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TAPS (1997b) *TAPS Bulletin*1(2). Transportation and Parking Services, University of California at Davis.

Teichert, K. (1996) Brown Is Green Program at Brown University: Electrical Efficiency. In "*Ball State Greening of the Campus Conference 1996*". Muncie, Indiana.

Chapter 7

Institutional change and leadership in greening the campus¹⁵

Aaron Allen

Abstract

How do institutions change? How can change occur at an institution of higher education such as Tulane? What (or who) prevents well-meaning changes from occurring? This chapter uses environmental concerns at Tulane University as a case study to examine the institutional change process. Agents of change should be able to use the examples and conclusions in this study as a basis for making changes at Tulane or any institution. The thesis is that *the inability for Tulane to make the campus environmentally sustainable in terms of operations and education is due to the lack of an institutionalized internal lobbyist and leader dedicated to environmental issues*. The argument is supported with a model for institutional change (developed from an extensive literature review), a historical analysis of non-environmental and environmental change initiatives at Tulane, a review of campus greening programs in institutions of higher education in the United States, and a series of interviews with Tulane students and employees. In conclusion, an Office of Environmental Affairs (OEA) with an Environmental Coordinator is needed to provide continual and focused leadership. Policies, resources, means and ends, and education are also lacking and should be procured and developed. These elements, from the model for institutional change, are incorporated into a „Blueprint for a Green Tulane,“ which outlines the steps necessary for institutional environmental change to occur. The central component of that change is leadership from the Environmental Coordinator and from students, who will in turn carry their leadership in the environmental sustainability movement beyond the campus and help create a more sustainable world.

Background information on „greening the campus“ and on Tulane University

„Greening the campus“ means increasing environmental awareness and / or action on campus – in the operational facilities and processes of the campus as well as in the human communities of the campus and surrounding areas. Greening the campus involves working towards some or all of the

¹⁵ This article is excerpted from a larger study entitled *Greening the Campus: Institutional Environmental Change at Tulane University*. It is available from the Tulane Environmental Studies Program (address above) and on the Internet at http://www.tulane.edu/~env_stud/greening.htm.

goals set forth in the *Blueprint for a Green Campus* (see Table 1). Although the fundamental theme of greening is education, this study focuses on campus operations, the greening of which is pedagogical, not just educational. The economics of campus environmental initiatives in higher education are well documented: *greening the campus saves money* (see Table 2). Investing in campus greening is therefore an economic, educational, and environmental investment with handsome returns – both financial and social.

Table 1: The *Blueprint for a Green Campus* (1995) outlines a „green“ campus as one that:

- integrates environmental knowledge into all relevant disciplines;
- improves undergraduate environmental course offerings;
- provides opportunities for students to study campus and local environmental issues;
- conducts a campus environmental audit;
- institutes environmentally responsible purchasing practices;
- reduces campus waste;
- maximizes energy efficiency;
- makes environmental sustainability a top priority in campus land-use, transportation, and building planning;
- establishes a student environmental center; and
- supports students who seek environmentally responsible careers.

In addition to saving money, campus greening allows students to learn how to infuse environmental sustainability into the larger society. Students must be able to practice (and see the University practice) the lessons of environmental sustainability which they are taught in the classroom. Tulane has committed to environmental studies, along with three other areas of interdisciplinary interest: urban studies, international studies, and information technology. Together, the four are conducive to environmental responsibility and stewardship.

Tulane University is located in uptown New Orleans in the state of Louisiana; the distinction „uptown“ comes from the area being up-river from the historic French Quarter, the original and southernmost French settlement on the 2,552-mile-long Mississippi River. The Mississippi River Basin drains 30 states, or 1.15 million square miles of land (41% of the landmass of the continental United States). The River is the dominant feature of New Orleans, and Tulane is beginning to design research agendas and teaching curricula around it. Doing so is particularly appropriate, since Paul Tulane, the benefactor of the University, was a River pilot.

Tulane was established in 1834, with 11 students and 7 faculty in a rented hall, as the Medical University of Louisiana to study and treat „the peculiar diseases which prevail in this part of the Union“ (Tulane University 1997). Tulane is now diversified into 11 academic divisions¹⁶ with approximately 6,500 undergraduates, 4,800 graduate students, and 8,000 employees, of which approximately 1,750 are full- or part-time faculty. A University-sponsored study determined that 24,000 Louisiana workers owe their jobs directly and indirectly to Tulane. Additionally, the

¹⁶ The 11 academic divisions are as follows: three undergraduate and one graduate Liberal Arts and Sciences colleges with 30 degree-granting departments, and schools of Engineering, Architecture, Law, Medicine, Public Health and Tropical Medicine, Business, and Social Work.

University injects approximately \$1.5 billion into the local economy each year (Strecker 1998). With its historical location on the Mississippi River, traditional focus on health and education, and significant impact on the local economy, Tulane has a formidable presence in the southern United States.

Table 2: Annual revenues and savings for 23 campus conservation projects from the National Wildlife Federation's *Green Investment, Green Return* report (Eagan and Keniry 1998).

<i>Transportation</i>	
Reducing Car Use at Cornell	\$3,123,000
Increasing Bus-Riding at UC-Boulder	\$1,000,000
<i>Energy Conservation</i>	
Saving Energy at SUNY-Buffalo	\$9,068,000
Retrofits at Elizabethtown College	\$247,000
Energy Reduction at Brevard Comm. College	\$2,067,000
Laboratory Renovations at Brown University	\$15,500
Better Lights in Dorms at Dartmouth	\$75,000
Solar Panels at Georgetown	\$45,000
<i>Water Conservation</i>	
New Water Fixtures at Columbia	\$235,000
Water-Saving Showerheads at Brown	\$45,800
<i>Dining Services</i>	
Washable Cups at Harvard	\$186,500
Refillable Mugs at UW-Madison	\$11,400
<i>Re-Use</i>	
Surplus Property at UW-Madison	\$241,800
Re-Refined Oil at UI-Urbana-Champaign	\$3,500
Chemical Re-Use at the Univ. of Washington	\$14,400
<i>Management of Hazardous Chemicals</i>	
Reducing Weed-Killers at Seattle University	\$1,300
Fewer Lab Chemicals at the Univ. of Minnesota	\$37,000
<i>Composting</i>	
Fertilizer from Food Waste at Dartmouth	\$10,000
Landscape Waste & Scrap Wood at UC-Boulder	\$1,300
<i>Recycling</i>	
Award-Winning Program at UC-Boulder	\$107,000
Dining Services Recycling at Harvard	\$79,000
Paper Recycling at UW-Madison	\$120,000
Analyzing Wastes at UW-Madison	\$21,000
Total Savings & Cost Avoidance:	\$16,755,500

Presently, Tulane is in a time of profound change: a presidential transition. Tulane's new President, Dr. Scott Cowen, sees the academic year 1998-99 as a „Renaissance of thought and action“ to redesign Tulane for the future. The present state of strategic planning is an opportune time for institutionalizing the greening process. An initial assessment of the Tulane environment (an environmental audit, discussed below) shows that much needs to be done, even though Tulane is not at ground zero with respect to greening. Environmental change, however, will not happen spontaneously; a bold change agent must take an active approach to ensconce environmental values into the core of Tulane's mission: its educational, service, research and operational structures.

