Higher education is granted tax-free status, the ability to receive public and private funds, and academic freedom in exchange for educating students and producing the knowledge that will result in a thriving civil society. It prepares most of the professionals who develop, lead, manage, teach, work in, and influence society’s institutions. Each year, the higher education system in the United States is engaged with 18 million students and graduates more than 3 million students into society and the workforce. Higher education has been a crucial leverage point in making a modern advanced civilization possible for an unprecedented number of people. American society continues to see higher education as a national resource and crucial to the development of economic success. In addition, college and university campuses are microcosms of the rest of society—they are like mini cities and communities that mirror society. Society looks to higher education to solve current problems, anticipate future challenges, develop innovative solutions, and model the action and behavior that society must take to continue to evolve in a positive direction. Because knowledge is the adaptive characteristic of humans, higher education is one of the most important, though often overlooked, leverage points in the transition to a healthy, just, secure, and sustainable society.

Humanity and Higher Education at an Unprecedented Crossroads

Society and humanity are at a crossroads without historical precedent. Because of the exponential growth of population and the technoeconomic system, humans have become pervasive and dominant forces in the health
and well-being of the Earth and its inhabitants. In just two centuries, world population jumped from 1 billion to 6.7 billion, energy consumption increased 68-fold, and economic output 80-fold. Three billion people are without sanitation and earn less than $2.50 per day. Despite society’s efforts at environmental protection, living systems are in long-term decline. This has happened with 25 percent of the world’s population consuming 70 percent of the world’s resources. And, it does not take into account the desire of China and India to raise the quality of life for the majority of their 2.5 billion people.

The crucial question for all of humanity has now become, How will we ensure that all current and future humans have their basic needs met; will live in thriving, secure communities; and will have economic opportunity in a world with 9 billion people and plans to increase economic output four to five times by 2050? And this all when life-supporting ecosystem services are under increasing pressure. This is a huge human challenge. It is not about saving the planet. It is about how we can create a sustainable human society. To do this we need a transformative shift in the way we learn, think, and act. We currently view the array of health, economic, energy, political, security, social justice, environmental, and other societal issues we have as separate, competing, and hierarchical when they are actually systemic and interdependent.

**The Need for Educational Transformation**

The current state of the world and the ongoing difficulty we face in modifying our individual and institutional behavior to match emerging challenges is a prima facie indicator that the current higher education system must rapidly change to match this challenge and need. David Orr has stated: “It is not a problem in education it is a problem of education” (Orr 1994, 117). This is not intentional. The structure of higher education and its evolution in the last one and a half centuries is based on and reinforces the cultural organizing principles referred to earlier. The guiding myth of humans as separate from nature, nature as primarily a source of resources to be used and controlled for human purpose supported by the disciplinary structure of learning and purpose in higher education is the dominant paradigm in society. An important part of education must be to make these invisible assumptions and their consequences (positive or negative) visible.
Sustainability as a Framework for Higher Education

Higher education institutions must help to develop future scientists, engineers, and business people who design technology and economic activities that sustain the natural environment and enhance human health and well-being and that operate completely on sustainable energy systems. They must help define and support industrial systems in which the concept of “waste” is eliminated because every waste product is a raw material or nutrient for another activity, or is returned into the cycles of nature. They must enable us to manage human activities in a way that uses natural resources only at the rate that they can self-regenerate—such as with the ideas embodied in sustainable forestry, fishing, and agriculture. By doing so, we could live off of nature’s “interest,” not its “capital,” for generations to come.

Along with the challenges of natural and human-made resource use and balance, our education system must grapple with the health and social dimensions of sustainability. Metrics for success include developing and supporting opportunities for meaningful work in socially and culturally vibrant communities where human needs are increasingly and effectively met on both local and global scales. The latter is critical because human wants can be insatiable while the Earth’s ability to meet our wants is finite and shrinking. The road to sustainability is as much one of culture and values as much as it is about scientific and technological development. It must be guided by the arts, humanities, social and behavioral sciences, and religion and other spiritual inspiration, as well as the physical and natural sciences and engineering, in other words, through the fundamental framework of learning and culture.

