Measure Today, Here Tomorrow: Exploring IR's Role in Producing Indicators That Will Help Assure Sustainable Institutions and a Sustainable Society

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Abstract

Colleges and universities face a variety of challenges that come from our use of natural resources (e.g., energy, waste production)—the sustainability challenge—and maintaining trust among stakeholders—the accountability challenge. Corporations are adopting standardized reporting to address these challenges. We submit that Institutional Research should play a key role in helping higher education meet these challenges with an appropriate set of indicators. We trace the development of higher education's sustainability agenda and identify ways in which institutional researchers and AIR can make critical contributions to moving it forward. We identify key partners with whom IR should work and potential obstacles that may arise as we seek to secure the wellbeing of our institutions for generations to come.

This is a call to institutional researchers, and to the Association for Institutional Research (AIR), to contribute to developing and reporting sustainability indicators relevant to higher education. These indicators will help colleges and universities enhance their educational missions, promote long-term operational efficiencies and security, and highlight pathways to preserving and improving the quality of life for present and future generations. The creation of sustainable institutions that operate in and contribute to sustainable societies will require appropriate information. Institutional intelligence derived from institutional data is the purview of Institutional Research (IR). We therefore urge IR to help create and disseminate the data that will inform decisions regarding sustainable practices, monitor our progress toward sustainability, and thereby secure the trust of the various stakeholders on whom we rely to carry out our missions.

In this paper we examine the forces that have brought sustainability to the fore as an issue for both society and institutions of higher education, and then trace how institutions of higher education have begun to recognize these issues and to mobilize toward long-term survival and well-being. We then look at ways that sustainability is beginning to be measured. Finally, look at how Institutional Research can both relate to the advancement of sustainability and more broadly conceived accountability, and contribute to furthering our engagement with these challenges. Although there is considerable activity within higher education that seeks to promote institutional and societal sustainability, we believe that IR has a critical role to play at this juncture in advancing these efforts.

The imperative for the production of sustainability-related metrics comes from the convergence of four forces:

(1) Demands for enhanced institutional transparency from various existing and potential stakeholders,

(2) Emerging concern that our institutions are at risk from our increasing dependence on finite resources, especially energy, that are delivered through vulnerable and increasingly costly supply chains,

(3) Mounting concern that present institutional behaviors—the use of resources and the production of waste; the perpetration of social and economic inequities—are leading to substantial environmental degradation that, in turn, threatens health, social stability, and human welfare, and

(4) An employment market that exhibits a new demand for graduates who are literate in sustainability-related principles and practices.

Vigorously and comprehensively addressing these issues will help assure that institutions of higher education will continue to discharge their essential missions of teaching, service and research effectively for generations to come. These are the long-term benefits of sustainable institutions. Pursuing institutional and societal sustainability will also produce immediate financial benefits that come from more efficient operations that are essential means to these goals. On the other hand, institutions that ignore the impending risks that have been identified by the sustainability agenda will compromise their capacities to carry out these traditional functions by operating inefficiently and by losing credibility and trust with stakeholders. They will also contribute to the further degradation of the environment on which we all depend, to everyone's detriment.

This is a particularly timely moment for colleges and universities to increase their efforts to become sustainable institutions in a sustainable society and for IR to join the

effort. In less than a year, the United Nations will launch the Decade of Education for Sustainable Development. Institutional Research can either lead or follow when education practitioners participate in the debates and programs associated with this initiative. In this paper we urge institutional researchers and AIR to accept leadership roles.

The Sustainability Challenge

An expanding array of individuals and institutions acknowledges that present patterns of resource use by individuals and institutions, and the allocation of resources across societies, pose significant threats to maintaining our present wellbeing and preserving the prospects of future generations. Natural scientists (Union of Concerned Scientists, 2004), economists (Daly of Daly and Cobb, 1989, Repetto, 1986), the media (Turner, 2001, Gergen, 2001), politicians (Gore, 2000), diplomats (World Commission on Environment and Development, 1987), theologians (Cobb of Daly and Cobb, 1989), and just plain citizens (see myriad editorials and letters to the editor) have expressed concerns about the sustainability challenges presented by current patterns of human behavior. Although the nature and extent of some of the problems are debated and the viable solutions are not always clear, recognition is increasing that we are headed in the wrong direction.

The definition and practice of sustainability is complex and evolving, but the general concept is simple. The United Nations has defined sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and

Development, 1987).[1] The concept of "natural capitalism" has been advanced as a way of investing this general definition with specificity (Hawken, Lovins, and Lovins, 1999).

In practice, global sustainability, upon which institutional sustainability depends, is not as straightforward as managing, say, an endowment, although the concepts are comparable. Effective endowment management involves spending income without sacrificing the income-generating capacity of the principal. The same concept applies to global sustainability. Unlike the endowment, however, it is difficult to add to the store of natural capital principal, making it even more important to limit exploitation to the equivalent of income. Furthermore, an endowment is relatively simple to monitor, with two key indicators: principal balance and interest income. Monitoring the myriad systems that produce Earth's "income" from its complex "principal" is significantly more difficult.[2] Nonetheless, despite the complexity of the set of relevant measurements, 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. For that we need appropriate data that indicate where individual and institutional behaviors are leading us with respect to sustainable exploitation of natural capital.

The annual reports of the WorldWatch Institute—*State of the World* and *Vital Signs*—indicate that our consumption and allocation of resources and our creation and disposal of wastes are not sustainable for mid- to long term periods. The biosphere—planet earth—has a finite amount of land and the resources that produce material goods and energy, and a finite capacity to absorb and process our wastes. Social inequities, especially if they are exacerbated by competition for dwindling resources, will create tensions that will result in conflict and damage to social wellbeing.