Institutional Change

A Model for Institutional Change

Figure 1 is a model of institutional change. It is derived from the literature on institutional change in higher education.¹⁷ Additionally, case studies in non-environmental and environmental change at Tulane and in academia support the model. The key element is a leader who is an administrator or faculty member but not a student, because students lack power and connections and are temporary (students, however, do play absolutely integral roles in the change process, as discussed below). In addition to the leader, leadership from the administration is necessary to support the change agenda.

The model is a conceptual framework for understanding and implementing change. It is dynamic: the dark arrows represent normal „flow“ whereas open arrows represent feedback. The model is dynamic not only in itself but also between applications; different circumstances result in different paths. For example, education (the „end“) may result in further advocacy for new changes (thus the dotted line, effectively making the model cyclical); also, procuring policy may return the advocates to the advocacy stage before getting resources. The model is not rigid; for example, policy may be skipped entirely – but the results of the change may not be permanent as a result. Dividing the change process into the segments of the model is artificial but necessary. Institutional change is not spontaneous, and greater understanding of the process will increase the likelihood of success for change movements.

Advocacy is the impetus to begin change. It is the product of diffuse, irregular efforts of (primarily) students and faculty found in the „shadow“ of the university – the area outside of the „mainstream“ of campus life and separate from the traditional governing structures of the institution (David Ehrenfeld, personal communication, 1998; Mansfield 1998; Bowers 1997). Advocacy is usually a grassroots or bottom-up effort, but top-down advocacy is just as important: the two converge in the middle to create the integrated advocacy required for institutional change.

Advocacy results in policy. Development of specific and general policies should be consensual, with the input of all appropriate parties. Policies should be applicable, enforceable and non-rhetorical in order to support, justify and communicate the change goals. Additionally, policy

¹⁷ The complete literature review is available in the *Greening the Campus* study.

development and having policies in place is a form of education (a mean and end) about the change agenda (Creighton 1998, MacTaggart 1996, Strauss 1996, Keniry 1995, Smith 1993, Hamburg and Ask 1992, Lane 1990, Cerych and Sabatier 1986, Fantini 1981, Gitell 1981, Altbach 1974).

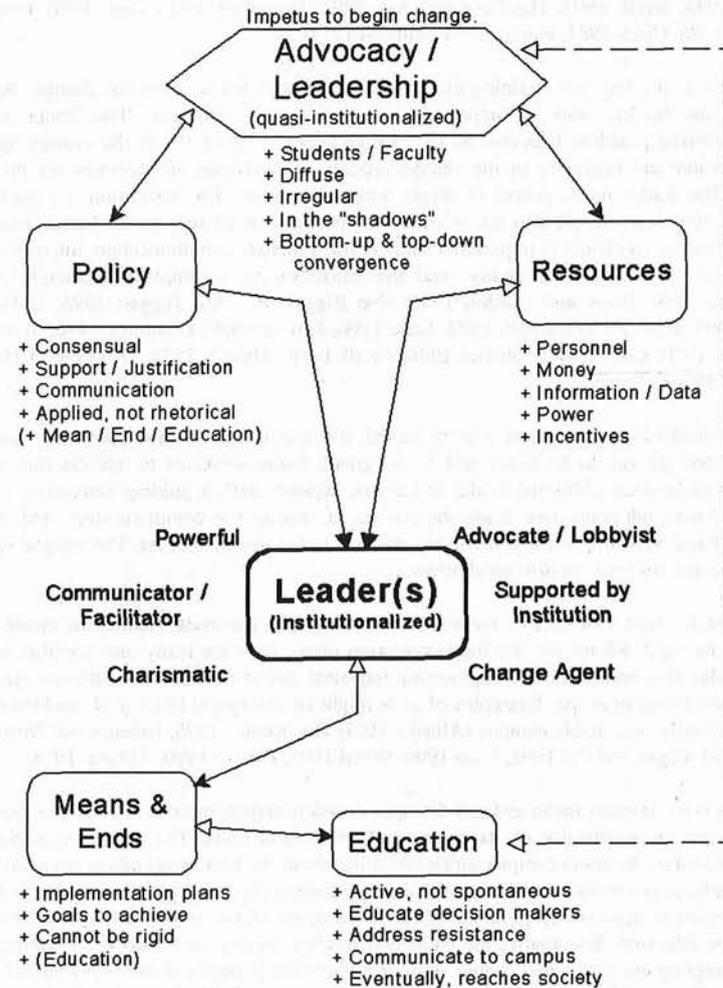


Figure 1: Model for institutional change

Advocacy and policy procure resources. Roughly prioritized, the primary resources are personnel (a leader, support staff, an office), financial resources, information and data, power (or direct access to power), and the ability to offer opportunities and incentives for improvement and positive change. Resource allocations should be in line with the missions of the institution, and a continual supply of necessary resources will maintain the desired changes. (MacTaggart 1996, Keniry 1995, Smith 1993, Hamburg and Ask 1992, Dominick 1990, Lane 1990, Cerych and Sabatier 1986, Gitell 1981, Fantini 1981, Altbach 1974).

Leadership is the key and defining element of the model for institutional change. Advocacy procures the leader, who is supported with policy and resources. The leader is in an institutionalized position dedicated to the change agenda. He or she is the change agent: the communicator and facilitator of the change process, the advocate and lobbyist for the change agenda. The leader needs power or direct access to power. The institution – especially the administration, who should also act as leaders for change – must support the leader. Finally, the leader should be charismatic: important character traits include communication, interpersonal and listening skills; visionary planning; and the capability to accomplish meaningful projects (Creighton 1998, Berry and Gordon 1993; also Riggs 1997, MacTaggart 1996, Dolence and Norris 1995, Keniry 1995, Smith 1993, Lane 1990, Farmer 1990, Dominick 1990, Wood 1990, Rainsford 1990, Cerych and Sabatier 1986, Gitell 1981, Altbach 1974; Orr 1990, 1992, 1994, 1995 and 1996).

