goals possible. Thus, university leaders must initiate and support mobilization of internal and external resources so that their institutions respond to this urgent challenge.

We, therefore, agree to take the following actions:

1. Increase Awareness of Environmentally Sustainable Development
2. Create an Institutional Culture of Sustainability
3. Educate for Environmentally Responsible Citizenship
4. Foster Environmental Literacy for All
5. Practice Institutional Ecology
6. Involve All Stakeholders
7. Collaborate for Interdisciplinary Approaches
8. Enhance Capacity of Primary and Secondary Schools
9. Broaden Service and Outreach Nationally and Internationally
10. Maintain the Movement

3.5 A Bottom-Up Approach

The vision of a more sustainable campus is everyone's job. While champions are needed at the senior level of the administration, everyone on campus should be involved in carrying out this vision. A number of methodologies have been developed to assist organizations in this regard. One is 'The Natural Step', an approach originally developed in Sweden for municipal governments. In 'The Natural Step', a 'bottom up' approach is pursued: instead of change being imposed from the top, sustainability becomes everyone's business. Workshops are conducted in every department to ensure that each employee is made aware of the importance of sustainability and empowered to contribute solutions and implement sustainable practices on the job. Targets and responsibilities are established at the department level. To date, only one university in Sweden has undergone the Natural Step process, although the process has been applied to various municipalities in Canada, including Halifax.

The 'Bottom-Up' approach should be complemented with a 'Top-Down' approach whereby senior management provides the leadership and initiative to empower the organization to change – for example through the creation of a sustainability committee that is charged with gathering data and establishing targets, and that reports directly to the President.

3.6 Lifecycle Costing

An important step in the implementation of sustainability is the consideration of lifecycle costs: the added cost of acquisition, maintenance, replacement and operation over the lifetime of an object. The relevance of lifecycle costing to sustainability stems from the role of energy in the operation of buildings, machinery and vehicles. Since a premium is often attached to energy efficiency, it is important to consider lifecycle costs and coordinate capital and operational budgets. In parallel, discussions can be held with funding organizations and governments to explain the benefit of lifecycle costing, especially as part of fundraising efforts for new buildings. In addition to lifecycle costing, external costs and benefits should be recognized as much as possible. This means that costs and benefits not normally accounted for, either environmental or financial, are taken into account in decision-making.

Enviro-facts

The average Canadian is responsible for the release of 6 tons of greenhouse gases per year.

3.7 Sustainability and Incentive Systems

The implementation of the most thoughtful policies will only succeed with a solid process in place to ensure that job descriptions and incentives clearly specify the need for sustainable practices. Too often, employees are primarily rewarded for keeping costs down and vendors retained on the basis of price. In addition, budgets should be revised to accommodate lifecycle costing and changes in labour requirements. For example, as drought-tolerant grasses and ground covers limit the need for lawn mowing and irrigation, the effective costs or savings of these changes should be calculated for the budgeting process.

3.8 Sustainability in the Curriculum

By weaving sustainability into its curriculum, Saint Mary's can establish itself as a leader in environmental education and research, in addition to sparking new ideas on how to constantly improve its own practices. Because sustainability has social, environmental and economic dimensions, every discipline presents opportunities to include sustainability in its curriculum. Students can be provided with opportunities to work on long-term study projects that involve sustainability, and research programs can be established to further advance the state of knowledge in environmental science and education, with opportunities for partnerships with internal and external entities involved in the day-to-day implementation of sustainability.

The Sustainability program can also constitute a source of on-campus employment for students, for example in recycling, composting, manual grounds maintenance and training others in sustainability practices. Finally, a sustainable campus provides opportunities for outreach programs such as summer camps and community outreach.

Sustainability should be integrated in orientation activities, for example through workshops or distributed literature. Topics can include energy and water conservation, and minimizing waste production. Tips should also be posted in residence halls, for example in hallways and laundry rooms.

3.9 A Proactive Approach

Because of the relatively recent awareness and emphasis on sustainability and the small size of the Nova Scotia and even Canadian market, some products and services available elsewhere may not be available or cost more. Examples include organic produce, renewable power, 'green' construction materials or the recycling of electronics. Saint Mary's should pursue a proactive approach in collaboration with allied institutions such as other universities, school boards, government agencies and private firms to encourage the growth of a market for sustainable products, services and practices in HRM, a prime example being joint management of transportation through a Transportation Management Association.

