

## Environmental Advisory Committee – 2004-2005 Year-End Report

### Contents:

#### **INTRODUCTION** – *Lauren Miller*

- I. SUSTAINABILITY INITIATIVE** – *Jen Everett and Phil Camill*
- II. INSTITUTIONAL RESEARCH & ENVIRONMENTAL AUDITS** – *Lauren Miller*
- III. BUILDING AT CARLETON & SUSTAINABLE DESIGN** – *Richard Strong & Chris Petit*
- IV. ENERGY USE** – *Lauren Miller*
- V. WIND POWER** – *Dave Holman*
- VI. PAPER USE & PURCHASING POLICY** – *Terin Mayer & Cailey Gibson*
- VII. COMPOSTING** – *Lauren Miller*
- VIII. TRANSPORTATION** – *Lauren Miller*
- IX. ADDITIONAL TOPICS:**
  - Campus Ecology Enrollment – *Lauren Miller*
  - ROSE – *Tricia England*
  - Campus cleaning products – *Lauren Miller*
- X. REVIEW OF EAC STRUCTURE, POLICIES, & PROCEDURES** – *Tricia England*

#### **APPENDICES:**

- I. SUSTAINABILITY INITIATIVE**
  - Proposal for Interdisciplinarity and Sustainability – *ENTS & EAC*
  - Vision Statement for Sustainability at Carleton – *Phil Camill & Jen Everett*
- II. INSTITUTIONAL RESEARCH AND ENVIRONMENTAL AUDITS**
  - Environmental Audit – *ENTS Capstone project by Jamie Long, Lauren Miller, Miller Cochran, Damian Winters, supervised by Richard Strong*
- III. BUILDING AT CARLETON & SUSTAINABLE DESIGN**
  - Watson House resolution – *Richard Strong & Lauren Miller*
- V. WIND POWER**
  - 1) Excel spreadsheets
  - 2) Wind turbine proposal (and list of who endorsed it?)
- VI. PAPER USE & PURCHASING POLICY**
  - 1) Administrative Assistant survey – *EAC & SOPE*
  - 2) Recycled Paper Use proposal – *Dave Holman, Lauren Miller, Jen Everett, Kelly Kollman, Cailey Gibson,*
  - 3) Student survey: copy of survey and results – *EAC paper subcommittee, Terin Mayer, Kathie Galotti, & Jackie Lauer-Glebov (web help)*
  - 4) Ethicist column – *Lauren Miller and Andrea Nixon*
- VII. COMPOSTING**
  - 1) Composting at St. Olaf: “The College Composter” (article) – *St. Olaf website*

~ ~ ~

#### **INTRODUCTION**

The Environmental Advisory Committee (EAC) submits its first annual report June 13, 2005, in conjunction with its annual year-end presentation. The ten chapters listed represent the main topics the EAC has focused on throughout this academic year. Each chapter contains subcategories on the situation, actions taken, information gathered/documents produced, publicity, follow-up actions, and long-term goals and plans. The last two subcategories

contain recommendations to the College by the EAC. Thank you for considering these recommendations and participating in this review and planning process.

*~ Members of the EAC*

## **I. SUSTAINABILITY INITIATIVE – Jen Everett & Phil Camill**

**Situation:** During discussions at the beginning of academic year '04-'05, the EAC concluded that Carleton must make a bold, broad, and meaningful commitment to campus sustainability and that the responsibility for carrying out this commitment must not be confined to the EAC. There are at least three reasons for this:

- 1) 'Sustainability' is not exclusively an environmental concept. The global 'education for sustainability' movement is concerned with social and economic well-being as well as environmental integrity.
- 2) Sustainability is not only the jurisdiction of a single committee like EAC: it directly concerns and requires buy-in from all sectors of the Carleton community – from individual students to members of the administration, from faculty to staff overseeing and carrying out campus operations.
- 3) While EAC's mission is to advise the College regarding environmental aspects of campus operations – and this is a critical part of campus sustainability – genuine commitment to sustainability on the part of the College must also address its academic mission. The EAC can provide ideas for how to design and implement the process, but must not be the sole vehicle for sustainability in the long run.

Developing a broad sustainability initiative is especially vital at this point in the college's history as we proceed through a capital campaign, 100-year campus plan, and major curricular review.

Generally speaking, the sustainability vision seeks to target areas that could have a large and lasting impact on campus. In terms of campus operations, these include:

- 1) Making major capital project decisions based on life cycle costing rather than simple up-front cost analyses
- 2) Thinking about sustainable design and renovation at every stage of building planning, starting with acquisition of architectural firms that have demonstrated experience with designing sustainable projects;
- 3) Institutionalizing minimum standards of building design (e.g. LEED gold);
- 4) Researching our purchasing policies and shifting to vendors who can supply sustainably produced and sustainably functioning items (e.g., recycled paper, recycled carpets, sustainably produced furniture, energy efficient appliances, etc.);
- 5) Identifying ways to reduce materials use on campus (e.g., paper and energy use);
- 6) Developing a long-term energy strategy, possibly including additional wind turbines, innovative backup power systems, and a new fleet of hybrid vehicles.

In terms of Carleton's academic mission, the sustainability vision emphasizes:

- 1) Interdisciplinary and problem-based learning,
- 2) Ecological literacy,
- 3) Ethical reflection,
- 4) Civic engagement as essential to the kind of education Carleton graduates will need in order to lead a transition to a sustainable society.

**Actions taken:** Several activities have emerged from this effort.

- Cross-campus conversations have begun on this topic, both in the realm of operations and academics; the initiative, while young, is gaining publicity.
- ENTS and the EAC have produced a sustainability proposal and vision statements to guide this conversation (Appendices I:1-2). The proposal was presented to Dean Boardman and Kristine Cecil on April 14 '05 and was discussed with representatives of several interdisciplinary programs on May 19 '05.
- EAC members are engaging with other campus sustainability programs (meetings, listservs, conferences) to investigate strategies being implemented at other schools, as well as to highlight activities and successes at Carleton.
- We researched the feasibility of establishing a sustainability website, and ITS is ready to help us with this project as soon as we feel it's appropriate.

**Information gathered/documents produced:**

- During the Global Change Biology service learning project (Winter '05), students researched sustainability at Carleton and developed draft vision statements.
- ENTS/EAC Proposal for Interdisciplinarity and Sustainability (Appendix I:1).
- Vision statement for sustainability at Carleton (Appendix I:2)
- Notes from the October 2004 EFS West Sustainability and Higher Education Conference, presented at the EAC November 11 '04 meeting (Appendix I:3).