While the leader is the key element to the model, it is also the place for the potential tragic flaw: how can one person do so much and be so great? Some solutions to address this potential weakness include an additional leader or leaders, support staff, a guiding committee (one that provides broad administrative leadership, ideas, a modus for communication and potential resources) and, most importantly, involving students in the change process. The integral roles of a committee and students are discussed below.

The leader develops well-defined means to achieve agreed-upon ends. Neither the means nor the ends can be rigid. Means are the implementation plans; they are many and specific, and they address education and process re-engineering (physical and administrative). Ends are goals; they are few and broad in scope. Examples of ends might be ecological literacy of graduates and an environmentally sustainable campus (Alinsky 1971; also Keniry 1995, Dolence and Norris 1995, Smith 1993, Egan and Orr 1992, Lane 1990, Wood 1990, Farmer 1990, Altbach 1974).

Education is the primary mean and end. Campus decision-makers must be educated on the change agenda – on the mechanics of its means and its desired ends. The same issues should be communicated to the entire campus, since education about the change agenda is not spontaneous. For example, in environmental change, the campus community will not automatically understand the mechanics of a recycling program or the larger goals of environmental sustainability; they need to be educated. Eventually, the education reaches society, and such is the ultimate goal when attempting environmental change in higher education (Ackerman 1997, Brown and Duguid 1996, MacTaggart 1996, Keniry 1995, Dolence and Norris 1995, Orr 1994, Smith 1993, Orr 1992, De Young 1986, Gitell 1981, Altbach 1974).

Some theory ties together the model for institutional change in higher education: change does not happen spontaneously (Ackerman 1997, Bowers 1997, Williams 1991, DeYoung 1986). The changes pursued must be realistic. They will take time to achieve and will never be 100% complete (MacTaggart 1996, Steeples 1990, Cerych and Sabatier 1986). Operational changes affect some people significantly, while most are affected only minimally; transformation, not revolution, is needed. A two-dimensional framework of change is appropriate for Tulane¹⁸: depth is the degree to which a change requires a departure from existing values and practices, and breadth is the number of areas within the institution a change is expected to introduce modifications. Wide / deep changes result in opposition, whereas narrow / shallow changes do not take hold. Changes are most likely to succeed when they are moderate in depth and breadth of change (Cerych and Sabatier 1986). Institutional environmental change with regard to campus operations is moderate change (Hamburg and Ask 1992).

Institutional Change at Tulane (Non-Environmental)

Past change initiatives at Tulane show that, despite numerous barriers, both moderate and profound changes are possible – given an empowered leader (or leaders) with resources and policy who introduces means and ends to implement change. Six cases exhibit non-environmental change: Tulane's management of the Housing Authority of New Orleans (HANO); multicultural affairs; bisexual, gay and lesbian affairs; Tulane College's Programming Office; Tulane 2000; and the University Transformation Program. People did not immediately embrace these issues (they were not spontaneous); advocates and leaders convinced the campus that they were meaningful changes. For example, Tulane's management takeover of HANO was not a spontaneous move – the leader who initiated the project believed that Tulane's involvement was appropriate and in the best interests of HANO, Tulane, and the citizens of New Orleans.

Multicultural affairs; bisexual, gay and lesbian affairs; and programming issues in Tulane College show that it is necessary to establish offices responsible for oversight and implementation of changes. Advocacy began the establishment of all three, and all established policies and procured resources (an office, a budget, a director, etc.). Then institutionalized leaders implemented educational programs (means) to achieve broad goals (ends).

Two recent reforms were much more ambitious in their scope: Tulane 2000 sought to stabilize the University's budget (and subsequently focus the institution's academic priorities) with broad cutbacks, increased revenues and reallocations of resources; and the University Transformation Program sought to improve the quality of staff services and classrooms, along with starting an extracurricular program for first year students, instituting an information technology helpdesk, and establishing an international studies office. Both initiatives had a leader (the President and the Provost, respectively) and resources to develop and implement policy to make change.

¹⁸ Cerych and Sabatier (1986) put forth a three-dimensional model, but the third dimension is for multi-institutional systems („level of change“), such as state schools with many campuses that are completely unconnected except for their central source of state funding. While Tulane has eleven different schools, they are all under the same administrative superstructure.

The necessary elements of achieving change characterize these preceding examples, and most fit into the strategic goals of the University (urban studies, international studies, environmental studies and information technology). Missing, however, is a concerted effort to make Tulane more environmentally responsible. While environmental research, and to some extent education, have improved (due to grant monies), the third and critical element of an environmentally focused institution of higher education – operations – has not been greened.

Institutional Environmental Change at Tulane

The above model shows that an institutionalized leader needs policies and resources in order to develop the means and ends and the education to move Tulane towards environmental stewardship. At Tulane, that leader should be an Environmental Coordinator in an institutionally supported Office of Environmental Affairs (OEA), which reports the Tulane Environmental Committee (TEC), the creation of which is the key advocacy needed to begin the institutionalization of the environmental change process at Tulane.

Tulane needs a general environmental policy and specific policies for certain greening projects such as recycling and procurement; the University cannot rely on the strategic goal of environmental studies to provide that policy. Resources (in the form of personnel, money, information, power and incentives) are needed for the greening initiative. The leader develops the means to achieve an environmentally sustainable campus that carries the message of environmental stewardship into society. Motivation (education) is critical: the OEA must communicate environmental concerns to the entire campus in order to accomplish greening goals. The leader should place special emphasis on key decision-makers to catalyze and maintain their support.

Institutional environmental change at Tulane is possible. Campus greening goals do not alter the basic mission of the University, in fact they complement them: environmental studies meshes well with information technology, international studies, and urban studies. Although much remains to be done, Tulane is not starting at ground zero. The environmental change needed at Tulane is moderate in the breadth and depth of change that would affect the University. With the advocacy to procure policy and resources, an institutionalized leader can provide the means, ends, and education necessary for institutional environmental change. An Environmental Coordinator is the key to coordinating environmental programs in the many divisions of Tulane.

The History of Greening at Tulane

The three divisions of the university are research, education and operations, and each has been greened to some extent. Case studies in each area support the model.

Environmental research has been the most successful division. It is a popular area because of the income associated with research grants and the opportunities for publishing. Also, quasi-policy (the environmental studies focus) and resources (multi-million dollar grants) led the development of extensive environmental research programs. The leadership of Dr. John McLachlan of the Center for Bioenvironmental Research (CBR) has developed, coordinated, and maintained

environmental research program opportunities. The research division received a subjective grade¹⁹ of „A-“ in the spirit of the *Green Gradecard for the Green Wave* environmental audit (discussed below).