Learning about sustainability.

3.10 A Supportive Environment

Asking staff to take on extra responsibilities is a difficult task. Therefore, it is suggested that the University consider the establishment of a Sustainability Coordinator position on a part or full-time basis, leading eventually to the creation of a small Sustainability Office. At first, the coordinator position can be split with a part-time instructor position. This arrangement facilitates the funding of the position and allows for the coordination of campus sustainability initiatives and curriculum content. This approach was followed by the University of Prince Edward Island.

The Sustainability Coordinator is responsible for coordinating the participation of departments and administrative units: by facilitating workshops and providing encouragement, education and resources. The Coordinator could also act as a consultant to assist departments in their efforts, perform research as needed, suggest alternatives to current practices and provide lifecycle costing information for future capital expenditures. This includes identifying alternative suppliers and products, evaluating competing solutions and researching the impact of alternatives. For example, the Coordinator could recommend the use of power-saving bulbs, but point out their mercury content and coordinate their disposal. An important function is to 'train the trainer', which involves identifying and training departmental sustainability coordinators who can propagate information and centralize questions. The Coordinator can also facilitate partnerships with suppliers and other public and private institutions in the region to pool purchasing power and coordinate requirements. To facilitate the work of the Sustainability Coordinator and the implementation of Sustainability on campus in general, adequate financial, human and administrative support is necessary. Some of the savings resulting from the implementation of recommendations, such as improved energy efficiency, should be earmarked as funding for the Sustainability Coordinator position. As mentioned earlier, the continuous support of senior management is crucial to ensure the success of the Sustainability Coordinator and sustainability initiatives in general over the long term.

Enviro-facts

Santamarians who park on campus make close to an estimated 200,000 car trips to the campus every year, consuming over 250,000 litres of gasoline and resulting in 636 tons of Greenhouse Gas (GHG) emissions.

3.11 Monitoring Systems

Monitoring systems are needed to track progress over time against pre-established targets, and to identify areas in which further progress is needed. Over time, partnerships can be established with compatible institutions to agree on a common measuring system to allow benchmarking. Each year, a report should be produced to publicize the progress made at Saint Mary's, inspire other organizations and encourage further efforts. Senior management, or an ad-hoc committee composed of various university stakeholders, should be accountable for progress.

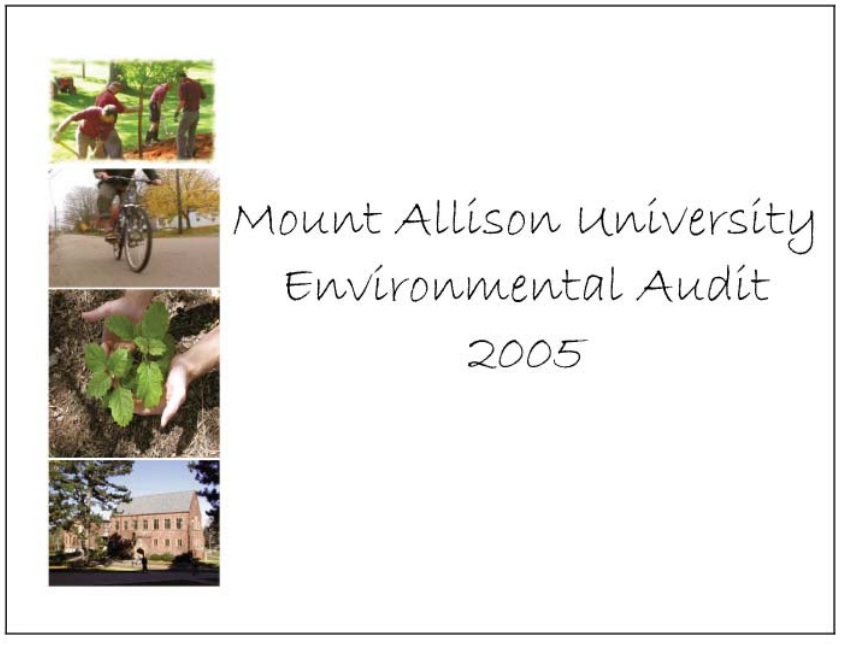
3.12 Towards Measuring Saint Mary's Environmental Impact

As an example, if energy consumption from heating, power and commuting were calculated informally, these could be part of a formal process to evaluate Saint Mary's environmental impact as a first step to programming improvements. Examples of metrics are provided in the green boxes dispersed throughout the chapter. The examples provided also show that many emissions can be reduced through individual efforts – driving less, turning off the lights or using occupant sensors, walking instead of taking the elevator, turning off computers, etc.