**Publicity:**

- Carleton's wind turbine dedication was set in the context of a national Sustainable Campus Conference, organized by ENTS concentrator Emily Levine and the ENTS community. Colleges and universities gathered from around the nation, particularly the Midwest, to exchange ideas on campus sustainability.
- Sustainability at Carleton was a central theme of the Meet the Earth symposium at Carleton (February '05), at which President Oden gave an address and awarded the first annual Sustainability award to Richard Strong
- The sustainability initiative was featured in a viewpoint article in the Carletonian by Dana Kraus (Winter '05).
- During trustee visits and other informal discussions, President Oden and many trustees have expressed interest in and support for sustainability initiatives
- The Voice has expressed interest in an article on the sustainability initiative

**In progress/Follow-up actions:**

- The EAC will work with David Davis Van-Atta to establish a common framework for environmental audits at schools comparable to Carleton
- ENTS is in discussions with other interdisciplinary programs and Dean Boardman about acquiring common building space for interdisciplinary activities, a new sustainability office, and community outreach center
- We are in ongoing discussions with Dean Boardman and Kristine Cecil about how to include the ideas in the proposals in the upcoming capital campaign.
- We are working with ACT and PERC to determine how best to incorporate ethical reflection and outreach in the sustainability initiative
- We continue to collaborate with campus groups like SOPE to study and improve campus operations and culture

**Long-term goals and plans:**

- Participate in curriculum review discussions and strategic discussions among interdisciplinary programs with the aim of strengthening interdisciplinarity, ecological literacy, ethical reflection, and civic engagement at Carleton.
- Establish a sustainability website for sustainability information on student outreach, courses, campus operation, and publicity for the initiative itself.
- Flesh out the vision statement by incorporating the ideas of the Global Change Biology service learning project.
- Get a sustainability office established on campus with a director and student support to make a baseline level of activities happen. These include instituting a regular system of campus environmental audits, working to shift purchasing policies to a more sustainable mode of operation, assisting with green building design and renovation, implementing life cycle costing analyses, and developing public outreach programs (e.g., publicity and new student/faculty orientation).
- Continue to educate students, faculty, staff, the administration, and trustees about the value of committing to and implementing the sustainability vision at Carleton.

## **II. INSTITUTIONAL RESEARCH AND ENVIRONMENTAL AUDITS – *Lauren Miller***

**Situation:** Although the College has many ways of monitoring its environmental performance, frequently these are not taken as a cohesive whole and examined in terms of overall environmental performance, particularly performance that can be compared to that of other institutions. As many who have conducted environmental audits know, it is difficult to find appropriate benchmarks to compare environmental performance. In 2004, five graduating ENTS concentrators undertook Carleton's first comprehensive environmental audit (Appendix II:1) under the supervision of Richard Strong. As they discussed in their audit and their presentation, much work remains to gain a thorough outlook on Carleton's environmental performance.

David Davis-Van Atta, through his interest in institutional research, has also gained a strong appreciation of this element of institutional self-study.

### **Actions taken:**

David Davis-Van Atta met with the EAC on two occasions, and discussed institutional research focusing on Carleton's environmental performance. The EAC recommended companies that assist with environmental audits such as the Good Company and other tools for assessing campus impact, and both parties agreed to work together on these projects.

**Information gathered/documents produced:** none since 2004

**Publicity:** none since 2004

### **In progress/Follow-up actions:**

The EAC will continue to work with David Davis-Van Atta on evaluating Carleton's environmental impact. The environmental audit of 2004 will be very useful in this process, as will studies done by the ENTS Junior Colloquium in 2001.

### **Long-term goals and plans:**

The EAC feels that Carleton should have a means of conducting and recording continuous self study of its environmental impact. The EAC continues to try to guide institutional self study in this direction, to work with ENTS to integrate self study in the curriculum, and to work with Facilities and other departments of campus operations to make monitoring, reporting, and self-improvement a critical part of all campus operations.

### **III. BUILDING AT CARLETON & SUSTAINABLE DESIGN – *Richard Strong***

**Situation:** Currently most of the square footage of Carleton buildings are constructed prior to 1995 and almost half are of 1930 vintage. As we start a sustainable design process with a pre-existing building stock, we must consider not only new buildings built with sustainable guidelines but how the existing stock will be retrofitted.

**Actions taken:** Carleton College has adopted the Minnesota Sustainable Building Guidelines or B3 for development of all new buildings and renovation over 10,000 sqft. This guideline will direct the volunteer development of sustainable building at Carleton.

**Information gathered/documents produced:**

Watson House resolution, Green Roofs, Eco-house Class, History of the Wind Turbine, B3 document for Severance Hall Renovation, B3 document for Language and Dining. And B3 document for the proposed Art Gallery

**Publicity:** Recent Northfield article (June 11, 2005) about the Green roof project on Olin Hall.

**In progress/Follow-up actions:**

Engagement with Residential Life building committees on all new housing plans. There is some precedence now for this with Chris Petit's as the fifth year ENTS intern attendance of recent meetings. There should be representation on all college building committees of EAC members.

**Long-term goals and plans:**

All physical improvements to the campus, environmental considerations should be one of the many factors considered in the decision-making matrix.

### **IV. ENERGY USE – *Lauren Miller***

**Situation:**

Energy use has been an important topic for the EAC since the founding of the committee, and undoubtedly will be for some time. This year, the primary focus has been on sustainable design, as discussed somewhat in the previous chapter. However, the EAC also worked with Greenhouse students to initiate a project of distributing compact fluorescent lightbulbs (CFLs) to Carleton students.

**Actions taken:**

Richard Strong agreed to provide CFLs through Facilities, and Greenhouse members Nina Mukherji and Hazel Troost agreed on the part of Greenhouse to distribute them by tabling in Sayles, with publicity support from the EAC. Further plans were made to distribute CFLs in a more organized fashion to incoming freshmen the following year, through cooperation with ResLife.

**Information gathered/documents produced:** Information regarding CFL efficiency was researched by Greenhouse and presented to students during Sayles tabling and via emails.

**Publicity:** Many students were made aware of the importance of CFLs through information provided at tables in Sayles. Distribution efforts and information on CFLs were also publicized via email, and broadcast on Carleton's environmental radio show, "Recycled Air," by ENTS Concentrator Emily Schwing and ENTS intern Lauren Miller.

**In progress/Follow-up actions:**

Distribution of CFLs by Greenhouse in cooperation with ResLife is planned for the beginning of next year.

**Long-term goals and plans:**

The EAC recommends that Carleton, where possible, work to phase out less efficient forms of lighting in favor of more efficient forms. In new buildings, this will mean T-8 track lighting as well as CFLs.

**V. WIND POWER – Dave Holman****Situation:**

Carleton built one 1.65 Megawatt wind turbine for a total of \$1.83 million. Dedicated at the beginning of this academic year, the turbine is expected to produce around 5 million kilowatt hours of electricity this year, about one third of Carleton's total energy usage. This project was initially inspired by an ENTS service learning class (Global Change Biology).

**Actions taken:**

- The turbine was dedicated this fall as part of the Sustainable Campus Conference
- The turbine's energy production and corresponding CO<sub>2</sub> emission reductions are being monitored by the College

**Information gathered/documents produced:**

Excel files calculating economic costs and benefits were produced by David Holman and Jason Lord. This information was compiled and put into a website:

<https://orgs.carleton.edu/whoa/wind/>

This site can be reached via the ENTS Website: "Sustainability Initiative".