Tulane's Environmental Studies Program (ENST) has a history that epitomizes how institutional change occurs. In the early 1970s, students lobbied for the creation of the ENST. The coordinated major program (where students major in another field in addition to Environmental Studies) stagnated until the early 1990s, however, because the program was not allocated a budget and had only the devotion of one professor, who was not compensated for his involvement. As a result of the then new environmental studies focus of the University, the program progressed: new faculty became involved and established an environmental education committee, and grant monies provided the resources to offer course development grants, purchase equipment, hold training seminars,²⁰ and hire a part-time program coordinator. As a result, the program prospered, and enrollment increased dramatically.

However, the faculty leading the program could not dedicate enough of their professional time to the program; they treated it as if it were a University Senate committee. The student environmental organization, the Green Club, worked cooperatively with the ENST on numerous projects, including the campus environmental newsletter the *Environmental Forum*, the development of campus environmental e-mail listservers, and the design and publication of the *Enviro Counter Culture Catalog: A guide to environmental classes at Tulane*. The *Enviro Catalog* has received wide acclaim from within and outside of the University.²¹ In 1998, the grants ended, and the University refused to provide a budget for the ENST and its more than 50 students. The CBR stepped in to fund the Program, but that funding also came from grants. Thus, the future of the environmental education program at Tulane is in question because of the lack of institutional support (i.e., a budget). Additionally, the program is still directed by faculty members who are over-extended in their administrative commitments. While the ENST has potential to be a top program at Tulane and in the southern United States, the lack of administrative support and the absence of a full-time dedicated leader are hindering such success. The education division received the subjective grade of „B-“.

The Green Club and the Tulane Environmental Project (TEP) have been significantly involved in the greening of one operational aspect of Tulane: recycling. Recycling at Tulane began in the 1970s as a volunteer effort. In the late 1980s the Green Club formed to address more institutionalized recycling. In the early 1990s, the Green Club leadership petitioned the University to establish a committee to green the campus. Tulane's President at the time, Dr. Eamon Kelly, established the TEP and appointed Professor of Environmental Law Oliver Houck as chair. The TEP was active for two years. In the first year the members of the TEP researched and implemented a recycling program, hiring a full-time coordinator and receiving a minimal

¹⁹ The *Green Gradecard* did not use any standardized grading procedure; the students who conducted the audit relied on subjective judgement to grade each area of the institution. The same subjectivity was used in this study, although the research behind the subjective decisions was much more extensive.

²⁰ For more information on Tulane's innovative faculty enrichment seminars, visit <http://www.tulane.edu/~efes>.

²¹ The *Catalog* is on the Internet at <http://www.tulane.edu/~greencb/catalog/>.

University budget. In their second year they began a recycled procurement program to „close the loop,“ but that initiative was limited to a few paper products). Peaks and troughs in student leadership and activism (advocacy), the coming and going of numerous recycling coordinators over the years (leadership), and variable administrative support (resources) have led to peaks and troughs in the success of recycling operations. The Green Club has attempted other operational greening programs (e.g., a „Green Dining“ initiative in Tulane dining areas that has had minimal impact), and the administration took on an economics-based lighting retrofit (which did not include any education initiatives for saving energy and had no explicit environmental motives), but no other significant environmental operations initiatives have been institutionalized. The operations division received a subjective grade of „D-“ / „D“.

Table 3: Gradecard from the Green Gradecard for the Green Wave: Environmental Sociology Audit Project, April 22, 1997

AREA	GRADE	NOTES
Curriculum	A-	Strong, growing, funded
Buildings	C	New buildings OK, old poor; no renovation plans
Energy Use		
lights	A-	Upgrade program underway
heating/AC	D	Leaky buildings, overuse
Water	C	Overuse, poor conservation
Food Services		
Bruff Cafeteria	B-	Mostly reusable dinnerware, some vegetarian meals, low food waste, no donation, some recycling
University Center	C+	Mostly disposables, improving, as Bruff
Recycling		
academic buildings	B	Program needs more workers, infrastructure
dormitories	C	Need more institutional follow-up
campus grounds	F	Need bins on grounds
Composting	F	No composting of yard/food wastes
Procurement		
paper purchasing	B	2-sided / recycled paper policy exists, use varies
cleaning/pesticides	F	No environmental or safety considerations
hazardous waste		
policies	A-	Good policies exist
compliance	C-	Little or no awareness and action
Medical Waste	C	Good safety regulations; poor information gathering
Consciousness		
knowledge	B	Students aware of needs
action	D	Wasteful behaviors abound
Research	B	Much positive research, some poor funders
Investments		
business partners	B-	Pepsi, Marriott, BFI
endowment	F	No social/environmental screening
donors	D	Shell, Freeport-McMoran have poor envi. records
GREEN G.P.A.	C	1.97 Average Overall on 22 items

The history of greening at Tulane supports the model described above and reaffirms the need for a leader. Research has had a supported leader, and that division has been successful; numerous centers and laboratories at Tulane focus on environmental research. As for education, the Environmental Studies Program cannot rely completely on whimsical outside grants; it should be a University-supported program with a leader. Recycling and procurement programs are in need of improvement; each should develop coherent policy and comprehensive means to achieve those ends. Additionally, other campus greening programs for operations need to be established for Tulane to live up to its reputation as an environmental (research and education) university.

The Environmental Coordinator of the OEA could work closely with the ENST, CBR, Green Club, Recycling, and various schools and departments. The OEA could coordinate campus greening projects with students, staff, faculty, administrators, and the local community in the education, research, and operations divisions. All divisions need the support of the University administration and past greening leaders. An environmental audit of Tulane and lessons from academia offer support for the model for change and provide ideas for greening programs at Tulane.

The Greening Phenomenon in Higher Education

The *Green Gradecard for the Green Wave* environmental audit highlights many areas that are in need of improvement at Tulane, especially when it is compared with other institutions of higher education. Experiences in academia offer caveats, lessons-learned and examples on which Tulane can build – and even exceed. The greening initiatives in academia support the model for change, and they show the sound economic, social and environmental implications of such programs (Creighton 1998, Eagan and Keniry 1998, Keniry 1995, the *Blueprint* 1995, Smith 1993). Environmental audits are powerful tools for gathering information about the environmental quality of the campus. They are the starting point for environmental change, and they provide information to educate the campus, the community and especially those involved in the audit. Tulane's audit, the *Green Gradecard for the Green Wave*, which an Environmental Sociology class conducted in the Spring of 1997, evaluated various areas of the University and issued letter grades with respect to environmental performance. Environmental Studies, an energy saving lighting program, and hazardous waste policies received „A-“ grades, while recycling, investment practices, and procurement of chemicals and pesticides received failing grades.