3.13 The Mount Allison Example

Mount Allison University has been conducting a detailed Environmental Audit for four years. The document contains facts on the relevance of various indicators, the University's absolute and year-to-year comparative performance, as well as objectives and recommendations for implementation. The clarity of the document makes it an attractive and compelling read. The document covers the following themes:

- Dining Services
- Water Use
- New Buildings and Renovations
- Energy Use
- Air Emissions
- Hazardous Waste
- Solid Waste
- Paper Consumption
- Transportation
- Grounds Keeping
- Risk Prevention
- Procurement
- Academic Opportunities
- Stewardship



3.14 Campus Sustainability Initiatives

The following section provides an overview of areas where sustainable practices should be incorporated into the design and operation of the campus and its functions.

3.14.1 Buildings

Through their construction, maintenance and operation, buildings have a significant impact on the environment. Buildings consume about 38% of total Canadian secondary energy use, produce about 30% of total Canadian greenhouse gas emissions and use 40% of raw materials.

General

- Often, the most effective approach to achieve environmental sustainability objectives in facilities planning is to reduce dependence on new materials use through remodelling or adaptive reuse of all or parts of existing buildings. When feasible, this is often a better environmental option than demolition and recycling. However, the energy consumption of existing buildings should be carefully considered when assessing the environmental merits of a project. Also, the site occupied by a viable building may be needed to construct a larger building that can accommodate more uses on the same site.
- In general, multi-storey development is preferred over single storey buildings with the same total floor area to reduce the building footprint and impact on the site.
- New development should seek LEED (Leadership in Energy and Environmental Design) certification. LEED certification distinguishes building projects that have demonstrated a commitment to sustainability by meeting higher performance standards in environmental responsibility and energy efficiency. LEED buildings, when looked at in terms of lifecycle costing, are cheaper to construct, maintain and operate than conventional buildings.

Photovoltaics.

Energy and Water Systems

For new buildings, the LEED program (Leadership in Energy and Environmental Design) provides an excellent framework to design buildings that minimize energy consumption in their construction and operation. Note that the annual energy consumption of existing buildings should be analyzed and benchmarked. Upgrading should be undertaken to existing buildings so that energy and thermal performance is comparable to new buildings. A rolling fund – either provided by the University or external entities – can be used to fast-track retrofits (an initial 'loan' is made to fund the improvements and is paid back with the savings).

The following list presents initiatives that may be proposed as means to attain LEED or as retrofit to existing buildings.

- Energy efficient boilers, HVAC systems and an emphasis on reducing the size of plants through innovative mechanical and construction technology (natural cooling, heat recovery, passive solar design, etc.).
- Planted roofs as insulation.
- Building floorplate that maximize daylighting to reduce lighting requirements.
- Deciduous trees surrounding the building to reduce cooling loads in the summer without blocking sun access in the winter.
- Efficient lighting equipment.
- Energy efficient outdoor light fixtures, downcast to minimize light pollution, in conjunction with a fine-tuned timing system to ensure that lights are only on when it is dark.
- Room and task light switches, occupancy sensors and photocells as energy efficient occupant controls.
- In general, the location of the Saint Mary's campus and its size constitute obstacle to large-scale power production on campus, but Saint Mary's could purchase electricity from renewable sources, including wind and methane from landfills. Small-scale opportunities should be considered, such as solar panels on flat roofs.

Enviro-facts

Buildings consume about 38% of total Canadian secondary energy use, produce about 30% of total Canadian greenhouse gas emissions and use 40% of raw materials.