**Publicity:**

- Sustainable Campus Conference, including press releases by College Relations
- News and information about the turbine published on Carleton's website

**In progress/Follow-up actions:** This summer an energy consultant(s) may be hired to assess innovative alternatives to meet Carleton's energy demands into the future. The data from the wind turbine will soon be streamed live onto Carleton's website so anyone can see how much electricity is being produced. Carleton is looking into forming an LLC to be compensated for the REPI incentive and depreciation tax benefits that it currently cannot benefit from because of its non-profit status.

**Long-term goals and plans:**

- We recommend building two or more industrial wind turbines pending economic viability. Future funding options include bank loans, grant applications, LLC formation, joint-ownership by competent private investors, and payment from the endowment like the first turbine. Future turbines could be engineered to produce compressed hydrogen gas that could be used for heating.
- We recommend any future turbines be directly connected to Carleton's campus unless a much better deal with Xcel can be acquired.
- We recommend buying the land on which the turbine sits because we'll pay enough in lease payments to have bought the land which becomes more valuable for every turbine added to it.
- Long-term, we also recommend that Carleton buy, acquire through donation, or prevent development on the land between Carleton and the turbine so that running trails and Arb expansion can embrace Carleton's most significant landmark. Perhaps work with landowners to create a green corridor trail to the turbine like the Mills Town Trail, and then acquire larger areas as they become available.

## **VI. PAPER USE & PURCHASING POLICY – Terin Mayer, Cailey Gibson, Kelly Kollman**

**Situation:** An ad hoc committee was formed to investigate paper use and purchasing policies on campus. Specifically, we examined Carleton's current recycled paper use and the feasibility of increasing it, paying close attention to facts and attitudes among departments, students, and support offices regarding recycled paper performance.

This winter EAC asked SOPE to gauge attitudes and awareness among department administrative assistance about their paper options. This informal survey and communication with Loretta Springer in Printing and Mailing indicated there was a disconnect of information between Printing and Mailing services and administrative assistants. This disconnect had been causing the de facto virgin paper consumption to be much higher than it should have been given Carleton's official paper default is 30% post consumer recycled. Additionally, EAC sought to investigate the rumor that recycled paper causes printer jams. SOPE conducted an informal survey of ITS employees about this matter, but ITS maintained they didn't have enough information to say.

More research revealed Carleton's virgin paper consumption for the 2003-2004 academic year stood at 71% of total paper consumed and a total of 58 tons of paper. We chose to address this problem in a multifaceted approach: through education and surveying of the student body and drafting of a recycled paper purchasing policy for approval from College Council.

We wanted to couple the policy with an educational campaign directed toward the administrative assistants and the students. SOPE produced a table tent during earth week with information about paper use at Carleton. We hope to supplement this education campaign by meeting with administrative assistants in the fall to present our findings and clarify paper purchasing options.

Our initial research into paper purchasing policies at other institutions revealed across the board diversity, from 30% as non-official practice to mandated 100%, chlorine free paper. This directed us to draft a proposal for Carleton's paper purchasing policy, because no policy currently exists. Our proposal is currently being reviewed by College Council. A policy remains to be passed and should be followed up on in the fall.

In conjunction with the survey, EAC wanted to gauge how students weigh aesthetic and cost considerations for the ways they, and their professors, use paper. We developed the survey, checked it for appropriateness with Kathie Galotti in the Psychology department and had it approved by the Institutional Review Board. The survey was then loaded on the surveymonkey.com web service and sent out to the student body via email. We collected survey results and had them published in the Carletonian along side an explanation of our progress and intentions. Survey results should be presented at the next college council meeting along with additional information.

### **Actions taken:**

Paper use proposal

### **Information gathered/documents produced:**

- Administrative assistant survey
- ITS survey

- Student survey – copy of survey and results
- Braden's viewpoint
- Ethicist column by Lauren Miller and Andrea Nixon

**Publicity:**

- Braden's viewpoint
- Ethicist column by Lauren Miller and Andrea Nixon

**In progress/Follow-up actions:**

- College has implemented their policy of paper with 30% recycled content more effectively.

**Long-term goals and plans:**

- Make direct contact with paper manufacturers and distributors
- Develop an implementation timeline for transitioning to greater proportion of recycled paper consumption (work with Julia Burmesch)
- Tie up loose ends with College Council
- Meet with Admin assistants & faculty in the fall
- Focus on the other R's of the three (Reuse and Reduce). This may mean tackling e-reserve issue.
- Have the college adopt a paper policy of 100% post consumer recycled paper

**VII. COMPOSTING – *Lauren Miller***

**Situation:**

**Actions taken:**

**Information gathered/documents produced:**

**Publicity:** none

**In progress/Follow-up actions:**

**Long-term goals and plans:**

**VIII. TRANSPORTATION – *Lauren Miller***

**Situation:**

RENew's work

Review of Student Motor Vehicle policy

**Actions taken:**

**Information gathered/documents produced:**

hOurCar presentation (Appendix)

**Publicity:**

**In progress/Follow-up actions:**

**Long-term goals and plans:**

**IX. MISCELLANEOUS**

- Campus Ecology Enrollment – *Lauren Miller*
- ROSE – *Tricia England*
- Campus cleaning products – *Kirk Campbell*

**X. REVIEW OF EAC STRUCTURE, POLICIES, & PROCEDURES – *Tricia England***



- Membership and member appointment process
- General meetings and approach to tasks
  - Notice of upcoming meetings
  - Attendance
- Resolution Process – initiating, voting on, and implementing resolutions
- Recommendation Process – effectiveness of recommending procedures
- Publicity – awareness on the part of students, faculty, staff, administration, others
  - Present year-end report to VP/Treasurer and President
  - Publish year-end report
- Record keeping – minutes and other recording of discussions, decisions, “homework”
- Planning
  - Agendas – helpfulness, timeliness, etc.

#### **APPENDIX I:1. – JOINT ENTS/EAC PROPOSAL:**

## **Leadership in Interdisciplinary Learning and Campus Sustainability: The Carleton Model**

### **I. Rationale**

Sitting at the cusp of a major capital campaign, the 21<sup>st</sup> century report, the 100-year campus plan, and a major curriculum review, Carleton is poised to assess its major institutional accomplishments and to chart a direction which will critically define its role as a leader in undergraduate education and its legacy as a steward of the environment for future generations.

Citizenship in the 21<sup>st</sup> century will require minds that can think across disciplines and cope with the challenges of creating sustainable communities. It will require leaders who understand institutions and how to restructure them, who are morally responsible and civically engaged. In order to educate these leaders, Carleton must demonstrate its own moral responsibility by adopting sustainable campus practices and provide opportunities for real-world problem solving on campus and in the larger community.