Overall, the audit graded twenty-two areas, and Tulane's „Green GPA“ came out to a 1.9 / 4.0, or a „C“ average (see Table 3). The audit concluded that the University should make an „institutional commitment to incorporate environmental decision making into all facets of [campus] operation . . . [and] establish a standing University Committee for Environmental Affairs.“ The *Gradecard* supports the model for change in that it advocates for institutional policy and resources that would allow for administrative (leadership) efforts to implement environmental change.²²

²² The *Green Gradecard for the Green Wave* is available on the Internet at <http://www.tulane.edu/~greencb/audit/audit.html>. The term „wave“ is used because Tulane's mascot is the „Green Wave.“

Programs at other institutions concerned with environmental curricula and campus environmental consciousness illustrate the essential role of leadership to provide education; their success is reflected in campus environmental cognizance. Progressive environmental building, land-use and transportation (parking) policies have social, administrative and economic benefits. Energy and water conservation programs are financially sound and serve as education about the importance of conserving natural resources. The greening of food service operations has health, environmental, and economic benefits for the campus and local community. Waste issues (recycling, hazardous waste and medical waste) are visible to many in and out of the campus community; greening them is fiscally responsible, is educational, has positive impacts for the environment, and improves the image of the institution. Green procurement provides market stimulation to keep recycling and waste reduction initiatives available and economical. Finally, environmental research and socially responsible business and investment procedures have impacts that can be felt around the world. Case studies from progressive and innovative institutions in the above areas provide examples of what and how Tulane can green (see Creighton 1998, Keniry 1995, Smith 1993, Eagan and Orr 1992). Additionally, many of the case studies support the model for change. These greening initiatives contribute to achieving sustainability – on campus and beyond.

Hearing from the Tulane Community

A series of interviews with Tulane students, staff, faculty, and administrators further support the model. Five of the six questions support the thesis of this study, that a leader is needed to institutionalize and carry out greening efforts.

The four main institutional change barriers, as determined from the interviews, are:

- institutional / organizational (lack of communication, lack of advocacy and the lack of a leader)
- financial (lack of allocation of resources)
- cultural (lack of education)²³ and
- educational (lack of a modus for education).

Greening programs should relate to:

- operations (administrative and physical) and
- education (individual and community learning, both in and out of the classroom).

The results of the interviews clarify roles of each tier of the University community:

- students as learners, educators, and advocates;
- staff as learners and empowered „doers“;

²³ The „cultural barrier“ is complicated, and more research is needed on this subject. Many interviewees simply blamed the „culture of New Orleans“ or the „Southern disrespect for nature“ as reasons why environmental cognizance was minimal at Tulane. While such reasons may be true, the present author believes that other, more quantifiable, mechanisms are responsible, and a more detailed study could determine them.

- faculty as advocates and educators (who should practice environmental sustainability, especially if they teach it); and
- administrators as leaders in all aspects of the greening process.

The responses for the roles of administrators reiterated every element of the model and focused on the need for an Environmental Coordinator to lobby the administration on environmental issues. Finally, interviewees affirmed that it is possible and appropriate to green Tulane. With initial input from the Tulane community gathered, a proposal for greening Tulane can now become more formalized.

The „Blueprint for a Green Tulane.“

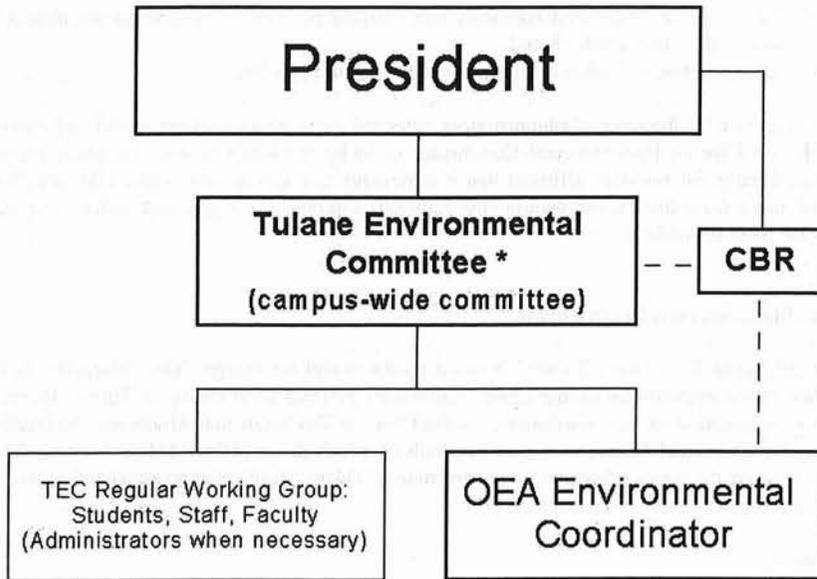
The „Blueprint for a Green Tulane“ is based on the model for change. The „Blueprint“ is the outline of the steps needed to implement institutional environmental change at Tulane. Included in it is the proposal for the establishment of the Office of Environmental Affairs and the creation of an Environmental Coordinator position, both of which are explained below in more detail since they are the pivotal elements for the greening of Tulane. Residential approval and action are the final stages.

Advocacy

RE-ESTABLISH / REINVIGORATE THE TULANE ENVIRONMENTAL PROJECT (TEP) AS THE TULANE ENVIRONMENTAL COMMITTEE (TEC). It is necessary for President Cowen to initiate the new TEC. The TEC would be charged with approval of an annual agenda for campus greening and a review of the year's projects as coordinated by the Office of Environmental Affairs (OEA). A working group from the TEC and the OEA could develop the agenda and continually work with the OEA.

The Environmental Coordinator of the OEA would report to the TEC, and the Committee would, in turn, answer to the President (see Figure 2). It is necessary for the President to approve all appointments to the Committee, which would need a Chairperson of the President's choosing to act as the Presidential liaison. The TEC would meet once (perhaps twice) each academic year with representatives from the students (e.g. the Associated Student Body and the Green Club), the staff (e.g., the Staff Advisory Council), the faculty (e.g. the University Senate, the Center for Bioenvironmental Research and the Environmental Studies Program), and the administration (e.g., the Executive Working Group). The representation will also involve explicitly the three primary divisions of the University: research, education, and operations.

The representatives on the TEC should be the key players on campus with regards to environmental change. As such, the Committee will be the convergence of grassroots advocacy (which has been displayed for years) and top-down advocacy (which has yet to be shown) for environmental change. Simultaneously, the TEC will hold the power for making that change (i.e., the responsibility for planning in the OEA). The working group of the TEC could cooperate with the OEA throughout the year.