Water

Water may seem plentiful in Nova Scotia, but there is no reason for wasting it. Clean water requires energy to produce and transport, while wastewater must be treated at great expense. Hot water requires energy to produce. Some opportunities include:

- Vegetated roofs to mitigate stormwater runoff.
- Innovative wastewater treatment, water reduction and sustainable irrigation strategies including the use of water efficient or greywater plumbing fixtures.
- Runoff reduction through permeable surfaces, green roofs and filtration swales or ponds.
- Low-flow faucets and showerheads in existing and new buildings;
- Low-flow and dual-flush toilets in existing and new buildings;
- An effective process to report and repair leaks as they occur;
- Selection of plants that require less watering;
- Water-saving watering practices;
- Rainwater collection for plant watering;

Materials

- Energy costs associated with transportation should be reduced by promoting selection of locally manufactured or fabricated products and materials.
- Materials salvaged from demolition should be used in new building design, avoiding the waste and pollution of material extraction and production.
- If there are no salvageable materials available from an existing development site, they should be purchased directly from building demolition sales, from salvage contractors and used materials dealers. Reused materials can be used both in new buildings and in public amenity areas or for outdoor paving. Material reuse is more sustainable than the use of recycled materials as reused components do not require significant reprocessing.

Recycled bricks.

- Many new and established construction products made with reprocessed waste materials are available for use on new projects. Construction materials containing post-consumer waste or recovered materials have the greatest recycling merit and should be used where feasible.

Quality of Life

- A high degree of indoor environmental quality should be achieved through design techniques including daylighting and the use of low-emission finishes formulated to low or zero volatile organic compounds (VOC) standards.
- Building flexibility should be maximized to satisfy the varied demands of current and future users and residents. Raised access flooring, modular partitions, a consistent structural grid and non-centralized HVAC systems all contribute to building flexibility.
- Natural ventilation systems should be considered as an alternative means to air conditioning through the promotion of passive convection cooling and ventilation. Passive systems can minimize or eliminate mechanical system usage for heating, cooling and ventilating buildings during prolonged periods in the year.

3.14.2 Green Roofs and Roof Gardens

Even a casual analysis of an aerial photograph of the campus shows large grey areas of building rooftops, streets and parking areas surrounded by the green of the tree canopy on surrounding streets. Hard and dark surfaces are not only unattractive, but they tend to raise temperatures (see The Urban Heat Island Effect) and result in runoff (see Runoff).

Planted Roof Runoff

- In a storm, all water that falls on a hard surface in the downtown is either directed to the storm or sanitary sewer. In either case, expensive pipes must be laid and maintained and the runoff must be processed. Often, the runoff water collects pollutants which often flow into watercourses untreated.

Enviro-facts

Saint Mary's consumes close to 14 million KWh of electricity per year, resulting in about 13,000 tons of GHG.

Rooftop Garden.

- A better alternative is to capture water on site through on-site infiltration or evapotranspiration. With on-site infiltration water is allowed to infiltrate slowly into the ground, a bio-swale can be constructed to filter the water before it seeps into the ground. Evapotranspiration is when, over time, water evaporates from the ground and is consumed by vegetation, the combined rate and quantity constitutes evapotranspiration.

Green Roofs vs. Roof Gardens

- It is important to distinguish green roofs from roof gardens as the former can achieve the same or even greater environmental benefits with lower construction and maintenance costs.

Green Roofs

- Green roofs refer to planted roofs. They may not be accessible to the public. Their purpose is to provide a visual amenity to occupants of surrounding buildings and to provide environmental services as described below. Plantings may consist of a single species and/or species that require little care.

Roof Gardens

- Roof Gardens are designed as an amenity for the occupants of the building. While their environmental benefits generally do not exceed those of green roofs, they are more expensive to build and maintain as they generally require a greater variety of species, wider walkways and sitting areas.

Advantages

- Mitigation of the Urban Heat Island Effect and Potential Reduction in Cooling Loads – through shading and evapotranspiration (evaporation and plant activity), temperature peaks on green roofs are lower than on conventional roofs. Not only is the general comfort level increased, but air conditioning equipment loads are reduced, resulting in substantial energy savings. While the temperature of a conventional roof can reach 90 degrees Celsius, vegetation experiences temperatures between 15 and 40 degrees because it retains moisture (source: LEED).

In general, temperature variations are greatly reduced on planted roofs. Over a full year, heat gain is reduced by 95% and heat loss by 26% (Source: Soprema – NRC study).