A few examples, from the wide array cited in the WorldWatch reports, reveal the scale of our environmental and social challenges:

- Worldwide use of fossil fuels and emissions that result from their use continue to increase; global temperatures continue to rise as a result. The effects of global temperature rise on food supplies, and on human health and security are projected to be severe.
- Estimates suggest that the United States produces twice the per capita emissions of carbon (a major source of global warming) as other industrialized nations.
- Estimates indicate that the US currently requires 9.7 hectares of resources per capita to sustain our lifestyles—45% more than the 5.3 hectares that are available per capita to the world's present population. And global population continues to grow at 1.4% per year (Population Reference Bureau). The World Resources Institute estimates that we would need 5 earths to provide the entire world with the meat and fossil fuel levels used presently by Americans. As developing nations move toward closing these gaps in consumption levels, environmental and social pressures are bound to increase.
- The income gaps between the industrialized nations and the rest of the world, and between the wealthiest groups and the remainder of society within industrialized nations, continues to grow. Social and political instability is a likely consequence of this wealth gap.

An enterprise that is as large as higher education plays a significant role in creating and perpetuating many of the problems associated with our present allocation, use, and disposal of resources. An enterprise that is chartered for and dedicated to the

enlightenment and improvement of the human condition has a particular responsibility for enhancing the understanding and amelioration of these problems through education and research. Managerial access to a set of appropriate indicators—the specialty of IR—will be essential to knowing where we are on these fronts and where we are heading.

A critical condition for institutional sustainability is reliable access to the resources that an institution requires to fulfill its functions. Not only must the resources exist, but those who control or influence the provision of resources must be willing to make them available to the institution. This requires respect for and trust in the institution by key stakeholders. Thus, an institution must not only engage in sustainable behavior, it must be forthcoming about how it is behaving. This is . . .

The Accountability Challenge

Recent corporate financial scandals have focused attention on the risks that various stakeholders—investors, employees, and customers—incur when an organization discloses insufficient or incorrect information about its condition and its behavior. As a result, increased financial disclosure requirements are moving forward in both law and accounting practice. Institutions of higher education are being advised to join this movement toward increased financial accountability; future legislation may, in fact, require this (Farley).

Business and accounting theory has begun to encourage corporations to go beyond reporting only financial performance—the audited financial report—and to account for an array of organizational behaviors that have short- and long-term impacts on communities and the environment. This "triple bottom line" (TBL) approach to

responsible organizational behavior include measures related to the three legs of sustainability: fiscal, social, and environmental policies and practices (Newport et al.).

The benefits for an institution of knowing more about its performance in these three areas include the reduction of risk and an increased capacity to manage the organization for long-term corporate prosperity. The benefits of being more forthcoming include the building of trust and support among the suppliers of its resources, including financial and political capital. The PricewaterhouseCoopers 2003 Global CEO Survey identified three pathways to building the trust crucial to organizational sustainability:

1. spirit of transparency,
2. A culture of accountability, and
3. People of integrity.

Several international accounting firms, including PricewaterhouseCoopers, KPMG, Ernst and Young, and Deloitte Touche Tohmatsu, have created sustainability auditing divisions to address the expanded concept accountability. They consider sustainability auditing to be essential to a corporation's management of its affairs and its long-term welfare. For example,

KPMG: Business leaders cannot afford to ignore the impact of global warming, expanding populations, poor labor conditions, anti-competitive trade practices, political corruption, resource depletion and increasing pressure for transparency. The incorporation of environmental, social and economic issues is essential to the business strategy development process, to maintaining stakeholder confidence and to sustained business performance. (KPMG, 2004)

Ernst and Young: According to a new global survey by Ernst & Young, 94 per cent of companies believe the development of a Corporate Social Responsibility (CSR) strategy can deliver real business benefits, however only 11 per cent have made significant progress in implementing the strategy in their organization . . . Research found company CSR programs influence 70 per cent of all consumer purchasing decisions, with many investors and employees also being swayed in their choice of companies. One of the other challenges facing companies implementing a CSR strategy is how to effectively measure its ultimate success via both financial and non-financial indicators. (Ernst and Young)

Evidence from the Social Investment Forum and the Dow Jones Sustainability Index[3] indicates that corporations that embrace sustainability standards enjoy superior performance in the stock market (Newport, Chesnes, and Lindner., 2003). And stock market performance is a short-term measure—the real benefits are most likely to be derived in the long run.

Institutions of higher education have not experienced the acute loss of trust that has afflicted corporations. The accountability challenge is likely to be felt, however, by the governing boards of the nation's colleges and universities just as it is now being addressed in corporate boardrooms. Indeed, institutional trustees who come from corporate boardrooms are likely to promote the migration of these broadened accountability standards into academia, especially given the financial benefits that they provide as a result of greater efficiencies and enhanced trust. The four forces sited in this paper's introduction inexorably will hasten higher education's time of reckoning when

stakeholders will make judgments of an institution's desirability for various purposes based in part on its implementation and disclosure of sustainable principles and practices.

Higher Education's Sustainability Roles

Colleges and universities have three roles to play with respect to sustainability—education, research, and institutional citizenship.

Education

Institutions of higher education are uniquely chartered and positioned to provide education regarding sustainability—its issues, the relevant knowledge, possible solutions to the problems, and the resources and methods for learning more of what we need to know about all of the foregoing. Anthony Cortese, an early leader in creating sensibilities regarding sustainability in higher education, argues that

> Higher education institutions bear a profound, moral responsibility to increase the awareness, knowledge, skills, and values needed to create a just and sustainable future. Higher education plays a critical but often overlooked role in making this vision a reality. It prepares most of the professionals who develop, lead, manage, teach, work in, and influence society's institutions, including the most basic foundation of K-12 education. Besides training future teachers, higher education strongly influences the learning framework of K-12 education . . . (Cortese, 2003, pg. 17).

Education can occur via the traditional means of courses, extracurricular lectures and conferences, and student internships. Education also occurs when students and others observe how the institution conducts its own affairs—education by example can be

more powerful than education by words ("watch what I do, not what I say or say I'm doing").

Again, Cortese,

> . . . the manner in which [the university] carries out its daily activities is an important demonstration of the ways to achieve environmentally responsible living and to reinforce desired values and behaviors in the whole community. These activities provide unparalleled opportunities for teaching, research, and learning. By focusing on itself, the university can engage students in understanding the "institutional metabolism" of materials, goods, services, and transportation and the ecological and social footprint of all these activities (pg. 19).