In this proposal, we suggest that the capital campaign planning initiatives include, and showcase prominently, the following endeavors as part of Carleton’s future educational mission: genuine interdisciplinary learning, including problem-based and service learning (which promote civic engagement and ethical reflection), and sustainability institutionalized throughout the College.

In the words of the CIVITAS 100-year campus planning committee,

*Carleton has an opportunity that is unique in America, and could one day become the only liberal arts college that embodies all of its values both academically and physically.*

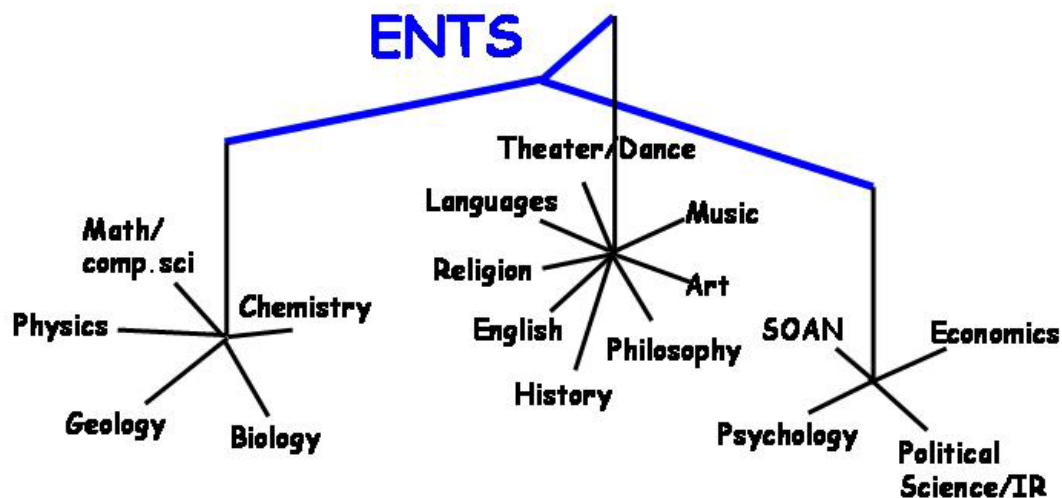
In the words of David Orr (Political Science, Oberlin),

*Oberlin is a distinctive institution largely because its early leaders were willing to risk the very existence of the College for large ideals. We have drawn on the moral capital they created ever since. It is fair to ask what we are willing to risk and what moral capital we will leave behind. Our predecessors risked it all for human equality. That struggle continues, but it is now subsumed in a far larger struggle to ensure a habitable planet for coming generations so that all the other struggles might go on. Future generations--the presumed beneficiaries of our strategic planning--will care not a lick for how we stacked up against the conventional indicators of institutional success. They will measure us, rather, by our foresight and for what we were willing to risk on their behalf.*

## II. Current Assessment

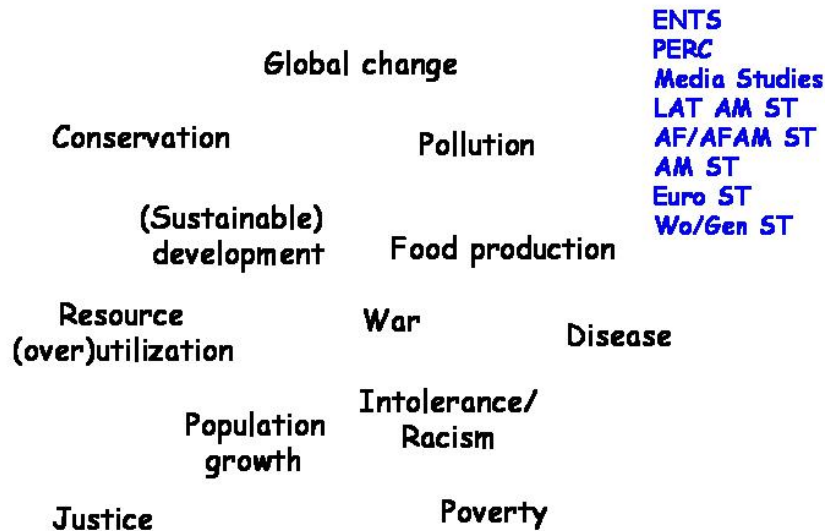
### A. Carleton's capacity for interdisciplinary learning

The ENTS program is one of few programs on campus that unites the three major domains of learning: the natural sciences, social sciences, and humanities (the other institutions being PERC, Cognitive Studies, and Archaeology). The programmatic structure of Carleton resembles a mobile, where the base branches include departments that exist in each of the three broad divisions:



We believe it is these kinds of cross-divisional opportunities that will be central in helping students gain the intellectual breadth, in addition to their disciplinary expertise, needed to confront contemporary global issues that are simultaneously complex and interdisciplinary.

Most global problems are cross-divisional, interdisciplinary challenges



ENTS is the premier institution on campus in terms of demonstrating what it takes to develop a genuinely interdisciplinary curriculum to help our students understand how to approach these complex, global problems. As part of recent external funding efforts (Luce/Mellon proposals), we have already developed the framework to make genuine interdisciplinary learning work at Carleton.

We believe that the ENTS interdisciplinary learning model is one of the greatest comparative advantages that will distinguish educational success at Carleton relative to other elite colleges and universities in coming years. While many schools have environmental science and studies programs, very few span all three divisions of the college. Even fewer have figured out how to make interdisciplinary learning work. The ENTS program is prepared to lead the nation on both of these fronts. All we need to put it in motion is an institutionalized, long-term commitment from the College.

Moreover, we may be missing opportunities in terms of the kinds of interdisciplinary learning possible at Carleton because of a lack of integration among concentrations. Of the main issues facing global societies, most are relevant to multiple concentrations simultaneously.

In the words of EO Wilson (Harvard University), on the reflection of general education at Harvard (2004),

*The ongoing explosive growth of knowledge, especially in the sciences, has resulted in a convergence of disciplines and created the reality, not just the rhetoric, of interdisciplinary studies. Biology, for example, is today a swiftly evolving kaleidoscope of hybrid subdisciplines. Biology has expanded to the borders of the social sciences and humanities and they to it. As a consequence, what was once perceived as an epistemological divide between the great branches of learning (natural sciences, social sciences, humanities) is now emerging from the academic fog as something far different and much more interesting: a wide middle domain of mostly unexplored*

*phenomena open to a cooperative approach from both sides of the former divide. Already disciplines from one side of this middle domain, for example neuroscience and evolutionary biology, have connected with their closest neighbors, such as psychology and anthropology, on the other side.*

*The middle domain is a region of exceptionally rapid intellectual advance. It, moreover, addresses issues in which students (and the rest of us) are most interested: the nature and origin of life, the meaning of sex, the basis of human nature, the origin and evolution of life, why we must die, the origins of religion and ethics, the causes of aesthetic response, the role of environment in human genetic and cultural evolution, and more.*