*** Tulane Environmental Committee**

Appointed with Presidential Approval; Yearly Meeting for Agenda Setting / Approval; Representatives from:

Administration: Executive Working Group

+ Operations: VP Fin. & Ops., VP Admin. & Strategic Planning

+ Education: Provost, Deans, Environmental Studies

+ Research: CBR

Faculty: University Senate, CBR, Environmental Studies, faculty

Staff: Staff Advisory Council, staff

Students: ASB, Green Club, students

Figure 2: Proposed organizational chart

The TEC is the pivotal coordinating and advocacy body for environmental issues across the University, and the OEA is the leadership entity for carrying out environmental change. The TEC, the OEA and the Environmental Coordinator are interdisciplinary, interdepartmental, and interdivisional entities focusing on comprehensive institutional greening.

Policy

PUBLISH A STATEMENT THAT TULANE WILL BE A LEADER IN ENVIRONMENTAL RESEARCH, ENVIRONMENTAL EDUCATION AND ENVIRONMENTAL STEWARDSHIP. The statement should outline the core values of environmental responsibility that Tulane will espouse. With such a proclamation, the TEC working group would gather input from the University community via „town meetings“ and would draft a University environmental policy statement for TEC approval. The President and the various legislative bodies of the University should then ratify the policy. Additionally, it would be necessary for the University to sign on to national and international environmental platforms, e.g. the *Talloires Declaration* and the *Valdez Principles*; such involvement brings national and international attention as well as assistance in implementing sustainability on campus. Finally, specific policies for projects such as recycling and procurement should be developed.

Resources

SEEK FUNDING FOR INSTITUTIONALIZING THE OFFICE OF ENVIRONMENTAL AFFAIRS. Funding sources should be internal and external. Internal funds could first come from a cooperative funding procedure, whereby each of the academic deans along with the Vice-Presidents who would be primary representatives on the TEC, would contribute \$3,000 – \$5,000 for the job search and first year's salary of the Environmental Coordinator. With a job search estimated at \$3,500 to \$4,000 and with salary and benefits estimated at \$36,000 to \$36,500 (for a senior program coordinator position), a total of approximately \$40,000 is needed; with eight academic deans and three vice-presidents, the cooperative funding program could work. To date, no one approached about the cooperative funding measure has resisted it, however, they did mention that they would be more willing to participate once they know that the President is in support of the OEA proposal. This literal buy-in into the OEA is important for developing cooperation among the various entities.

External funds could come from alumni gifts and endowments for programs (such as scholarships and speaker series) and grants for projects and operating expenses. An endowment of \$1 million would secure the OEA in perpetuity; the Office of Development could assist in such fundraising. Some grants pending in the ENST are already including such monies in anticipation of the OEA; the ENST has found, however, that granting agencies will not pay for employee salaries but will provide monies for students, programs and operating expenses. A study sponsored by the Nathan Cummings Foundation suggests that granting agencies and foundations fund specific campus projects that have the potential for success and could serve as a model for other institutions to use. Additionally, the report suggests that the monies be used as „seed money“ for projects that will eventually sustain themselves (Strauss 1996).

Other potential funding mechanisms include a University budget, internal „loans“ repayable with savings from cost avoidance programs, and a student environmental fee. The more innovative the design of the OEA, the more marketable it is; as such, the OEA could easily raise outside funding – especially from alumni.

Other important resources include personnel (especially a leader and student employees, discussed below), information and data, and an office. Initial sources of information and data on greening initiatives (or lack thereof) at Tulane are provided in the corpus and appendices of the study *Greening the Campus: Institutional environmental change at Tulane University* and in the *Green Grade Card for the Green Wave* environmental audit. In the future, an annual report of the OEA submitted to the TEC (e.g. the „State of the Tulane Environment“) could chronicle important information and data. Finally, the OEA has been allocated office space in the new Environmental Science Building complex, where it will be in close proximity to most of Tulane's environmental research and education programs. The CBR, Green Club and Environmental Studies Program can provide necessary office supplies, including a computer, until funding is raised.

Leadership

EMPOWER THE OEA TO MAKE A POSITIVE IMPACT ON CAMPUS. The Environmental Coordinator of the OEA should work closely with various campus entities and constituents to develop and implement greening initiatives (discussed below.)

Means and Ends

EDUCATE THE CAMPUS ON ENVIRONMENTAL ISSUES. This education could be via large- and small-scale seminars and programs for students, staff, faculty, and administrators; continued research into and implementation of greening initiatives; a comprehensive measurement system; the development of an environmental management plan; classroom and curriculum initiatives; and other programs. The TEC should initially prioritize projects for the OEA to undertake, and after the first year the TEC will approve annual plans and review past performance. The „ends“ should be outlined in general and specific policies. The Environmental Coordinator might also teach environmental classes, such as „Ecological Design“ or „The Campus and the Biosphere.“²⁴

The Office of Environmental Affairs

Leadership

The OEA will house the leadership that will make environmental change at Tulane: the Environmental Coordinator. The Director of the OEA (the Environmental Coordinator) should report to the TEC. Dr. John McLachlan and the CBR would essentially provide a „home“ and some day-to-day operational oversight for the OEA, while the TEC would provide the approval and guidance for long-range operations; Dr. McLachlan might also chair the TEC. Such an establishment is necessary because of the access to the varied power and resources of TEC members, in addition to the valuable experience with successful environmental change initiatives of the CBR and its director. The TEC would involve the people who guide the University in its daily and long-range operations and would insure that environmental concerns are heard. The TEC could appoint a working group (with ample student involvement) to cooperate with the OEA

throughout the year on projects and programs. The organizational structure was already presented in Figure 2.

The OEA should be „bootstrapped“ to each division and tier of the University: research, education and operations; and students, staff, faculty and administrators. Bootstrapping means creating official and unofficial connections which prevent atrophy or abolishment of the OEA and which foster collaboration and cooperation between all areas of the University. Such connections would be established via the TEC: research programs with the CBR; educational and service programs with the Green Club, the Environmental Studies Programs, and the deans of all the colleges and schools; and operational connections (the ones which will receive much of the focus) with the Vice-President for Finance and Operations and the Vice President for Administration and Strategic Planning. Many other connections would also exist, including those with Janitorial Services, Student Programs, Orientation, Admissions, Housing and Residence Life, Athletics, and campus institutes (such as the Center for Research on Women, the Payson Center for International Development and Technology Transfer, the National Center for the Urban Community, the Center for the Study of New Orleans and the Mississippi River, etc.). These connections will „bootstrap“ the OEA to the core of the University and provide mechanisms for gathering and disseminating information and for effecting change.

Having an Environmental coordinator – the leader – is absolutely critical to the institutional environmental change movement. The leader should be a full-time employee with appropriate experience and degrees; the leader cannot be a student, although students are the second key to success in the movement.