Research

Institutions of higher education are also where much of the research on the issues of sustainability and their solutions will occur. Beyond sustainability research per se, many institutions perform a wide variety of research for corporate and government clients under grant or contract. Increasingly, these clients are assessing their research suppliers' triple bottom lines in order to avoid legal or public relations liabilities that may flow from the research institution's conduct. Accordingly, we can expect that research awards will go increasingly to colleges and universities that not only have the requisite technical wherewithal, but also have performed responsibly and reported on their performance consistent with a spirit of sustainability and transparency.

Institutional Citizenship

Institutions of higher education in the United States are major consumers of resources, producers of waste, influences on the economy and society. Collectively, higher education employs more than three million people, serves more than 15 millions students, and annually spends more than $300 billion (extrapolated from the most recent data available from IPEDS). Aggregate resource use and emissions are not available for our sector, but colleges and universities are part of the American economy that consumes twice as much oil and almost twice as much electricity per capita as the next highest-consuming nation (Japan) and emits almost twice as much carbon dioxide as the nation ranked below us (Germany) (WorldWatch Institute and World Resources Institute). Colleges and universities need to become responsible corporate citizens in the world economy and of the biosphere. A key means of achieving this goal is understanding our environmental, economic, and social impacts, and being forthright with our various stakeholders about our performance in these areas.

Institutional citizenship will pay off not only in the long run, but more immediately. Colleges and universities are not simply suppliers of services—education and research. They are also affiliational organizations—students identify with their colleges, and then become alumni and continue to "belong" to their alma maters, much as they belong to clubs, churches, and political parties. Students want to be associated with a responsible institution. Although they may not always personally practice these values, students do support greater economic and environmental responsibility in our society. The annual surveys of entering freshmen conducted by the Higher Education Research Institute report that a majority of students endorse reduced energy usage and economic

equity (Sax et al.). In the competition for students, institutions that are demonstrably managed for sustainability are likely to gain some advantage. Alumni also want their alma maters to be sustainable (no one likes to be associated with an organization in decline) and will increasingly want them to be recognized as responsible organizations; responding to these desires should have development benefits.

Investment advisory committees are appearing on campuses to promote socially and environmentally responsible endowment investments. SRIendowment is an association of student investment advocacy groups at schools that have combined endowments of $82 billion.[4] It stands to reason that as campus attention is focused on investing in socially and environmentally responsible corporations, that the social and environmental behavior of the endowed institutions will come under scrutiny.

Higher Education's Stakeholders

Several groups have an interest in institutions of higher education (current parlance calls such groups "stakeholders"), and therefore, in information about their performance.[5] Among higher education's key stakeholders are students, and their parents; faculty; alumni; trustees and the administration; other staff; local communities; governments at various levels; donors; contractors; lenders, insurers, and rating agencies; and taxpayers. Some detail on the particular interests of these various stakeholders—i.e., in what areas institutions should be forthcoming—is provided in the appendix.

A Brief Overview of Sustainability Initiatives in Higher Education

When IR brings its important contributions to the effort to make institutions of higher education, and the societies of which they are members, sustainable, it will join a

rapidly developing movement. In this section we touch on the principle means through which sustainability has begun to be advanced among colleges and universities.

In the 1970s, federal legislation began to require that both corporations and institutions of higher education avoid risks to employees (OSHA regulations) and desist from certain forms of pollution (EPA regulations); Santos provides a review of this legislation. State and local legislation added requirements in these areas. To date, however, these initiatives have addressed only a fraction of the adverse effects that present consumption patterns are creating.

Higher education took a leadership role in calling attention to sustainability issues beyond regulatory requirements. (Corporations have also moved in this direction but more recently—see below) In 1988, six graduate students in environmental planning published a report on UCLA's environmental impacts and called for initiatives to improve the institution's environmental performance. "In Our Backyard: Environmental Issues at UCLA, Proposals for Change, and the Institution's Potential as a Model" was a pioneering assessment of a university's impact on the environment (Brink et al.). Although it contained a minimal amount of data, it highlighted the areas and the practices that require attention if an institution is to avoid contributing to environmental degradation.

Sustainability Declarations

In 1990 President Jean Maier of Tufts University convened an international meeting of 22 university presidents and rectors at Tufts' campus in Talloires, France. The meeting resulted in the Talloires Declaration, which has been signed by over 300

institutions of higher education in over 40 countries (86 in the United States); the number is growing by about 10 per year.[6]

The Talloires Declaration opens with the following statement:

> We, the presidents, rectors, and vice chancellors of universities from all regions of the world are deeply concerned about the unprecedented scale and speed of environmental pollution and degradation, and the depletion of natural resources.
>
> Local, regional, and global air and water pollution; accumulation and distribution of toxic wastes; destruction and depletion of forests, soil, and water; depletion of the ozone layer and emission of "green house" gases threaten the survival of humans and thousands of other living species, the integrity of the earth and its biodiversity, the security of nations, and the heritage of future generations. These environmental changes are caused by inequitable and unsustainable production and consumption patterns that aggravate poverty in many regions of the world.
>
> We believe that urgent actions are needed to address these fundamental problems and reverse the trends. Stabilization of human population, adoption of environmentally sound industrial and agricultural technologies, reforestation, and ecological restoration are crucial elements in creating an equitable and sustainable future for all humankind in harmony with nature.

Universities have a major role in the education, research, policy formation, and information exchange necessary to make these goals possible.