*If this perception of optimal presentation is correct, and further given the convergence and blending of disciplines, the best approach to general education in the future seems to be less disciplinary and more problem-oriented. The problem (or big issue) addressed, single or multiple within a given course and top-down, could be of the following kind: the nature and consequences of human nature, the basis of moral reasoning, the crisis of global fresh water supply and its solution. Such an approach would require some breadth on the part of the instructor, or team-teaching by a group of complementary experts.*

*There is, in my opinion, an inevitability to the unity of knowledge. The trajectory of world events suggests that educated people should be far better able than before to address the great issues courageously and analytically by a traverse of disciplines. We are into the age of synthesis, with a real empirical bite to it.*

*But the Harvard faculty may well be inclined, as they have in the past through Red Book and Core, to hug the shorelines of their disciplines, to keep clear of risky blue water beyond. The reason is that the Harvard faculty is based on the star system, with research achievement and promise valued far above all else. That means, in science at least, that professors are rewarded on the number and importance of their published discoveries, which, in every other venue as well, are the silver and gold of scientific careers. In early to middle career stages, as a consequence, success comes to those who reach the frontier, focus on a narrow sector of it, and devote large amounts of time to their graduate and postdoctoral team in advancing it. They are not likely to have much time for undergraduates or be inclined to teach very far from the boundaries of their research-generated expertise. There are exceptions of course, often among accomplished scientists approaching superannuation. I've thought a lot about this problem, but am sorry to say I have no ready solution.*

## **B. What we do well**

With limited assets, Carleton is doing an outstanding job, as the following ENTS & sustainability accomplishments show:

### **1. The wind turbine**

Carleton was the first college/university in the country to construct an industrial-scale wind turbine capable of producing an amount of energy equivalent to 40% of Carleton's demand.

## **2. Steps toward a more sustainable campus**

- Institutionalizing life cycle costing as a paradigm for building construction, renovation, and durable goods purchasing
- Institutionalizing the shift to contractors capable of demonstrating sustainable products or services (architects, material suppliers, etc.)
- Shift to more sustainable consumables (e.g., 30% recycled paper campus wide)
- Exploration of Carleton energy resources and backup operations, including additional wind turbines and hydrogen fuel cells
- Exploration of transportation option, including phasing in hybrid vehicles into the Carleton fleet
- Exploration of watershed management in the catchment that drains to Lyman Lakes
- Continued management paradigm of restoration of native ecosystems in the Arboretum and using carbon storage credits to offset CO<sub>2</sub> emission from the steam plant.

## **3. Development of curricular and co-curricular projects involving academic civic engagement and ethical reflection**

Several courses in the curriculum already incorporate service learning and civic engagement learning opportunities. The college has acknowledged that ethical reflection is a crucial component of a liberal arts education by supporting the Program for Ethical Reflection at Carleton (PERC).

## **4. Courses integrating environmental studies with practical hands-on applications that are improving the operations of Carleton College and the greater Rice County region**

- **ENTS 228. Eco-House Design and Construction** Exploration of a design for a small "foot print," energy efficient, cost effective, and aesthetically pleasing student housing. *6 credits, ND, Spring—R. Strong, G. Wagenbach*
- **BIOL 190. Global Change Biology** Environmental problems are caused by a complex mix of physical, biological, social, economic, political, and technological factors. We use scientific data analyses and humanistic perspectives for understanding the causes of global change, how it affects the biosphere, including humanity, and strategies for solving environmental problems. This course includes student service learning projects that initiated the idea for the construction of the wind turbine and which will provide the template for a sustainability vision. *6 credits, MS, Winter—P. Camill*
- Other past courses by Mary and Gary on aquatic systems and the Cannon watershed

## **5. Environmental Audits**

ENTS and EAC students and faculty have been conducting a formal environmental audit. David Davis-Van Atta (Director of Institutional Research & Analysis) will be working with

EAC to institutionalize a consistent framework that will allow Carleton to compare results to other schools.

## **6. ENTS student outreach**

There are a large number of volunteer student groups and interest houses that work on environmental education outreach and on-campus problem solving, including SOPE, KFC, MPIRG, Green House, and Farm House. SOPE is working with EAC to shift the campus paper procurement practice from mostly virgin paper to 30% post-consumer recycled process chlorine-free paper.

## **7. ENTS summer internships**

Every summer, ENTS student interns take positions that expose them to real environmental problem solving, including understanding climate change at the National Center for Atmospheric Research (NCAR), working with NGO's on Capitol Hill, managing Minnesota state parks, writing narratives about wilderness travel in Australia/New Zealand, working with land use developers in major urban centers, assessing attitudes towards willingness to pay for ecotourism in the tropics. The program is becoming so successful and popular that we are at a point that the money requested for ENTS internships is more than double the funds annually allotted to this program.

## **8. ENTS Capstones**

The senior capstone experience, like the internship program, has provided students with the kinds of hands-on learning required of graduates in environmental studies. Recent projects include beginning a formal audit of Carleton's streams of waste (mainly food and atmospheric carbon) and energy, creating graphic novels and other media to convey an understanding of environmental issues (e.g., nuclear testing in Pacific island nations), understanding the environmental context of presidential politics, and restoring a large prairie ecosystem in Nerstrand.

## **C. Where we need improvement**

Carleton could become a national leader in interdisciplinary learning, environmental studies and sustainable practices, and ENTS has the faculty and student commitment to do so. But without substantial new investment, we are losing ground to colleges and universities that are showcasing their environmental studies programs and initiatives to become more environmentally responsible campuses. Oberlin and Middlebury, for example, have more than 150 environmental studies majors—the most popular on campus. These are the schools that prospective students and others turn to for environmental leadership.

At Carleton current challenges and impediments include (1) multi-disciplinarity rather than interdisciplinarity, (2) weak programs vis-à-vis departments, (3) space, (4) budget constraints, (5) the lack of an institutionalized ethic of sustainability, and (6) an ad hoc and uncoordinated approach to ethical reflection and civic engagement:

1. Limited faculty and financial resources force the programmatic structure of ENTS and other programs and concentrations to emphasize multidisciplinary over interdisciplinarity. That is, it's easy to create a concentration that includes a list of discipline-specific courses from existing departments. It's another thing to teach our students effectively how to be leaders in solving today's contemporary, complex, interdisciplinary challenges.
2. Departments are strong at the expense of concentrations, both in terms of financial resources and FTE decision making. This makes it difficult to adequately fund the kind of curriculum we need, and it makes it difficult to hire and retain the faculty essential to the pedagogy of an environmental studies program.
3. We do not have dedicated space compared to other institutions, which not only have space, but their space is increasingly a sustainably designed center for interdisciplinary learning that can be used as a teaching tool in environmental studies courses.
4. An adequate base of permanent, reliable financial support for ENTS does not exist. Funding originally intended for ENTS, including the Bean and McBride Chairs and the Environmental Studies Endowment of 1973 (which has an annual income of more than \$84,000), are diverted to budget relief.
5. Carleton is falling seriously behind many other institutions, including publicly funded universities, industry, and state governments, in terms of commitment to sustainable building, campus planning, and vision statements like the Talloires Declaration. It is embarrassing that Carleton now follows the lead of institutions that are not traditionally considered visionary or progressive, such as the University of South Carolina (whose president showcased the importance of building the largest green dorm in the country), the University of Idaho (which signed the Talloires Declaration), and the state government of Pennsylvania (which now produce government buildings that are LEED Gold certified).
6. The most pressing problems of the 21<sup>st</sup> century – climate change, poverty, injustice, biodiversity loss – are not only interdisciplinary but all fundamentally ethical problems that require an active engaged citizenry. PERC has been isolated from the academic side of Carleton's mission, relegated mainly to religion & philosophy and the occasional "Ask the Ethicist" column in the Carletonian. There are numerous emerging opportunities for integrating ethical reflection with complex interdisciplinary issues like sustainability that involve ENTS faculty and students.