Students

Students from the Green Club, ENST, student organizations and the general student population will be pivotal to the feasibility and success of the OEA. Not only would students carry out office duties in the OEA, they would also participate and benefit from the myriad programs of the Office. To maintain their involvement in the OEA, ENST and OEA fundraising endeavors could provide work-study funds for student workers, scholarships for leadership and academic excellence, and research assistantships for student projects. Such funding could also be used to recruit incoming students.

As „customers,“ students are effective advocates for change; they could advocate and stand up for issues in student milieus by, for example, representing the OEA on various campus committees. Through the OEA, students would have an organized outlet for environmental activism, volunteerism and research opportunities as soon as they arrive on campus. They would provide a constant source of enthusiasm and ideas for the program, continually clarifying the *raison d'être* of the OEA. Students in the OEA would be involved in an active learning and service community.

The students could gain valuable leadership and job skills in their time working with the OEA. They could take part in efforts to educate other students and employees through various programs, such as greening seminars, Internet sites, and publications.

²⁴ See <http://www.tulane.edu/~enviro/pmba/enst481.htm> for an example of such a class.

Not only can students contribute to the success of the programs and projects of the OEA, but they will also be active participants in their own ecological education. Students in ENST courses could do service learning projects in the community as well as research on campus environmental issues, effectively using the campus as a laboratory for environmental problem solving – and for learning how to make positive environmental change.

Programs of the OEA can also help create connections for students, especially between students and place (*i.e.*, Tulane and New Orleans). And the connections they make at Tulane through the OEA – with outside agencies, community members, with professors and, most importantly, with each other – would insure the lasting success of the OEA because of the broad and dedicated alumni support network that could develop. The innovative programs of the OEA and ENST would surely attract new students.

The OEA will depend integrally on students; it will also empower, support and educate them. The relationship will be one of symbiotic, collective leadership and learning. Campus sustainability programs are an extraordinary boon for the students, the entire university community and, subsequently, modern civilization: the students will carry their lessons and skills with them into society, disseminating environmental sustainability wherever they live.

Programs

Potential programs of the OEA range from large-scale projects (such as conferences with national or international organizations) to smaller-scale projects (such as office recycling education in a particular department), and they would encompass all the divisions and tiers of the institution, the areas of Tulane's strategic interest, and areas covered in the *Green Gradecard for the Green Wave*. All programs would strive for ecological literacy. Through the TEC, Presidential invitations could be sent to key faculty and administrators to strongly encourage them to attend the seminars and events, and in doing so, the OEA could be educating campus decision makers and crystallizing their involvement with campus stewardship programs.

The OEA would not necessarily run all the programs, but it would help coordinate efforts, provide information and experience, and advocate new programs. Students are an integral part of the programming function of the OEA, and they comprise the crucial links between the Office and the myriad departments, programs and organizations on campus and in the community. The successful projects of the OEA should be chronicled in campus newspapers and newsletters, as well as in local or national media. Projects of the OEA would likely begin focused on campus; once the Office builds momentum and accomplishes some major campus greening tasks, programming could move into the local community. The program possibilities of the OEA are seemingly endless (see Table 4 for some potential programs).

Table 4: Potential programs of the OEA

- Audits: Continue general and focused campus environmental audits independently and in classes.
- Recycling / Waste: Education about and coordination of activities for campus recycling and waste minimization.
- Procurement: Increase recycled and less-hazardous product procurement, and develop a „Green Wave Seal“ program, where local businesses and industries that conduct business in an environmentally responsible manner are awarded University contracts and receive local recognition for their accomplishments.
- Water: Retrofit water faucets and shower heads; organize watershed (Mississippi River) programs.
- Energy: Study and recommend the installation of energy efficient lighting (including solar), motion sensors, heating / air conditioning improvements, and other energy saving programs.
- Dining: Minimize use of disposables, increase locally grown food purchasing / consumption.
- Transportation / Planning: Address campus parking problems with a ride-share program or other appropriate transportation demand management program; cooperate with campus planning on new building designs.
- Grounds: Develop ways to maintain the campus landscape with indigenous flora and fewer chemicals.
- Laboratories / Research: Coordinate waste minimization programs and establish a chemicals exchange to save money and minimize disposal hazards.
- Publications: Assist with Green Club efforts and regularly publish the *Enviro Counter Culture Catalog* and the *Environmental Forum* newsletter; develop web sites focusing on Tulane's campus greening initiatives and student recruitment publications.
- Community: Coordinate projects with the Community Action Corps of Tulane University Students (CACTUS), the Campus Affiliates Program, and the National Center for the Urban Community, such as establishing greener playgrounds in local housing projects.
- Seminars: Developed seminars to train environmental and non-environmental administrators, faculty, staff, and students on campus stewardship projects or on incorporating environmental literacy into their classes, offices, and lives.
- Conferences: Green non-environmental conferences (less paper, fewer disposables, etc.). Sponsor conferences that are related to core themes of the University, such as the Mississippi River and New Orleans, or environmental, urban, international or information technology studies.

Conclusions

An extensive literature of experience and research supports the development of the OEA, and if it is developed using the model for change from this study, then chances for success are greatly improved. While the proposed OEA and Environmental Coordinator position may not be the panacea for all institutions, it is relevant for Tulane. An alternative to the OEA could be to develop a new division at Tulane, for example, a „Dean of Environmental Programs“ similar to the establishment Tufts University developed in the early 1990s. But such centralization would not engender the cooperation and *coordination* essential to the design of the OEA and Environmental *Coordinator* at Tulane, a university with many divisions, schools, and colleges.

Thus, the ideal situation for Tulane is a committee reporting scheme (the TEC) explicitly linking and coordinating efforts from the students, staff, faculty and administrators and in research, education, operations, and service.

It is estimated to take one year to establish the OEA: development and fundraising (fall 1998), fundraising and hiring (spring 1999), and implementation (and continuing fundraising) in the summer of 1999 in time for the fall semester, when programs would begin (and fundraising would continue). The three most important things needed immediately are:

- *Advocacy*: President Cowen's blessing, support and directive for establishing the TEC.
- *Policy*: a commitment from President Cowen that Tulane will be a leader in environmental education, research, and operations, upon which the TEC will expound to create an official University environmental policy.
- *Resources*: funding for the salary of the Environmental Coordinator (to come from a cooperative funding initiative supported by President Cowen).

With these three requests granted – with the convergence of grassroots and top-down advocacy – Tulane can begin a concerted effort towards institutional environmental change. That change will not happen spontaneously: only with dedicated policy and resources will institutionalized leadership develop the means and ends to educate the campus and move Tulane towards sustainability.