Transforming Higher Education for a Sustainable Society

If higher education were to take a full leadership role in helping to make sustainability a reality, then a college or university would operate as a fully integrated community that models social, economic, and biological sustainability itself and in its interdependence with the local, regional, and global community. In many cases we think of teaching, research, operations, and relations with local communities as separate activities; they are not. Because
students learn from everything around them, these activities form a complex web of experience and learning. The educational experience of graduates must reflect an intimate connection among curriculum and (1) research; (2) knowledge of and reduction of any negative ecological and social footprint of the institution; and (3) work to improve local and regional communities so that they are healthier, more socially vibrant and stable, economically secure, and environmentally sustainable. To achieve this,

- The content of learning would reflect interdisciplinary systems thinking, dynamics, and analysis for all majors and disciplines with the same lateral rigor across the disciplines as the vertical rigor within the disciplines.

- The context of learning would change to make human–environment interdependence, values, and ethics a seamless and central part of teaching of all the disciplines, rather than isolated in programs for specialists or in special courses or modules.

- The process of education would emphasize active, experiential, inquiry-based learning, and real-world problem solving on the campus and in the larger community.

- Higher education would practice and model sustainability. A campus would “practice what it preaches” and model economically and environmentally sustainable practices in its operations, planning, facility design, purchasing, and investments, and would tie these efforts to the formal curriculum.

- Finally, the learning and benefit to society of higher education forming partnerships with local and regional communities to help make them socially vibrant, economically secure, and environmentally sustainable will be a crucial part of successful higher education—especially because the 4,100 higher education institutions in the United States are themselves large economic engines with annual operational budgets totaling $350 billion annually—this is about 2.5 percent of U.S. gross domestic product (GDP) and greater than the GDP of all but 25 countries in the world. Higher education has the ability to create new and better markets for goods and services that will improve society in all ways—not just in narrow economic terms.
Frank Rhodes, former president of Cornell University, suggests that the concept of sustainability offers “a new foundation for the liberal arts and sciences” (Rhodes 2006). Sustainability provides a new focus, sense of urgency, and curricular coherence at a time of drift, fragmentation, and insularity in higher education—what Rhodes calls “a new kind of global map.” Sustainability provides a vital source of hope and opportunity for facilitating institutional renewal and revitalizing higher education’s sense of mission.

**The Current Sustainability Focus in Higher Education**

Higher education is both leading and lagging in various aspects of sustainability and education. Current institutional dimensions enable some traditional approaches but hinder new and innovative aspects that sustainability demands.

**Leading in Research, Specialized Education, and Practice**

Higher education’s role in research and scholarly endeavors to understand how the Earth’s ecosystems work and are important in supporting all life and human society; how humans have viewed and impacted the natural world; how economic, social, and environmental policy as well as culture have impacted both the health and well-being of humans and the rest of nature; and how humans can survive and thrive in an increasingly shrinking and precarious planet has been a singular achievement. As an example, the analysis, deliberations, and conclusions of the Intergovernmental Panel on Climate Change (IPCC) on the magnitude, scope, and solutions to global climate change were based on the best peer-reviewed studies in the world—largely produced by academic scholars. It is on the backs of this scholarship that we have the chance of building a healthy, just, secure, and sustainable society for generations to come.

There has been unprecedented, exponential growth in distinct academic programs related to the environmental dimension of sustainability in higher education, especially in the last decade. Exciting environmental (and now sustainability) studies and graduate programs in every major scientific, engineering, and social science discipline; business; law; public health; behavioral sciences; ethics; and religion are abundant and growing. Progress on campuses modeling sustainability
has grown at an even faster rate. Higher education has embraced programs for energy and water conservation, renewable energy, waste minimization and recycling, green buildings and purchasing, alternative transportation, local and organic food growing, and sustainable purchasing—saving both the environment and money. The rate of increase is unmatched by any other sector of society. According to the U.S. Green Building Council, the higher education sector has nearly 4,000 new buildings that are being designed or have been designed to meet advanced levels of sustainable design under the LEED system (Leadership in Energy & Environmental Design) in the last decade.\(^2\) The weekly bulletin of the Association for the Advancement of Sustainability in Higher Education (AASHE), the primary national network of colleges and universities working on sustainability efforts with more than 750 members, routinely cites 50–60 new environmental–sustainability initiatives in all aspects of campus life per week. The student environmental movement is the most well-organized, largest, and most sophisticated student movement since the antiwar movement of the 1960s. And higher education environmental efforts have become publicly visible to a degree that was unimaginable a decade ago. These developments represent one of most encouraging trends in higher education innovation since World War II.