The Declaration commits its signers to 10 actions:

1) Increase awareness of environmentally sustainable development

2) Create an institutional culture of sustainability

3) Educate for environmentally responsible citizenship

4) Foster environmental literacy for all

5) Practice institutional ecology

6) Involve all stakeholders

7) Collaborate for interdisciplinary approaches

8) Enhance capacity of primary and secondary schools

9) Broaden service and outreach nationally and internationally

10) Maintain the movement

Other higher education sustainability declarations followed Tailloires—see the International Association of Universities' Halifax Declaration (1991), the Association of Commonwealth Universities' Swansea Declaration (1993), and the European Untion's EMAS Declaration.[7]

Publications

In 1992, David Eagan and David Orr edited a volume in the New Directions in Higher Education series titled *The Campus and Environmental Responsibility*. In the lead chapter Orr noted that:

> The common thesis in all of the studies reported in this volume is that the institutions purporting to induct students into responsible adulthood should themselves act responsibly toward the earth and all of its inhabitants. This thesis directs attention to the social and ecological costs of what comes into the campus—food, energy, water, materials—and what leaves in the form of

> wastes—organic matter, toxics, materials—and to the policies that govern purchasing, landscaping, architecture, transportation, and institutional investments. Until recently, campus resource flows were regarded as technical matters of institutional management, not problems of moral or even pedagogical concern. Institutions made decisions about what to buy and where to buy it on the basis of prices, which often did not include unassessed environmental and social costs. This practice often places institutions in the dubious position of undermining the quality of the world that their graduates will inherit (pp. 4-5).

The Eagan/Orr volume contained other chapters that described various efforts to reduce the negative impacts that campuses were having on the environment—environmental literacy programs, energy management initiatives, student environmental organizations, and an environmental ombudsman.

In 1993, one of the authors of the pioneering UCLA report and the Student Environmental Action Coalition published *Campus Ecology: A Guide to Assessing Environmental Quality and Creating Strategies for Change* (Smith, 1993). Other seminal works on sustainability in higher education include Sarah Hammond Creighton's 1993 MIT Press book, *Greening the Ivory Tower: Improving the Environmental Track Record of Universities, Colleges, and Other Institutions*, and Julian Kinery's 1995 National Wildlife Federation book, *Ecodemia*.

The International *Journal of Sustainability in Higher Education* was established in 2000 by ULSF. It is a refereed journal that contains articles on sustainability education, reports from sustainability conferences, reviews of sustainability-oriented publications, and case studies of sustainability initiatives.

Conferences

In 1996, Ball State University (BSU) hosted the first Greening of the Campus Conference. It was attended by approximately 200 faculty, administrators, and students who were concerned about the environmental performance of colleges and universities and the roles such institutions could play in advancing the awareness of environmental issues and their resolution. Subsequent conferences were held at BSU in 1997 and then every other year. The 2003 conference again attracted approximately 200 people from institutions throughout North America.

Higher Education Associations

The 10th point of the Talloires Declaration called for a secretariat. In 1992 the Secretariat of University Presidents for a Sustainable Future was founded to promote adoption of the Declaration and the implementation of its principles. This organization expanded its constituency beyond presidents and became the University Leaders for a Sustainable Future (ULSF) in 1995. In 1997, ULSF moved from Tufts to Washington, DC where today its programs "include sustainability assessment, research on theoretical models and case studies of sustainability initiatives in higher education, formative evaluation of sustainability initiatives, and forming new international partnerships to advance sustainability in higher education globally."[8] ULSF has 75 institutional members. It is affiliated with the Global Higher Education for Sustainability Partnership (GHESP), an association of universities and international organizations created at the United Nation's 2002 Johannesburg Summit on Sustainable Development.

In addition to University Leaders for a Sustainable Future, other associations exist explicitly to promote sustainability among colleges and universities. Second Nature was

founded by Anthony Cortese, John Kerry, Theresa Heinz Kerry and others in 1993 to transform the educational programs of colleges and universities to incorporate sustainability components. The National Wildlife Federation has a Campus Ecology Program.

Major higher education associations have also embraced the sustainability challenge.

SCUP: A special issues of the Society for College and Universities' Planning for Higher Education (March/May 2003) was devoted to the topic of "Sustainability: Taking the Long View." It contained 17 articles dealing with topics such as architecture, energy efficiency, environmental management systems, and transportation. The introduction to this volume states

Over the last 30 years, as scientists, environmentalists, and policy makers more closely examined the world's ecological systems, the word "sustainability" has gathered force and turned into a movement. Reports from the field started coming back, raising our awareness of ecosystem degradation; air pollution; global climate change; depletion of freshwater stores; loss of biodiversity; major industrial accidents . . . and chronic industrial pollution. . . . we can strive to improve and even radically alter the systems we've created over the past 200 years to acknowledge our burgeoning understanding of the role of contemporary human impacts on our planetary environment and our social relations with each other (pg. 10).

Of particular value for institutional researchers is the article by Rapport and Creighton on "Effective Campus Environmental Assessments," which draws on the sustainability program at Tufts University as an example.

AGB: The Association for Governing Boards has also taken up the cause with articles in its monthly journal, *Trusteeship*, and an issue of its quarterly, *Priorities*, edited by Charles Clark (Number 14, Spring 2000). "Creating a Sustainable Society and the Future" was one of the "Ten Public Policy Issues for Higher Education in 1999 and 2000" identified by AGB.

NACUBO: The National Association of College and University Business Officers has also given attention to sustainability issues at its conferences and in its publications.

AIR: We have proposed to the Executive Committee of the Association of Institutional Research that they establish a working group to explore how AIR and institutional researchers can help advance the sustainability agenda of higher education.

Governmental Initiatives

The Environmental Protection Agency has sponsored a number of higher education initiatives. EPA has funded an environmental sustainability indicators project at the University of Vermont (see below).

The state governments in Maine, New Jersey and Pennsylvania have created associations of colleges and universities to advance sustainability within their states. The Maine and New Jersey initiatives focus on creating sustainable institutions of higher education. The Pennsylvania initiative is focused more on having universities help identify state- and community-level sustainability issues and measures.

Institutional Initiatives

Early in the '90s, institutions such as Brown University, Tufts University, and the University of Kansas established positions such as Sustainability Coordinator or

Environmental Ombudsman. Today a growing number of colleges and universities now have some variant of this kind of position (conversations with sustainability coordinators suggest that there are 40-50 North American institutions of higher education with such positions). These positions are variously located in the divisions of the provost, administrative VPs, facilities management; as staff to environmental councils or committees; and in schools of architecture, design, or engineering. The job descriptions of these positions, or the mission statements of the offices they direct or the committees to which they report, refer to the following tasks such as the following:

Harvard

The [Harvard Green Campus Initiative] vision is to establish an integrated commitment throughout Harvard by becoming a "learning organization" and a living laboratory in the pursuit of environmental sustainability. The approach is to engage and involve the Harvard community of faculty, students and administrators, working within Harvard's decentralized structure to enable local management involvement, develop understanding of sustainability, develop networks within and between faculties, and enable the community to Institutionalize sustainable practices.