It is important to point out that our departments are among the best in the country, while the concentrations, and ENTS in particular, are weak relative to our comparison schools. As described below, in terms of programmatic and curricular impact per dollar spent, the effects of bolstering cross-divisional interdisciplinary learning are likely to have large payoffs relative to increased support of already strong departments.

### III. The solution we propose

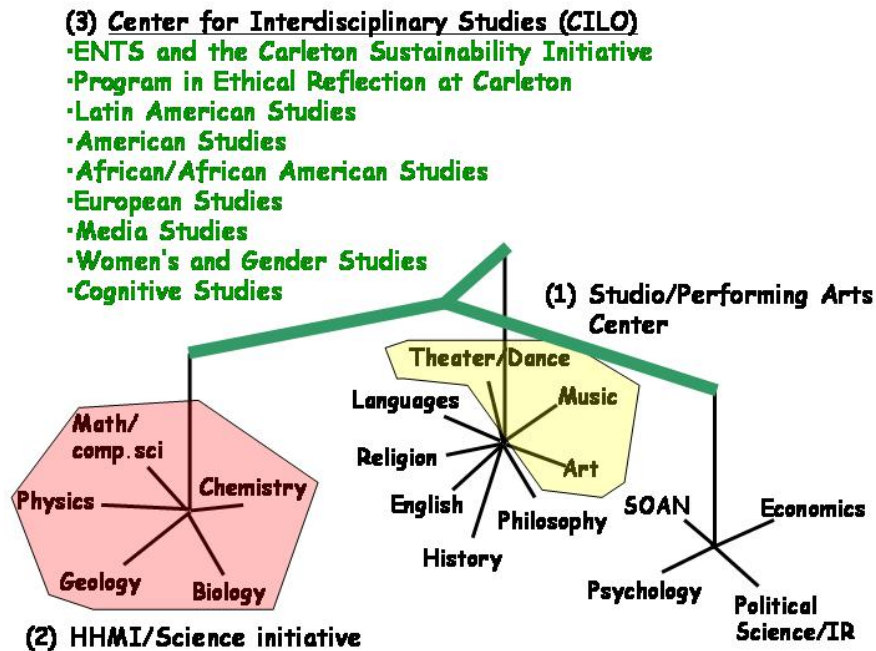
#### A. Establish a Center for Interdisciplinary Learning and Outreach (CILO)

Ultimately, we are in the business of making Carleton the best it can be. Integrations among departments and programs are important steps in helping students maximize their educational experience. Currently, there are two initiatives on campus that are working towards this goal:

- A. The Studio and Performing Arts programs are integrating.
- B. The Sciences, through the auspices of HHMI, are in preliminary discussion about exploring an interdisciplinary science center.

Both of these initiatives integrate the lower branches of the college. However, to some extent, they are integrations that are not conceptually new (the fields of biochemistry and earth system science are more than a half century old), and they don't advance our ability as a college to help our students become problem solvers capable of dealing with complex, contemporary issues that are interdisciplinary across major divisions.

President Oden's recent charge to the Arts Committee asked the group to ponder the ways in which we might work to shape arts education at Carleton to make us national leaders, as well as to give the College recommendations on what new facilities for the arts are most needed. A similar charge should be applied to ENTs, cross-divisional interdisciplinary learning, and college-wide sustainability.



Therefore, ENTs and EAC are formally proposing a third broad initiative that institutionalizes, simultaneously, the interdisciplinary learning opportunities across the three divisions of the college, community outreach, and the shift towards greater sustainability of operations at



Carleton. It should be a college priority to create a Center for Interdisciplinary Learning and Outreach (CILO). This center would permanently house programs dedicated to broad interdisciplinary learning and outreach, including ENTS, PERC, ACT and other service learning institutions, EAC, a new Carleton Sustainability Office (CSO), and the active environmental student groups on campus, such as Prairie and Wood (PAW), SOPE (Students Organized for the Protection of the Environment), MPIRG, Green House, Farm House, and KFC (Kids for Conservation).

This space would be a thriving center where contemporary global challenges are treated from an interdisciplinary perspective. Importantly, CILO could include other concentrations that address these same issues.

## **B. Commit to sustainability initiative, both financially and structurally/administratively**

ENTS and EAC believe that the time is ripe for Carleton to revisit, broaden, and dramatically strengthen its commitment to sustainability. The concurrence of the College's upcoming capital campaign with our comprehensive curriculum review, 100-year campus plan proposal, and near-term building projects presents a window of opportunity that we cannot afford to miss. Carleton can – and therefore arguably must – lead a transition from an inequitable, over consumptive, individualistic society to one that is socially, economically, and environmentally sustainable.

We believe that Carleton's moral responsibilities as an elite, small, private liberal arts college align perfectly with – in fact, enhance – its primary academic mission: "Carleton exists to provide a quality liberal arts education for young women and men who will become leaders in their communities, our country, and the world." This purpose will not be served, as David Orr points out, by colleges engaged in institutional denial about the implications of global change for their core mission. Carleton students must be prepared to lead, in Orr's words, "the struggle to ensure a habitable planet for coming generations so that all the other struggles might go on."

We propose that Carleton seize this opportune moment to orient the College's overall direction – in terms of curriculum, faculty development, community and alumni relations, governance, finance, campus operations and planning – around an ethic of sustainability, understood as a social, cultural, political, and economic as well as an environmental imperative. (See attached proposed vision statement.) We envision a college united behind and shaped to attain the goal of a sustainable society within our current students' lifetimes. Such a move would bode well for student recruitment, faculty retention, alumni giving, and community relations.