**Lagging in Social and Economic Sustainability and Institutional Priority**

Unfortunately, higher education is doing a poor job on the health, social, and economic dimensions of sustainability. The overwhelming majority of graduates know little about the importance of sustainability or how to lead their personal and professional lives aligned with sustainability principles. This is largely a result of the deep cultural assumptions described earlier, the disciplinary-dominated educational structure, and the separation of classroom learning from the application and the practice of sustainable living on the campus with communities and in the personal lives of students, faculty, and staff, and it is reinforced by an increasing emphasis on education for commerce and career. Of undergraduates in U.S. higher education, 22 percent are majoring in business with only limited understanding of the role of business in society beyond what is self-evident in traditional business education curricula, namely, as a source of production of goods and services, wealth creation, and employment.
Critically important and exciting educational innovations around civic engagement and community service, inquiry-based and experiential learning, cultural and international perspectives, environmental stewardship, and social responsibility that have developed over the last two decades are not sufficient to make the transformative shift necessary at the rate and scale needed. Nor are the important efforts of nongovernmental organizations (NGOs) (e.g., Second Nature, Campaign for Environmental Literacy, National Wildlife Federation); student organizations (e.g., Energy Action Coalition, Sierra Club Student Action); higher education professional associations (e.g., AASHE, the Higher Education Associations’ Sustainability Consortium); and professional societies (e.g., American Psychological Association, American Society of Engineering Education, American Association for the Advancement of Science, American Academy of Religion, the Disciplinary Associations Network for Sustainability) that advocate for, challenge, and assist higher education in both the education for and practice of sustainability.

Moreover, there is broad consensus among academic leaders that most of the excellent and exciting sustainability-oriented innovation in higher education have been led by individual groups (students, a subset of the faculty, a subset of the business and operations staff—often working together), have primarily focused on the environmental dimension of sustainability, and have largely focused on educating environmental and sustainability professionals within the framework of existing academic disciplines. Most have not been significantly integrated with other socially focused efforts, such as civic engagement, social justice, human rights, and economic development in impoverished parts of the United States and the world.

With a few exceptions, sustainability is not a central institutional goal or a lens for determining the success of higher education institutions. It is increasingly becoming a focus on physical master planning but is still largely viewed as another of many priorities that will be handled as time and resources allow. It does not represent a challenge to the existing purpose or structure of higher education, and it will not lead to transformative change.

The Leadership Challenge
When faced with major societal challenges that are not well-defined, presidents and chancellors, trustees, business officers, and chief academic officers historically have largely responded to specific ideas, programs,
and initiatives of individuals and groups within their institutions; the availability of funding for research and education; and piecemeal influence by government, communities, prospective students, businesses, alumni, or independent watchdog groups (e.g., news media, rating groups such as *U.S. News and World Reports*, environmental NGOs). Most administrators and faculty largely see the sustainability challenges as environmental in nature, not societal, and not as fundamental to how we can meet the basic needs of all current and future humans in a fair, equitable, peaceful, and sustainable manner. They do not understand the urgency with which and the depth to which society must begin to reform the way it is operating or that all education needs to be for social, economic, and ecological sustainability in order for higher education to fulfill its obligation to society.

The current educational framework largely leaves students to integrate the many different and often conflicting ways of knowing represented by the compartmentalized frameworks they learn, generally without tools for systemic analysis and integration. Moreover, senior administrators, especially, in highly rated four-year colleges and research universities, are often reluctant to engage with faculty over educational direction because of the resistance of faculty to administrative or other outside influence on academic freedom, a paragon of the structure of higher education.