Bowdoin

Bowdoin College's Sustainability Office works within Facilities Management to help "green" the Bowdoin campus. Concentrating on issues such as waste reduction, recycling, environmentally preferable purchasing, energy conservation, and alternative transportation, we hope to reduce Bowdoin's impact on the environment.

Although sustainability coordinators gather at meetings such as the Ball State conferences, no professional association yet exists for these administrators.

Following an international tour of universities, Leith Sharp (2002), the director of Harvard University's Green Campus Initiative, observed that although higher education is taking many appropriate steps, colleges and universities still lack the fundamental and pervasive embracing of these issues that is required to bring us to true sustainability. She notes that

> . . . in a small percentage of universities across the world we now have many examples of how different initiatives such as recycling, energy efficient lighting, water conserving fittings, composting toilets, passive solar design, green building design, carpooling programs, public transportation initiatives, environmental procurement programs, etc. may work. However, we have very few examples of universities that have actually institutionalized a systemic commitment to environmentally sustainable campus operations, realizing the enormous efficiencies and opportunities that can be gained in adopting systems based on integrated design of new resource flows and infrastructure development (pg. 130).

Corporation Sustainability Initiatives

Higher education can often learn a great deal from other sectors of the economy. Corporate sustainability initiatives lagged behind those in higher education, but appear to have taken off recently and moved ahead at a faster pace, especially in the development and reporting of sustainability indicators.[9] One of the most influential organizations is CERES, founded in 1988 by a coalition of socially responsible investment firms, public pension funds, and environmental organizations (and named for the Roman goddess of fertility and agriculture). Today over 50 corporations—including multinationals such as American Airlines, General Motors, Nike, and Sunoco—and over 70 environmental

groups, socially responsible investors, and public advocacy groups have endorsed the CERES principles. CERES has established reporting standards and reviews signatories' environmental performance. To date, detailed assessments have been produced for General Motors and Sunoco.[10]

CERES and the UN have collaborated on the development of a standard sustainability reporting tool. Presently over 400 major corporations have produced reports based on the principal standard that has evolved in the corporate sector—the Global Reporting Initiative (Global Reporting Initiative, 2002).

Corporations, as employers of skilled labor, have begun to look to higher education to help solve their sustainability challenges. The Conference Board, a large association of major corporations, has issued a sustainability challenge directly to higher education. One of the sessions at its 2004 meeting will focus on how corporations will be able to find leaders for the future who have been educated to have sustainability sensibilities and skills.

Assessing Sustainability

Sustainability involves the interplay of complex systems. The number of indicators that reveal the operations and interactions of these systems can be legion. Susan Murcott's review of sustainability indictors that were proposed between 1972 and 1997 includes 29 lists of indicators, some of which had up to 75 indicators (Murcott, 1997B).

Some attempts have been made to create summary environmental measures such as Wackernagel and Rees's "ecological footprint" that purports to measure the area of land that an individual or an institution requires to sustain its "lifestyle"—its consumption

and waste patterns (Wackernagel and Rees, n.d.). Economic and social sustainability indicators are less well developed than the environmental indicators and there is no summary measure comparable to the "ecological footprint" for these two components of sustainability.

Although higher education took a leadership role in calling attention to the issues of sustainability, both through the work of scholars and in declarations such as the Talloires Declaration, corporations took a lead in developing systematic measures of sustainability. In 1993, the International Organization for Standards (IOS) established a committee that produced a set of standards for managing and reporting on environmental performance. The IOS is most widely known for its standards regarding management of quality in the production and services—its ISO9000 standards. ISO14000 details environmental management system principles and reporting standards. ISO14000 standards require that an organization have an environmental policy, with objectives and targets that are monitored.

In 1997 the corporation-sponsored sustainability compact, CERES, and the United Nations collaborated in identifying a set of sustainability indicators that moved beyond measures of resource use and waste to include what accountants now call the "triple bottom line"—financial, environmental, and social performance. This concept recognizes that an organization's welfare is contingent not only on it financial performance—the traditional focus of accountability—but also on its use of resources, especially non-renewable resources, its production of waste, its treatment of employees, and its impact on and relationships with its community. This reporting protocol is called the Global Reporting Initiative (GRI).

The Global Reporting Initiative protocol now includes 50 core indicators and 50 additional (as available) indicators (Global Reporting Initiative, 2002). Examples of core indicators include: costs of goods and services purchased, green house gas emissions, total water use, gender/race composition of management, policies protecting human rights. Examples of additional indicators include: tabulation of principal suppliers, water sources and habitats affected by use of water, land ownership, employee training on human rights, employee benefits beyond legal requirements. In order to be "GRI compliant" an organization must report the core indicators. GRI has published six sector supplements that specify indicators for particular industries, including financial institutions and the automotive industry. Over 400 organizations in 33 countries have used the GRI guidelines to produce sustainability reports.

The present GRI protocol requires considerable adaptation and extension to meet the sustainability needs of higher education. The ULSF has approached GRI about creating a higher education sector document. The GRI is struggling with funding for the demand that it faces from an array of sectors, and these conversations appear to have bogged down as of the writing of this paper.

Higher Education Sustainability Assessments and Indicators

The pioneering UCLA report, "In Our Backyard . . . " focused on environmental issues that the university faced, but contained minimal data on energy consumption, solid wastes, emissions, hazardous wastes, and recycling. Subsequent sustainability assessments have been more quantitative. Harold Glasser at Western Michigan University maintains a database of college and university sustainability-oriented reports. He counted 1,258 such reports as of October, 2003. Of these, 320 are comprehensive

reports, 886 are focused on a particular issue, and 52 have an unknown focus. Almost all contain some form of quantitative information.[11]

Colleges and universities have implemented a variety of environmental assessment tools. Fisher (2003) reports on the implementation of ISO14001 standards that prevail among corporations at college in New Zealand. Among the areas examined were legislation; transportation; food services; physical plant; gas, water, and electricity usage; waste management; and educational curriculum. Ventoulis (2001) reports on the University of Redlands' "ecological footprint" and shows that the university requires considerably more supporting acreage than a fair allocation (in a global sense) provides.