- Reduction of Runoff – rainwater is captured and returned to the atmosphere. Some excess may be evacuated through pipes as on a conventional roof, but the overall amount is reduced. In an NRC study, runoff volume was found to be reduced by 54% (Source: Soprema).
- Air quality improvements – plants absorb carbon dioxide and emit oxygen. They also filter pollutants. 1 m2 of unmowed grass on a roof absorbs up to 2 kg of windborne dust each year (minimum area of 2000m2). 1.5 m2 of unmowed grass produces enough oxygen for one single person needs for one year (Source: Soprema)
- Improved longevity of the roof membrane – the membrane is shielded from ultraviolet rays and the elements. Manufacturers of planted roof systems routinely offer warranties on their membranes.
- Thermal Insulation – planted roofs work hard even in the winter months by providing extra insulation.
- Sound Insulation – planted roofs also reduce noise penetration. 10 cm of growing medium reduces the noise by 15-20 dB (Source: Soprema).
- Visual Amenity – for occupants of surrounding buildings, a green roof offers visual relief.

Alternative: Cool Roofs

- Roofs with high solar reflectance and high thermal emissivity reflect heat and sun rays and thus achieve some of the same benefits as planted roofs in reducing the Urban Heat Island Effect.
- Cool roofs do not offer some of the other advantages offered by planted roofs such as runoff retention, carbon dioxide conversion and visual amenity.
- Over time, cool roofs require cleaning to maintain their performance rating.

Enviro-facts

Heating Saint Mary's buildings consumes about 2.3 million litres of fuel oil per year, resulting in 5,680 tons of GHG emissions.

3.14.3 Open Space

Excluding the Oaks property, the Saint Mary's Campus is about 48% impervious. This means that close to half of the rainfall is sent to the Harbour instead of seeping naturally through the ground.

There is significant scope to improve the environmental quality of Saint Mary's open spaces: by the selection of plant species that require less maintenance, and by integrating native species. Additional details can be found in Chapter 4 - Open Space.

- Landscaping should be sized and located to allow plants to consume stormwater or building greywater, the use of potable water to irrigate landscaping is discouraged.
- Native plant materials should be used wherever possible as they require less maintenance, watering and fertilization.
- Existing significant trees, tree stands, and vegetation should be protected and incorporated into site design and landscaping. Provisions should be made to protect such trees from construction if development occurs in close proximity.
- Landscape design should incorporate a wide range of strategies to minimize water consumption, e.g. native species, use of mulches and compost, alternatives to grass and rainwater or greywater collection systems.
- The width of all planting beds should be at least 2.5 metres wide (except on sidewalks) to enable plant material to be massed to create a healthy and sustainable landscape and reduce irrigation dependency.
- Impervious areas directly connected to the storm drain system are the greatest contributor to the storm water management system. Breaks in such areas, by means of landscaping or other permeable surfaces should be provided to allow runoff absorption into the soil and avoidance or minimization of discharge into the storm drain system.
- The distribution of outdoor lighting should be controlled according to outdoor lighting design recommendations of the Royal Astronomical Society of Canada to minimize light pollution and maintain a dark night sky. Well-designed lighting networks that incorporate full cut-off fixtures are also more energy-efficient.

Enviro-tip

Maximize on-site infiltration of rainwater to minimize the need to convey it to the Harbour.

- Paved areas, such as surface parking, should be minimized wherever possible in order to maximize permeable surfaces that absorb and biodegrade certain toxins. This also reduces the volume of runoff into the storm drainage system.
- Streets, driveways and parking areas should be as small as possible within allowable standards. This challenges the status quo – do streets really need to be this wide, can adjacent developments share a common parking area, can a driveway be permeable?
- Parking areas should drain into vegetative or grassy swales that are incorporated into large common landscaped areas within a project or perimeter landscaping.
- Bio-swales should be created next to parking lots and walkways to collect stormwater runoff to minimize the dependency on stormwater sewers. Bio-swales should be planted with salt-tolerant shrubs and grasses to filter water before it percolates into the ground. They should be graded to direct water away from paved areas.
- Drainage basins should be located throughout parking lots to collect stormwater. These basins should be planted with native plant materials that thrive in wet conditions.
- A well-drained snow storage area should be provided in a location that enables melting snow to leach into drainage courses and storm drain inlets to prevent toxic materials from being washed into streams.

Eco-parking.