Toward this end, Carleton must do at least two things. First, we must set far-reaching goals for creating a socially, economically, and environmentally sustainable campus, and use this campus mission as a central focus of both student learning and faculty scholarship across all disciplines. The wind turbine initiative is an excellent model of the vast and under-tapped educational, economic and natural energy potential of campus sustainability projects. Such projects serve to unite students, faculty, staff, administrators, alumni, and community members around a shared

purpose; to test and refine innovative experiential, interdisciplinary, team-teaching, and service learning pedagogies; to develop students' intellectual faculties, critical thinking, communication, and practical reasoning skills; and most importantly to cultivate their sense of civic responsibility, empowerment, meaning and moral purpose. Second, we need to place the College's moral responsibility for leading the transition to a more sustainable future at the center of the academic mission of the college, and at the focus of the comprehensive curriculum review currently underway.

The immediate step should be to institute sustainability in all campus decisions whether physical, social or academic. As a means to implementation, the establishment of a Carleton Sustainability Office (CSO) would serve as a hub or umbrella for sustainability initiatives on campus and beyond. Such a center should be directed by a sustainability board, which should also be empowered to participate fully in academic and facilities decision-making on any sustainability-related matters – campus operations, curriculum reform, student initiatives, environmental audits, and so on.

#### **IV. Requirements**

- Strengthening ENTS is a necessary condition for strengthening interdisciplinary and sustainability. The following list of ENTS activities are restricted by existing budget constraints:
  1. Faculty FTE to buy time from departments so that ENTS faculty can team-teach genuinely interdisciplinary courses and fund faculty and student travel to national and international sites. The Luce/Mellon grants for our curricular redesign were intended to provide the initial stages of this support, but the recent rejection by Luce has accelerated the need for permanent institutional support.
  2. A seminar series, where ENTS could bring in prominent speakers and consultants to help with the College's transition to more sustainable operation. We currently cannot afford a seminar series.
  3. More money for fully funding summer internships and senior capstones. Using the current year as an example, we have \$45,000 worth of internship request, more than double the usual source of funding. There is currently no budget for funding senior capstone projects.
  4. Annual faculty, and possibly faculty-alumni, travel to major international sites struggling with environmental issues.
- The following items are needed to help Carleton transition to more sustainable operations:
  1. Endowment of future capital projects that include an up-front green premium cost, which will be recovered by significantly reduced operational costs.

2. Establishment of a new Carleton Sustainability Office (CSO) that is staffed by a new position called the Sustainability Coordinator. This position has already been institutionalized at several other schools, including the University of North Carolina and Harvard University. This person would be in charge of coordinating sustainable design building and renovation projects, helping the college develop environmentally responsible purchasing policies, and developing a system of institutional assessments (audits or environmental systems management), adaptive management, and promotion of successes. In effect, several faculty on EAC and ENTS are currently trying to fulfill these roles in addition to our already busy schedules, and this is not sustainable in the long term.
3. Funds to buy real-time metering equipment to determine the dynamics of energy and water use.
4. We could institutionalize sustainability across the curriculum by following a model similar to that of other schools. In 1990, Tufts University launched the Environmental Literacy Institute with the goal that each of the 7800 students would graduate “environmentally literate.” They held a two-week summer faculty workshop to “cross train” on environmental issues and to incorporate this knowledge into classes across the curriculum.
5. At Oberlin, new faculty and student orientations include an orientation to sustainability on campus. Funding could be provided to Campus Activities to include these kinds of programmatic changes.
6. Fund an annual symposium on a sustainability issue and an annual “State of the Environment at Carleton” address.
7. Funding to enable Carleton to ship and monitor its food waste using the St. Olaf composting system.
8. Funds for faculty and students to travel to national and international sustainability conferences to promote/advertise our successes at Carleton.

## **V. Funding possibilities**

### **A. Endowment**

1. Endow the following items/programs directly through the capital campaign:
  - The construction of a new, super-sustainable CILO building housing ENTS and other participating concentrations, ACT, the new Carleton Sustainability Office, for teaching and learning about major interdisciplinary issues
  - The ENTS Concentration (annual revenue stream determined by programmatic needs, described above)

- The Sustainability Initiative (annual revenue stream determined by programmatic needs, described above)

## **B. Recuprated savings from sustainability initiatives**

2. Once the wind turbine pays itself off, the ENTS program and sustainability initiatives could receive the annual revenue stream from Xcel Energy. Projected income between could be used to support the budgetary items listed above.

This model would benefit from continued commissioning of wind turbines or other renewable energy sources that generate revenue for the college. Funding environmental and interdisciplinary initiatives by renewable energy sends a great message that would be a good public relations tool.

## **APPENDIX I:2. - VISION STATEMENT – CARLETON’S SUSTAINABLE FUTURE**

Institutional ethos and statement of principles:

- Carleton understands and acknowledges its role within the local, regional, and global social and ecosystems
- The college is committed to assessing the college’s influences, understanding their impacts, and mitigating those impacts to lessen or eliminate the harm done to living creatures.
- Carleton is officially committed to promoting the values of social, environmental, and economic sustainability through its mission as a small private liberal arts college.
- Carleton recognizes its obligation as an institution of higher learning to promote students’ sense of civic and moral responsibility as well as their intellectual development and individual flourishing; to cultivate the knowledge, skills, and character traits necessary for global and local community leadership; to empower students not just to succeed in the world but to transform it.
- Carleton plays a meaningful role in advancing sustainability in our local community and region as well as internationally.
- If we are to sustain the carrying capacity of the Earth indefinitely, we must determine how to live well without “spending” the Earth’s principal.

Specific goals in construction, maintenance, and operations of campus facilities and management of college assets:

- Carleton is climate-neutral and fossil fuel independent.
- Carleton’s ecological footprint is equivalent to or smaller than the area of land it occupies.
- Carleton ensures that resource inputs are minimized, and as far as possible produced locally, sustainably, and equitably.
- Carleton ensures that waste outputs are minimized, recycled/composted whenever possible, non-polluting, and do not disproportionately burden already disadvantaged sectors of society.

- Carleton engages in socially responsible investing, financial management, procurement, and licensing arrangements. Carleton budgeting and accounting practices reflect life-cycle analysis.
- Carleton's campus community as a whole serves as a model on the cutting edge of sustainable living.

In its academic affairs:

- Carleton's curricular requirements ensure that all graduates develop an ethical as well as an empirical understanding of the social, environmental, and economic dimensions of sustainability.
- Excellence in interdisciplinary teaching is the rule rather than the exception among Carleton faculty.
- Carleton graduates are as a rule able to situate the specialized knowledge from their majors within a context of global systems and to communicate about their major from a range of disciplinary perspectives.
- Experience with community-based learning and/or service learning for Carleton graduates.
- All departments and programs require majors and concentrators to understand the role of their particular area in the creation of socially, environmentally, and economically sustainable institutions, communities, and cultures.
- All sectors of the college – governance, administration, operations, and community relations, as well as curricula – are included in the students' learning environment.

### **APPENDIX III: Watson House Resolution -- February 24, 2005**

#### Approved by the EAC

It is the recommendation of the EAC that the new student house to replace Watson House should be designed and constructed with "life cycle costs" in mind, in keeping with the principles of long-term planning that guided the 100-Year Plan." Every currently available sustainable technology should be investigated as to its application and suitability in the Carleton student housing context. Applying these concepts will not only save Carleton operational costs but demonstrate to students, faculty, staff, alumni and trustees, Carleton's leadership role in stewardship of its resources.