Shriberg (2003) discusses 11 major tools that have been used by colleges and universities in conducting sustainability performance assessments. He notes the risk endemic in many assessment tools that comes from focusing on eco-efficiency rather than sustainability: "This distinction is critical as eco-efficiency indicators stress material utilization, environmental performance and regulatory compliance, while sustainability indicators stress issues at the nexus of the environment, society and economy with the goal of no negative impacts" (pg. 256).

Only a few higher education sustainability reports have been published that are consistent with one of the 11 identified models for higher education sustainability reporting. The balance have been ad hoc reports of divergent formatting, dissimilar metrics, and incomparable reporting periods. Therefore, it is almost impossible to engage in inter-institutional comparison and identification of best practices or standards. Among the most impressive sustainability reports in our judgment are those produced by Pennsylvania State and the University of Vermont.[12]

The University of Florida sought a new level of standardization in sustainability assessment in higher education with its 2001 adaptation of the Global Reporting Initiative (Newport and Chesnes, 2001). The University of Florida staff concluded that

> available sustainability reporting instruments were either completely focused on environmental parameters, or offered only scant mention of social and fiscal metrics [and] that this 'eco-centric' prejudice would not serve the need to position sustainability as a mainstream issue with significant social and fiscal constituencies. Indeed, [staff] concluded that such eco-centricity significantly hampers the widespread understanding and acceptance of sustainability-related principles and practices in universities and the broader community (Newport, 2003, pg. 2).

This conclusion led to their adaptation of the GRI, with its triple bottom line, augmented by educational indicators. Their report contained nine environmental indicators (e.g., energy consumption represented in seven graphs, emissions), four economic indicators (e.g., revenues, wages), six social indicators (e.g., employee retention, on-the-job injuries), and four types of educational indicators (faculty, undergraduate students, graduate students, and safety[13]). The University of Florida is presently in the process of producing a second, improved version of their GRI indicators.

As noted above, in 2003 the University Leaders for a Sustainable Future opened discussion with the Global Reporting Initiative about creating a sector supplement for higher education that would adapt the environmental, economic, and social measures in the GRI to the character and needs of colleges and universities. Institutions of higher education will be sustainable only if they serve valued educational missions and serve

them well (see Borden and Williams on mission-critical measures). Therefore, a higher education adaptation of the GRI will also have to provide measures of the distinctive educational and intellectual missions of these organizations, as well as the financial social and environmental foci of the present GRI. A number of educational indicators in addition to those incorporated into the Florida GRI report will be essential additions to the higher education sustainability portfolio. Candidates include: origins of students, student development and satisfaction measures, student debt, numbers of sustainability-oriented courses, alumni accomplishments and alumni behavior with respect to sustainability.

Where Might IR Fit In To The Sustainability Agenda?

Paul Dressel, one of the founders of the profession of institutional research, wrote in 1981 that institutional research is responsible for producing ". . . what decision makers need to know about an institution, its educational objectives, goals and purposes, environmental factors, processes, and structures to more wisely use its resources, more successfully attain its objectives and goals, and to demonstrate integrity and accountability in doing so" (Dressel, 1981). Although IR has evolved over time (see McGlaughlin and Howard, 2001, Peterson, 1999), these basic functions still hold—and speak directly to the issue of institutional and societal sustainability. As corporations move rapidly forward in the development of sustainability indicators for performance monitoring and accountability through programs such as the Global Reporting Initiative, IR needs help colleges and universities come up to speed and advance on these fronts.

In this section, we briefly explore how sustainability concerns relate to three core IR activities and how IR can help institutions address these issues that permeate all aspects of our missions.

Data collection and reporting

"What gets measured gets managed" is a familiar adage in the organizational management literature. Measures relating to sustainability are essential, if we are to become sustainable as institutions and as a society.

Leith Sharp (2002), in her assessment of where universities stand with respect to sustainable practices, notes that one of the requirements is "a means of capturing and presenting information in digestible formats for all levels of management" (pg. 132). The following types of measures (both absolute and normalized) will be necessary to address institutional sustainability challenges, as well as some summary measures that synthesize the various specific measures in each area and across areas (this is a list of examples, and is not intended to be exhaustive of the complexities of sustainability):

<u>Economic</u>

Income, especially net of financial aid

Expenditures, especially in relation to income

Debt levels

Efficient and effective use of resources to achieve mission components (cost/benefit ratios)

Economic impacts on local communities and society

Employee productivity and morale

Environmental

Energy usage

Other resource use, especially renewable/non-renewable (or sustainably harvested) resources

Emissions / pollution (regulated and otherwise)

Efficient resource use, especially in the reuse of waste

Natural habitat preservation

Social

Equitable salary/wage structures

Non-discriminatory practices

Employee and student health protections

Social/cultural benefits and impacts on the community

Community support levels

Educational

Student inclusion (demographics)

Graduation rates

Student learning and development

Student satisfaction

Research activity and effectiveness

Outreach activities

IR's measurement expertise will be helpful in creating effective measures, especially in the economic and social components of the triple bottom line, and in the educational performance components of higher education sustainability. IR can also help

assure that the sustainability metrics that are developed align with other aspects of the institution's mission. IR can bring validity and reliability acumen to the table. Trend data and comparative data are essential to understanding our move toward or away from sustainability. In a system of higher education as vast as ours, with differences in institutional mission, geography and climate, infrastructure age, et cetera, IR can help address the issues of normalization and comparisons.

IR's data presentation expertise can help produce effective communication of all sustainability-related measures, and provide some of the media through which much communication occurs. IR offices produce a variety of data compendia such as fact books and dashboards that contribute to institutional intelligence and focus the attention of managers. To the extent that resource use, waste production, and other environmental impacts; economic impacts; and social impacts are absent from these management tools, administrators, and the people who influence them, will not have a sense of the corresponding risks faced by the institution and how well it is performing as an institutional citizen. This lack of awareness produces risk to society from the collective impacts of our institutional actions; it produces risk to an institution to the extent that competitors have more complete knowledge of themselves and are perceived by stakeholders and resource providers as more responsibly managed.