Finally, higher education at the bachelors, graduate, and professional level has largely innovated by adding new education and research programs that have emerged from a large infusion of outside funding for facilities, research, and faculty largely from the federal government but also from state government and the private sector. Innovation by growth has not required the higher education system to ask hard questions about whether the current structure is fulfilling its mission. For the first time since World War II, higher education is now faced with serious structural constraints in financial resources that are not likely to be alleviated in the foreseeable future. This is very unfamiliar territory for higher education leaders. Moreover, the change in mindset needed to face the mega challenges that society faces is prompting a large number of people to question whether higher education can make the necessary systemic transformation far enough or fast enough without strong outside influence. In *Universities and the Future of America*, former Harvard president Derek Bok opines:
Higher Education’s Role in Developing Leadership

When society recognizes a need that can be satisfied through advanced education or research and when sufficient funds are available to pay the cost, American universities respond in exemplary fashion. . . . On the other hand, when social needs are not clearly recognized and backed by adequate financial support, higher education has often failed to respond as effectively as it might, even to some of the most important challenges facing America. . . . After a major social problem has been recognized, universities will usually continue to respond weakly unless outside support is available and the subjects involved command prestige in academic circles. (1994, 104–5)

While it is far from clear that higher education can or will lead the necessary transformation, there are some important beacons of systemic change. Conversely, it is critical that higher education do so because society cannot make the necessary shift without higher education.

Some Beacons of Systemic Change

Change is coming to higher education. A number of examples highlight how higher education is responding to the new reality being faced today.

The American College and University Presidents’ Climate Commitment

One of the brightest beacons of light for the systemic change in the United States is the American College and University Presidents’ Climate Commitment (ACUPCC), launched in February of 2007 by 12 college and university presidents working with Second Nature, AASHE, and ecoAmerica.3 This commitment is a high-visibility, joint, and individual commitment to measure, reduce, and eventually neutralize campus greenhouse gas emissions, to develop the capability of students to help all of society do the same, and, importantly, to publicly report on their progress. As of July 2010, just over three years later, 673 colleges and universities in all 50 states and the District of Columbia have made this unprecedented commitment. They represent 5.8 million students—about 35 percent of the student population—and include every type of institution from community colleges to the biggest research universities.
The ACUPCC is an example of courageous and unprecedented leadership by college and university presidents and their institutions for several reasons:

- Higher education is the first major U.S. sector with a significant number of its members to commit to climate neutrality. This is especially important given the inability of the international community and the U.S. Congress to act. The participating presidents believe that leading society to a low-carbon, less auto-dependent economy fits squarely into the educational, research, and public service missions of higher education.

- The ACUPCC represents the first time since World War II that higher education has taken on a major societal challenge without prompting or funding from outside sources. The action by these leaders sends a strong signal to society that climate change and other large-scale unsustainable and societal practices are real, that urgent action is needed, and that higher education is taking action to model sustainable behavior and to provide the knowledge and educated graduates necessary for society to do the same.

- In committing to become climate neutral campuses, these leaders are pledging to do what is scientifically necessary, not what may be easily doable within the current paradigm of operation. The presidents realize that it will be extremely hard to achieve climate neutrality in the next 20 to 50 years but are challenging their institutions to achieve this goal because the best scientific research, mostly produced by their institutions, indicates that it is necessary. They hope to spur the social, economic, and technological innovation that will be demanded by this challenging goal.

- The positive impact of collective leadership by a large number of colleges and universities is huge. Global climate disruption and creating a sustainable society is a global problem that requires global solutions of immense proportions. The scope, scale, and speed of the challenge demand an unprecedented level of collaboration by all of higher education. Individual action by individual institutions is not sufficient.

- The ACUPCC has created a successful learning community among the participating institutions. Participating institutions share plans and
Higher Education’s Role in Developing Leadership

experiences, work together to address challenges, and help to create new knowledge and financial resources to benefit all of the institutions in higher education.