#### Approved by Fred Rogers:

It is the recommendation of the Environmental Advisory Committee that the new student house to replace Watson House should be designed and constructed with "life cycle costs" in mind, in keeping with the principles of long-term planning that guided the 100-Year Plan. Currently available sustainable technologies should be investigated as to their application and suitability in the Carleton student housing context. Applying these concepts could not only save Carleton operational costs but would demonstrate to students faculty, staff, alumni, and trustees, Carleton's leadership role in stewardship of its resources.

## **APPENDIX VI: Carleton College Paper Products Procurement Proposal**

### **Whereas,**

- **The United States has already lost 96% of its old growth forests.**
- Only 22% of the world's old growth forests are still intact.
- Seventy-six countries have already lost all of their old growth forests, and eleven more countries are on the verge of doing so.
- Outside of the world's cold boreal regions, 75% of the world's old growth forests are threatened.

**Whereas,** old growth forests and tropical forests have important ecological and environmental value for their bio-diversity, and because many are carbon sinks (i.e. they absorb carbon from the air). Globally, old growth and rainforest depletion threatens indigenous groups living in these areas with extinction.

**Whereas,** native forests everywhere are being converted into mono-cultural plantations. For example, the Southern US is losing its native hardwood forests to pine plantations, and old growth forests in Chile are being converted into eucalyptus plantations. Timber companies are also experimenting with genetically engineered trees, which endanger all native forests.

**Whereas,** a coalition of environmental and community groups have agreed to the following for companies to meet:

- No paper products from old growth forests
- No paper products from public lands
- No new conversion of natural forests to plantations
- No genetically engineered trees

**Whereas,** 100% post-consumer recycled paper is currently available through our distributor for purchasing, the post-consumer recycled content by weight only makes up 8% of the paper consumed on campus.

**Whereas,** other Colleges and Universities, such as University of North Carolina and College of the Atlantic, have agreed to phase in similar policies. Also, other schools (ex: University of Minnesota, Evergreen College, U of New Hampshire, U of Vermont, U of Georgia, and Colgate College) have also moved forward on changing the way they purchase paper.

**Whereas,** on-going mapping and monitoring work will provide these companies and other interested parties with detailed maps showing the location of endangered forests throughout the world. Global Forest Watch, an initiative of World Resource Institute (WRI), is creating the first worldwide monitoring network that tracks threats to forests using satellite imagery and computers to gather the data and to map it out.

**Whereas,** the Certified Forests Products Council is a business association supported by environmentalists that certifies forest certification programs in an effort to unify independent certification efforts.

**Whereas,** Carleton College recognizes that in the next few years new technology will bring down the price of tree-free and recycled paper; as well as provide for a wide variety of new options, such as old-growth free and chain of custody tracking of all wood and paper products.

**Whereas,** Many logging companies, such as Boise Cascade and Fraser Paper are under scrutiny by prominent environmental groups for their unacceptable forestry practices. Therefore, all such companies need to be banned from this campus via a blanket paper procurement policy.

**We, the Environmental Advisory Committee, propose that the College enact the following paper policy:**

**Resolved,** Carleton College moves toward 100% post-consumer recycled paper or a tree free alternative by increasing the size of the paper budget by \$6,000 per year. This \$6,000 increase shall be used solely for the purchase of post consumer waste recycled paper. If only a certain percent of recycled content is post-consumer waste, this \$6,000 will go only toward the portion that is post-consumer waste. It will not be used for the fraction of paper that is virgin or recycled, but not post-consumer.

Carleton's paper shall also:

- 1) Have the supplier certify in writing that any virgin fiber in the paper is not originating from old growth forests
- 2) Be certified as Totally Chlorine Free (TCF) or, if not available, Elemental Chlorine Free (ECF).
- 3) Only contain virgin fiber coming from a forestry operation that is certified as sustainable. The certifying organization must be an independent, non-profit, non-industry, non-government certification organization accredited by the Certified Forest Products Council, such as the Forest Stewardship Council. (Note: If this qualification is met, then so is #2, as long as the organization is accredited by the Certified Forest Products Council).

NOTE: 100% post consumer recycled paper or a tree-free alternative would be the best way to meet all the aforementioned criteria.

**Resolved,** that it be the college's policy to factor into the purchasing process for printers and copiers their performance with post-consumer waste paper and the duplex option.

**Resolved,** until the proposed policy is fully in place, Carleton College shall, by default, order paper with the highest percentage mixed of recycled content feasible for the college's copying and printing needs.

**Resolved,** this College shall explore the use of alternative tree-free paper products.

**Resolved**, the College shall encourage every individual and department to move toward a sustainable use of paper.

## **APPENDIX VII: - COMPOSTING**

### **The College Composter**

*"Waste equals food."* —William McDonough

*"Stop generating waste and stop wasting it."*  
— [St. Olaf environmental principle #7](#)

At St. Olaf and elsewhere, we hope the food we eat helps us to do good work in the world. And now we hope the food we *don't* eat also does good work in the world.

We consume a lot of food at St. Olaf-about 80,000 meals a week. A few cynical students think the food is garbage even before they eat it. But all of them agree it's garbage when they're done. On the average, we generate about 700 pounds of food waste every day, including the scraps trimmed from food in preparation. That's not bad. If 2650 students eat 2.5 meals a day (a rough estimate), that would be prep and plate waste of 1.7 ounces per student per meal.

When we designed Buntrock Commons in the late Nineties, we planned the food service as a resource flow from farm to fork to fertilizer. When students deposit their trays on the carousel after meals, the kitchen staff slides all the leftover food into a pulper that extracts water from the waste. The result is a slurpy *essence de garbage*, easy to handle and easy to compost.

Right now, this garbage goes to a landfill on Highway 3, where it takes up space. Eventually the food waste will decay, but it's mixed with metal and plastics and chemicals in the landfill, so it won't return to the food cycle. Starting in January, however, our food waste will be food for the flora of our campus and farmlands.

In early 2004, members of the [Environmental Coalition](#) collected and weighed all the cafeteria waste for a week. Shortly after, the college purchased an in-vessel composter from [Wright Environmental Management](#). When it's installed on land just south of North Avenue, it will handle up to a ton of waste a day. The composter combines food waste (including dairy products and meat) with woodchips, pizza boxes and other paper products, converting this recipe to fertilizer in a period of 14 days. The composter may reduce our garbage disposal costs. And all of the compost will be used on the college's flower beds and agricultural fields.

Our composter is good for us and good for the natural communities of the college, but it's also good for the human community of Northfield, because we can reduce pressure on the public sewage treatment plant. It's no longer a situation of "garbage in, garbage out." With a composter, it's "garbage in, compost out."