In order to maintain reasonable attention on sustainability issues, we need to develop some focus for dealing with them. The potential array of indicators is vast. IR will need to wrestle with identifying the key indicators—or summary indexes—that will maintain this focus without getting lost in the myriad complexities of these issues.

Surveys of knowledge, practices and obstacles, et cetera

A key component of the kinds of institutional change that Peterson identifies as part of IR's mission is an understanding of the needs, knowledge, values, and behavior of institutional constituents. A few sustainability offices have conducted surveys of students, faculty, and staff on a variety of sustainability issues. The survey and focus group expertise, and the survey machinery that often resides in IR offices, could contribute to the effective design, implementation, and analysis of such surveys. IR often conducts surveys on the experiences and satisfaction of various constituencies in the institution. An assessment of how the institution is perceived to be performing on sustainability dimensions (policies, programs, etc.) and how members of the institution are themselves behaving in relevant areas should be part of these surveys.

Analysis of issues

An IR office should have a credible reputation for balanced, impartial analysis of institutional issues and relevant data (see Volkwein, 1999). Because the stakes are so high, sustainability issues can attract impassioned partisans. IR should help institutional managers and policy makers assess a wide variety of evidence when dealing with issues of responsible organizational uses of resources, economic and social impacts. Sharp notes that although universities perpetrate a myth of rationality both internally and externally, they are too complex and too political to be fully rational. IR needs to be a force for expanding the role of rationality in institutions, especially in emotionally freighted institutional change that requires modifications of both behavior and culture.

Part of the challenge for IR will be to help develop and disseminate data that focus on sustainability, not just eco-efficiency (see above, Shriberg, 2003). The

calculation of the full environmental and social costs that are not reflected in the prices we pay for resources (as noted above by Orr, 1992) is a complex undertaking. IR can work with faculty and students to identify these costs for management and to consider the full array of options for their reduction in order to achieve sustainable practices.

IR can also promote the discussion of how triple-bottom-line sustainability issues relate to the components of an institution's traditional mission, and what will be required to sustain the effective performance of these traditional functions. Adopting a multi-generation perspective will be a necessary aspect of these discussions.

The Several Players in the Higher Education Sustainability Arena

IR will require a number of essential partners as it incorporates sustainability into its mission and helps colleges and universities make it central to theirs. Fortunately, they are increasingly available and mobilized, or ripe for mobilization.

Federal law requires that institutions monitor and manage their environmental performance and workplace conditions in a variety of ways. Most institutions have developed offices of Environmental Health and Safety (EHS) in response to the EPA and OSHA legislation that began to appear in the 1970s. EHS offices essentially focus on regulatory compliance. Although some legislation requires public access to data on institutional performance, federal legislation does not require the publication of performance data. Nevertheless, EHS offices may well have data that would contribute to monitoring and reporting institutional performance in areas that affect sustainability of the sort we are discussing here.

As noted above, increasing numbers of institutions of higher education have sustainability offices or sustainability coordinators. Several have issued broad-scope

reports on their institution's environmental performance that contain data on appropriate indicators (see especially the Florida report cited above, and reports from the following institutions that are available on the Web: University of North Carolina, University of Vermont, Penn State, and Bowdoin[14]) and other offices report their institution's environmental performance directly data on their Web sites (e.g., Harvard[15]).

Much of the work toward an environmentally sustainable campus will be carried out in the facilities planning and the facilities management divisions. The latter will be the source of much of the data involving resource use and waste disposal. Human Resources will carry out much of the effort, and will have much of the data, pertaining to social practices that will produce sustainable workforces. Procurement practices that will affect our sustainability will be implemented by procurement offices, and monitoring and documentation of these practices will require data from these offices. Finally, the financial viability of the institution will be managed by the budget and finance offices, from whence relevant data will come.

Legitimation of a Sustainability Role for IR, Collaborations, Divisions of Labor, et cetera

To the extent that presidents and senior officers embrace the sustainability agenda, it will be easier for IR to take on sustainability-indicator responsibilities and marshal the resources that will make them effective in this role. Increasing numbers of presidents and senior officers are taking up the cause, especially as professional associations such as AGB and NACUBO increase their focus on these issues. In some institutions, however, institutional researchers will have to assume a role in educating institutional leadership about the critical and urgent issues of sustainability and how to address them, especially through relevant data. In either case, it will be helpful to

institutional researchers to have the Association for Institutional Research develop a focus on sustainability as part of its portfolio.

Where sustainability offices (SO) or coordinators exist, IR offices can use the environmental data they generate to incorporate a sense of sustainability in the various compendia of data that IR produces—e.g., fact books, dashboards, key performance indicators. In institutions that do not have sustainability coordinators, IR will have to take the initiative to obtain environmental data from the facilities management office. For a comprehensive, triple bottom line sense of sustainability, IR will have to draw the social data from human resources and the financial data from the financial office (or from the systems they maintain). In any configuration and division of labor, IR is likely to be the source of data on an institution's educational performance.

As noted above, IR can contribute expertise and resources to essential sustainability activities such as surveys of institutional constituents, even when they are implemented by SOs. IR has long been in the business of developing and exploiting effective methods for presenting and disseminating data, and can help SOs on that front was well. IR also can have extraordinary access to key decision makers and can help move the identification of sustainability issues and relevant data into these circles. IR is likely to be the principal medium through which sustainability performance data will be conveyed to other stakeholders, sometimes with the help of public relations offices.

In many instances, faculty and students have provided the initiative and contributed considerable effort to focusing institutional attention on sustainability issues. Sustainability assessments have often first occurred in courses. Institutional researchers can enlist faculty in environmental sciences, biology, economics, and even other

departments to help the institution get started identifying its sustainability issues and the appropriate data. IR can help institutionalize the on-going collection of data that have been generated initially through courses.