3.14.4 Parking and Transportation

A significant amount of energy is consumed by campus users commuting to and from the campus. Saint Mary's should acknowledge its responsibility in transportation-related energy use, and adopt a program to encourage alternatives to establish reduction targets. Managing access to the campus is strongly related to the supply of parking. The encouragement of other modes of transportation can eliminate the need for new parking lots, thus resulting in the following benefits:

- Reduced paving of open space or need to construct a concrete parking garage;
- Reduced heat island effect in the summer defined as the localized increase in temperature due to absorption of solar energy in flat paving surfaces;
- Increased opportunity to plant trees that capture carbon dioxide and enhance the appearance of the campus;
- Reduced use of asphalt;
- Reduced power use for lighting;
- Reduced use of salt and melters;
- Reduced plowing.

Conversely, the University can encourage alternative modes of transportation by restricting parking supply.

In general, the following are some initiatives that can reduce emissions and energy consumption in the area of transportation:

- Transportation: the inclusion of private transportation to and from the campus in the university's energy consumption picture to encourage alternatives, such as walking, transit, carpooling and telecommuting. Proactively encourage video-conferencing as an alternative to air travel.

Additional information on transportation alternatives can be found in Chapter 5 – Transportation.

Enviro-tip

Expand the UPASS to staff and faculty so that all Santamarians are encouraged to take transit.

3.14.5 Procurement

Procurement covers the sourcing of all products and services on campus. By actively managing its procurement policies, Saint Mary's can obtain products and services that can result in a cleaner environment not only in the Halifax region but also where these products are produced. The following are some principles that should be followed in the selection of products and services. Please note that they can at times appear to contradict one another. The net benefit should therefore be determined:

- Repair and reuse before purchasing. Also explore exchange and barter.
- Select products and services that are produced locally, employ local people and help perpetuate local culture and practices. An important example is the sourcing of local and seasonal food on campus, minimizing the reliance on imported processed food should be dramatically reduced.. Universities across North America have struck agreements with local farmers or worked with conventional food services corporations to ensure that a stable supply of healthy, seasonal and locally produced food is provided to the University.
- When products from developing countries must be purchased, choose products that have been produced with improved social practices (e.g. fair trade coffee, sweatshop-free clothing).
- Determine the lifecycle costs of options and opt for durable goods.
- Consider modular products that are easily repaired or products with maintenance contracts. For example, copiers and carpeting can be bought with servicing: the vendor only replaces defective parts (tiles in the case of carpeting) which are then reprocessed.
- Select renewable materials instead of man-made alternatives, where possible.

Enviro-tip

Purchase locally produced food to support local farmers and minimize transport-related emissions.

3.14.6 Processes

Switching to more innocuous materials and tools will not in itself ensure sustainability. New processes developed specifically to achieve sustainability should be adopted as well. Examples include:

- Lower thermostats in the winter and educate users with the reason for doing so. Temperature can be as low as 19 degrees. In the summer, thermostats can be raised as high as 26 degrees. Where no air conditioning is available, consider mechanical to circulate the air to avoid the installation of new HVAC systems.
- Minimize the use of chemicals that have impacts on the local environment and human health, for example Volatile Organic Compounds (VOCs).
- Explore economizing processes, such as duplexers in printers that allow double-sided printing, or the use of a printer tray that contains scrap paper.
- Select plants that require less watering, fertilizing and pest control. Review mowing schedules and times.
- Discourage idling on campus through signage and training of parking enforcement personnel.
- Encourage and support barter and 'garage sales' in residences to minimize disposal.
- Train users to use the 'sleep' function on computers at night, on week-ends and during holidays.
- Adopt new practices to minimize the use of machinery on campus. For example, leaves and grass should be raked when the volume is small and dry.

Enviro-tip

Reserve a printer tray that uses scrap paper for drafts.

3.14.7 Waste Reduction and Management

Nova Scotia, with RRFB, was a pioneer in progressive waste management and is now at the forefront of waste management in Canada. However, Saint Mary's can further contribute to the success of provincial programs in the following areas:

- Through the procurement process, favour goods with minimal packaging. Work with local suppliers to reduce the amount of packaging used.
- Reduce the packaging used for food services on campus.
- Strengthen education efforts of off-island students to increase compliance.
- Explore opportunities for on-campus composting and use (e.g. in grounds maintenance). It is possible to start small, for example with coffee grounds.