This year – which President Cowen has hailed as a „Renaissance of Thought and Action“ – is the year to make environmental change at Tulane. Tulane has proven its commitment to „thought“: environmental research and education programs are performing well. Now the administration must commit to the „action“: taking active steps to being responsible environmental stewards on our planet, in New Orleans, and on our campus.

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References

- Ackerman, F. (1997) *Why Do We Recycle? Markets, Values, and Public Policy*. Washington, D.C.: Island Press.
- Alinsky, S. D. (1971) „Of Means and Ends.“ In *Rules for Radicals*, pp. 24-47. New York: Vintage Books.
- Altbach, P. G. (1974) *University Reform*. Cambridge, MA: Schenkman Publishing.
- Berry, J. K. and Gordon, J. C. (eds) (1993) *Environmental Leadership: Developing Effective Skills and Styles*. Washington, D.C.: Island Press.
- Bowers, C.A. (1997) *The Culture of Denial: Why the Environmental Movement Needs a Strategy for Reforming Universities and Public Schools*. Albany: State University of New York Press.
- Brown, J. S and Duguid, P. (1996) „Universities in the Digital Age.“ *Change*, July / August 1996.
- Cerych, L. and Sabatier, P. eds. (1986) *Great Expectations and Mixed Performance: The Implementation of Higher Education Reforms in Europe*. Trentham, Stoke-on-Trent, United Kingdom: Trentham Books Ltd..
- Creighton, S. H. (1998) *Greening the Ivory Tower: Improving the Environmental Track Record of Universities, Colleges, and Other Institutions*. Cambridge, MA: MIT Press.
- De Young, R. (1986) „Encouraging Environmentally Appropriate Behavior: The Role of Intrinsic Motivation.“ *Journal of Environmental Systems*, vol. 15, no. 4, pp. 281-292.
- Dolence, M. G. and Norris, D. M. (1995) *Transforming Higher Education: A Vision for Learning in the 21st Century*. Ann Arbor, MI: Society for College and University Planning.
- Dominick, C. A. (1990) „Revising the Institutional Mission.“ In Douglas W. Steeples (ed) *Managing Change in Higher Education*. San Francisco: Jossey-Bass, Inc. New Directions for Higher Education, no. 71.
- Eagan, D. J., and Orr, D. W. eds. (1992) *The Campus and Environmental Responsibility*. San Francisco: Jossey-Bass, Inc. New Directions for Higher Education, no. 77.
- Eagan, D., and Keniry, J. (1998) *Green Investment, Green Return: How Practical Conservation Projects Save Millions on America's Campuses*. Washington, D.C: National Wildlife Federation.
- Fantini, M. D. (1981) „On Effecting Change in Educational Bureaucracies.“ *Education and Urban Society*, Vol. 13, No. 4, pp. 389-416. Beverly Hills, CA: Sage Publications, Inc.

Farmer, D. W. (1990) „Strategies for Change.“ In Douglas W. Steeples (ed) *Managing Change in Higher Education*. San Francisco: Jossey-Bass, Inc. New Directions for Higher Education, no. 71.

Gittel, M. (1981) „Editor's Introduction.“ *Education and Urban Society*, Vol. 13, No. 4, pp. 389-398. Beverly Hills, CA: Sage Publications, Inc.

Hamburg, S. P., and Ask, S. I. (1992) „The Environmental Ombudsman at the University of Kansas.“ In David J. Eagan and David W. Orr (eds.) *The Campus and Environmental Responsibility*. San Francisco: Jossey-Bass, Inc. New Directions for Higher Education, no. 77.

Keniry, J. (1995) *Ecodemia: Campus Environmental Stewardship at the Turn of the 21st Century*. Washington, D.C.: National Wildlife Federation.

Lane, Jan-Erik (1990) *Institutional Reform: A Public Policy Perspective*. Brookfield, VT: Dartmouth Publishing Company Limited.

MacTaggart, T. J. and Associates with. Christ, C. L. (1996) *Restructuring Higher Education: What Works and What Doesn't in Reorganizing Governing Systems*. San Francisco: Jossey-Bass Publishers.

Mansfield, W. H. (1998) „Taking the University to Task.“ *World Watch*, May / June, 1998, pp. 24-30.

Orr, D. W. (1990) „The Liberal Arts, the Campus, and the Biosphere.“ *Harvard Educational Review*, vol. 60, no. 2, May 1990.

Orr, D. W. (1992) *Ecological Literacy: Education and the Transition to a Postmodern World*. Albany: State University of New York Press.

Orr, D. W. (1994) *Earth In Mind: On Education, Environment, and the Human Prospect*. Washington, D.C.: Island Press.

Orr, D. W. (1995) „Educating for the Environment: Higher Education's Challenge of the Next Century.“ *Change*, vol. 27, no. 3, May / June, 1995.

Orr, D. W. (1996) „Reinventing Higher Education.“ *Greening the College Curriculum: A Guide to Environmental Teaching in the Liberal Arts*. Washington, D.C.: Island Press.

Rainsford, G. N. (1990) „The Demographic Imperative: Changing to Serve America's Expanding Minority Population.“ Douglas W. Steeples, ed., *Managing Change in Higher Education*. San Francisco: Jossey-Bass, Inc. New Directions for Higher Education, no. 71.

Riggs, H. (1997) „Industrial Strength Academies.“ In *New Models for Higher Education*, Joel W. Meyerson and William F. Massy (eds.). Princeton, NJ: Peterson's.

Smith, A., and the Student Environmental Action Coalition (1993) *Campus Ecology: A Guide to Assessing Environmental Quality and Creating Strategies for Change*. Los Angeles: Living Planet Press.

Steeples, D. W. (1990) „Concluding Observations.“ Douglas W. Steeples, ed., *Managing Change in Higher Education*. San Francisco: Jossey-Bass, Inc. New Directions for Higher Education, no. 71.

Strauss, B. H. (1996) *The Class of 2000 Report: Environmental Education, Practices and Activism on Campus*. New York: Nathan Cummings Foundation.

Strecker, M. (1998) „Tulane Makes a Billion Dollar Difference.“ *December 3, 1998, Press Release*. New Orleans, LA: Tulane University Public Relations.

Tulane University (1997) *Undergraduate Catalog*. New Orleans, LA: Tulane University.

Williams, E. (1991) „College Students and Recycling: Their Attitudes and Behaviors.“ *Journal of College Student Development*, vol. 32, January 1991, pp. 86-88.

Wood, R. J. (1990) „Changing the Educational Program.“ Douglas W. Steeples, ed., *Managing Change in Higher Education*. San Francisco: Jossey-Bass, Inc. New Directions for Higher Education, no. 71.