• The commitment has accelerated efforts to integrate academic, research, and operational and community outreach actions in a holistic approach to sustainability. There is substantial anecdotal evidence on how effective the commitment has been in raising the importance of all sustainability initiatives on campus and in the classroom. According to presidents at dozens of colleges and universities, the ACUPCC has done more to build a vibrant community and a sense of shared purpose across the institutions than any other initiative in recent memory.

• Finally, the ACUPCC has fundamentally shifted higher education’s attention on sustainability from a series of excellent, distinct programs to a strategic imperative of presidents, academic officers, business officers, and trustees. Sustainability is becoming a key lens for measuring success. It represents an unprecedented institutional and cultural shift to focus on all aspects of social, economic, and ecological sustainability.

Sustainability Mission-related Institutions

There is a small number of private and a few public baccalaureate-granting liberal arts colleges that have either been created or have evolved to make a harmonious, just, and sustainable relationship between humans and the natural world the core mission of education and practice. They emphasize interdisciplinary along with disciplinary learning, inquiry-based, and experiential learning both on the campus and in local communities, and they model sustainable action in operations and in working with local communities. These include College of the Atlantic, Unity College, Green Mountain College, Northland College, Prescott College, Alaska Pacific University, Berea College, Warren Wilson College, and Evergreen State College.

Institution-wide Educational Innovation

As indicated earlier, there are a large number of degree-granting programs for environmental, natural resource management (and, now, some sustainability) specialists at all levels (two-year to professional)
in colleges and universities. More than 1,000 colleges and universities have an undergraduate interdisciplinary degree program (major, minor, certificate) in some form of environmental studies. Many of these institutions are engaged in efforts to reduce their environmental “footprint.” These programs, which reach a very important but small segment of the college and professional student population, are important to ensuring that business, government, and NGOs will have specific kinds of expertise necessary to deal with the complex sustainability challenges directly. They are not intended to reach the entire student population. Yet some select schools are changing the educational landscape.

A Bold Experiment: Arizona State University

One of the biggest challenges is getting large public or private research universities to make sustainability a core goal of research and education because of their size, the decentralized nature of their decision making and operations, the academic and operational independence of the individual schools and academic units, and their strong connection to external funding institutions and professional communities. Large research universities embody some of the strongest and best traditions of the higher education system. At the same time, that structure makes large-scale innovation extremely challenging absent external funding and pressures.

Arizona State University (ASU), based in Tempe (part of the Greater Phoenix metro region) with 67,000 students and nearly 18,000 faculty and staff, began an experiment eight years ago to change the dominant paradigm of the institution. In 2002, its new president, Michael Crow, set out to create what he calls the “New American University.” Just one year later, he established what has become the Global Institute of Sustainability (GIOS) and in 2004 founded the full degree–granting School of Sustainability, which has quickly grown to more than 600 undergraduate majors and nearly 100 graduate students. Furthermore, all incoming freshman and new transfer undergraduates (totaling more than 20,000) are exposed to principles of sustainability through the required “ASU101” course. James Buizer, whom President Crow recruited from the National Oceanic and Atmospheric Administration to lead the conceptualization, formation, and design of GIOS, indicates that “injecting a sustainability
Higher Education’s Role in Developing Leadership

Program into a university requires courageous leadership and commitment throughout the institution, beginning at the very top, and including through to the college deans, school directors and departmental chairs. Without the vision and active leadership from President Crow, GIOS would never have happened."

ASU has been aggressive, experimental, and entrepreneurial in working to fulfill their commitment to sustainability. In recognizing the limits presented by the traditional disciplinary structure, President Crow explained the university’s progress to date in the May–June 2010 issue of Trusteeship: “More than 20 new transdisciplinary schools, including such entities as the School of Human Evolution and Social Change and the School of Earth and Space Exploration, complement large-scale initiatives such as the Global Institute of Sustainability (GIOS) and the Biodesign Institute, a large-scale, multidisciplinary research center dedicated to innovation in healthcare, energy and the environment, and national security. In the process, we have eliminated a number of traditional academic departments, including biology, sociology, anthropology, and geology” (Crow 2010).