Obstacles to IR Work on Sustainability Indicators

IR Ideology

Some institutional researchers may see sustainability concerns as a distraction from focusing on the essential and traditional missions of colleges and universities—education and research. We certainly believe that an organization will fail if it doesn't attend to its mission. However, to ignore the conditions that enable an institution to achieve its mission, especially threats to the supply of essential resources, will compromise its capacity to carry out its mission. IR can help illuminate these essential conditions and the threats, and carry the information to decision makers. We submit that IR should also provide information that produces an understanding of how the institution affects its community and the larger society—both directly and through its impacts on the biosphere on which society depends. A narrow preoccupation with a traditionally-defined mission—attending exclusively to indicators of teaching and research, for example—is analogous to a corporation focusing only on its "core mission"—market share and profitability—without attending to other factors that can promote or impede mission attainment. No organization can afford this level of myopia if it is to thrive in the long run.

Staff, time, and budget pressures

IR offices often feel overburdened with data requests and responsibilities, and external demands seem to be ever escalating. Unfortunately, the demands and limitations

of the biosphere, and the social and economic tensions of the world, will not give us a rain check to deal with these issues later. Considerable work on sustainability documentation has been conducted to date by student teams working with faculty in the context of courses. IR will have to be involved, however, if such work is to be sustained and effectively integrated into the core evaluation and planning processes of the institution. We shall simply have to demand the resources that will get this critical job done. We cannot responsibly ignore long-term sustainability for our institutions just because of short-term demands on our time.

Data availability

Many of the data required to assess sustainable behavior are difficult to obtain (both authors know of these difficulties from direct experience collecting such data). Again, we shall not be excused because the required information is difficult to obtain—Mother Nature doesn't give incompletes. This is a process that will take time and cooperation among all concerned. Those involved in the development of sustainability indicators advise organizations to build a reporting program incrementally; begin with those measures that are most easily assembled and over time become more inclusive.

Data implications

We have convincing evidence that present institutional behaviors are not sustainable. The collection of data will only highlight the unsustainable trends and the risks we face. This will be unhappy, but essential, intelligence. It will be resisted, especially when short-sighted administrators believe it will create bad press (this was precisely the administrative reaction to the first university sustainability report at UCLA; see Smith and Gotleib). Bold institutions will take the initiative because the benefits of

knowledge, and acting upon it, are considerable. To the extent that social, political, and financial pressures will force all institutions to move in this direction, the movement will be easier for the less brave.

Conclusion

We urge the IR community to explore pathways towards a more robust and standardized sustainability-reporting methodology. The impacts and sweep of the 4,000+ North American colleges and universities on current and future generations' abilities to live high-quality lives is profound. Leith Sharp again:

> The environmental imperative requires a rapid and wide-reaching response from the university sector far beyond the kind of responses we have seen to date. The ultimate vision of the environmentally sustainable campus is a vision of a learning organization and a living laboratory for the practice and development of environmental sustainability (pg. 144).

Financially and socially sustainable practices are also essential if colleges and universities to survive and flourish. Demonstrating that we are being environmentally, financially, and socially responsible is essential to maintaining the trust and respect that will deliver the resources needed to continue to carry out our missions.

Sustainability reporting is a central tool that can improve institutional performance now and preserve viable, high-quality institutions and a society for our grandchildren and their children. The obligation to be far-sighted is in the finest traditions of both higher education and institutional research. IR has a key role to play in advancing our acknowledgement of and engagement with the future. Specifically, institutional researchers should

- generate or collect institutional data related to institutional and society sustainability,
- find places for sustainability indicators in the reports they produce,
- conduct or collaborate on surveys related to sustainable behavior and values,
- participate in the campus conversations about sustainability and their institutions' roles in advancing a sustainable society.

AIR should help develop a standard set of sustainability indicators for colleges and universities that will permit trend analysis and benchmarking, comparable to the Global Reporting Initiative that is being embraced by corporations.

The need is urgent, the consequences of inaction are significant, and the rewards of victory will, by definition, last for generations.

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Footnotes

[1] An even more venerable definition of sustainability comes from the Iroquois Confederacy: In our every deliberation, we must consider the impact of any decisions on the next seven generations. Other definitions of sustainability can be found in Repetto (1986), and Voinov and Smith (2004).

[2] Present population trends forecast an increasing population living off of our finite stock of natural capital, which puts further pressure on the principal.

[3] The Social Investment Forum (www.socialinvest.org) is a national nonprofit membership organization promoting the concept, practice and growth of socially responsible investing. The Dow Jones Sustainability Indexes (www.sustainability-indexes.com) are the first global indexes tracking the financial performance of the leading sustainability-driven companies worldwide.

[4] http://www.sriendowment.org/what.php

[5] This list is based on the Environmental Studies 50 report, Dartmouth College, 2003.

[6] http://www.ulsf.org/

[7] Halifax Declaration: http://www.unesco.org/iau/sd/halifax.html
Swansea Declaration: http://www.iisd.org/educate/declarat/swansea.htm
EMAS Declaration: http://europa.eu.int/comm/environment/emas/pdf/news/kit_emas_en.pdf

[8] http://www.ulsf.org/about_history.html

[9] The French stock exchange will soon require corporations to have sustainability reports in order to be listed on the exchange.

[10] Business for Social Responsibility and The Conference Board are two other major players in the sustainability arena. See The Conference Board's publication by Bennett and Whiting (2002), On the Road to Sustainability: Business' First Steps

[11] E-mail from H. Glasser, January 26, 2004.

[12] Penn State: http://www.bio.psu.edu/greendestiny/publications/gdc-indicators_2000.pdf
UVM: http://www.uvm.edu/greening/trackinguvm.pdf

[13] Fourteen specific indicators were included in the educational section of the report:
Faculty: terminal degrees, rank, race/ethnicity, gender
Undergraduates: H.S. GPAs, SAT scores, race/ethnicity, gender, graduation rates
Graduate students: applications, enrollments, minority enrollments, gender
Safety: crimes reported

[14] http://sustainability.unc.edu/Documents/AnnualReportWeb2003.pdf,

[15] http://www.greencampus.harvard.edu/impact/index.shtml