This approach represents what is probably the most imaginative and explicit attempt to address the invisible mind-set and address the systemic challenges in higher education. It is still struggling with cultural challenges related to traditional reward structures, and expectations related to tenure and promotion, as well as the tensions inherent in convincing researchers that “use-inspired” knowledge creation is of equal value as curiosity-driven research, but ASU has made significant progress in these areas.

**Accelerating Senior Leadership for Sustainability: Some Recent Insights**

While there has been rich scholarship on leadership in higher education, there has been little research that deals with the unique and complex perspectives of addressing the large-scale sustainability challenges. One newly published study by Glen Cummings, deputy assistant secretary of education in the U.S. Department of Education, set out to ask the question: What common characteristics and actions were taken by successful university and college leaders in pursuit of sustainability? (Cummings 2010). Four institutions of higher education that have been considered national leaders on sustainability in one form or another were chosen for
detailed analysis: two four-year public research universities—Arizona State University and University of New Hampshire; and two two-year public community colleges—Cape Cod Community College and Foothill D’Anza Community College. The author found many common traits and strategies among the leaders:

- Presidential leadership was critical to the success of sustainability implementation. Presidents realized the importance of higher education in helping society move on a more sustainable path, that sustainability requires a large institutional shift, the importance of their unique role in conveying the importance of an institutional commitment to sustainability, the role they must play in convening all of the parts of the institution to focus on it as a part of the institution’s mission, and that sustainability provided an opportunity to reshape their institution to meet its highest ideals.

- Administrative policies, particularly human resource management, created significant long-term focus on sustainability. To varying degrees, all four institutions attempted to influence hiring and, in some cases, decisions on tenure and promotion to support the movement toward sustainability. They also created purchasing practices and other on-campus rules, expectations, and norms to reinforce sustainability.

- Effective leaders used the power of symbolism and “milestones” to underscore the institutional significance of sustainability. They took highly visible actions and used important events to strengthen institutional pride and embedded sustainability into the school “brand.” Leaders used their ability to “tell the story” of sustainability to engage funders in providing new funding to expand or build consistent focus on sustainability. A recent publication by ACUPCC, titled “Leading Profound Change” (Cortese, Dyer, and Dyer 2010), discusses these and other strategies in a broader context that reflect an understanding that for higher education leaders to move their institutions in this direction requires four major overarching perspectives:
  
  - Higher education will need transformative institutional strategies to fulfill its role in the 21st century.
  - These strategies must engage everyone involved in the campus community.
Higher Education's Role in Developing Leadership

- Success depends on a dedicated group that has the authority and responsibility to lead the process over the long term.
- There must be sustained senior leadership focus on both the process and measurable results of the effort.

For an undertaking of this magnitude and complexity, the active involvement of an organization’s senior leadership is crucial. This active involvement must go far beyond merely “checking the box” that sustainability is a priority. It requires constant, skillful, and persistent attention and the kind of energy, vision, and creative thinking that can inspire large numbers of people to imagine a better future and stay committed to create it.

Higher Education Legacy

Many inside and outside of higher education argue that achieving climate neutrality and sustainability as a society and getting higher education to lead this effort is too hard or impossible. What we must do is make the impractical or seemingly impossible inevitable. The opportunity is for us to have a healthy, just, and sustainable world and mobilize to make it a reality. To quote Benjamin E. Mays, former president of Morehouse College and mentor to Martin Luther King Jr., “The tragedy of life doesn’t lie in not reaching your goal, the tragedy lies in having no goal to reach.”

Richard Cook, who retired in 2008 as president of Allegheny College and was one of the founders of the American College & University Presidents’ Climate Commitment, wrote in a letter to another president who had not yet made the commitment, “We have largely provided the research that has highlighted the climate concern; we also can provide many of the solutions. If the colleges and universities don’t lead, who will?”

Higher education has risen to great challenges before and must do so again, now at great speed, because humanity is depending on it.

References


**Notes**


3 The text of the commitment can be found at http://www.presidentsclimatecommitment.org/about/commitment

4 Anthony Cortese private communication with James Buizer, April 2010.


6 Anthony Cortese private communication with Richard Cook, April 2010.