

# GOING GREEN: THE IMPACT ON HIGHER EDUCATION INSTITUTIONS

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## ABSTRACT:

*Campus greening poses potent challenges to higher education institutions to take an interest in decreasing its carbon footprint. Can green initiatives really save rather than cost money? If early movers are able to stake out a competitive advantage through green initiatives, can the institution's operations sustain it? This article will explore best practices and new thinking in higher education, particularly campuses pursuing a green business strategy. Furthermore, this article seeks ways higher education institutions may effectively bridge internal and external activities as well as assess current strategies in pursuit of a new trajectory towards building sustainable value.*

## INTRODUCTION

Across higher education, campuses are littered with utterances of green, eco-friendly, climate neutral, eco-chic lingo. The eco-lingo is a result of green trends overtaking campuses around the nation and the globe. In October 2006, presidents and chancellors of American colleges and universities laid the groundwork for the President's Climate Commitment. This framework provided the structure and support for America's colleges and universities to go climate neutral. The ultimate goal is to generate a broad, continuous, higher education effort on climate change with at least 1,000 participating institutions by December 2009. As of January 29, 2009, the American Association of College and University Presidents website showed a total of 607 signatories, a little over half of their target membership. The increasing number of universities and colleges yielding to the growing pressures to "go green" pauses one to question how universities and colleges are "greening" their institutions and what best practices exist to make this endeavor a sustainable one. In reviewing the activities of universities and colleges on various green lists as well as institutions with membership in various green groups, there is evidence of campus greening in regards to facilities and dorms, recycling and energy conservation, changes to the curriculum, yet much more attention must be paid to whether such green practices can be sustained and do such practices yield a competitive advantage.

This article develops a strategic perspective in regards to the pursuit of sustainable value by first describing a model of shareholder value creation. Next, the emerging challenges associated with pursuing green initiatives in higher education and in particular to the University of Guam (UOG) will be described. Finally, appropriate business strategies and practices will be recommended to transform the stated challenges into initiatives to increase shareholder value for the next generation of eco-chic students and other members of the campus community of the University of Guam. Further, it is the intention of this case to explore a sustainable plan for the University of Guam to go green, and one that could be generalized to other campuses that are small sized and remotely located.

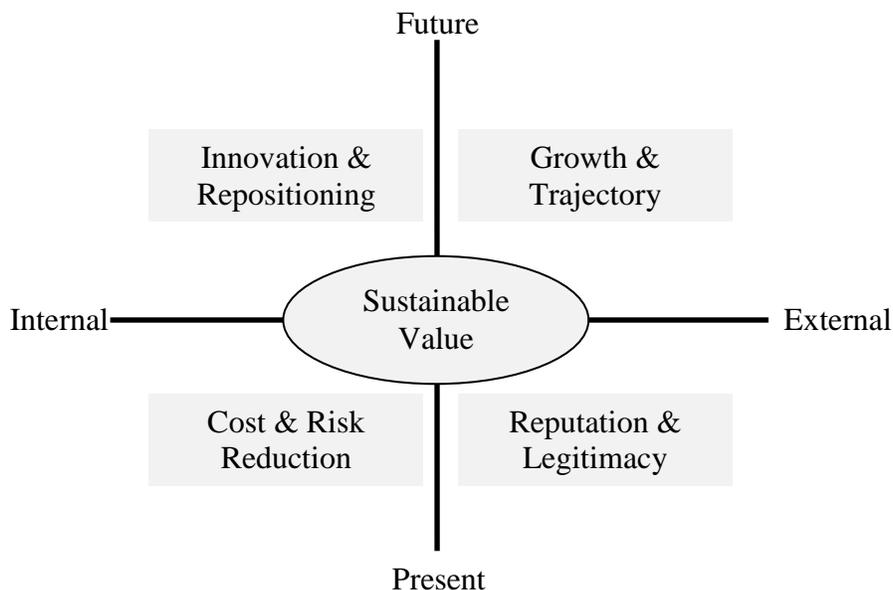
## SUSTAINABLE VALUE AS A MULTIDIMENSIONAL CONSTRUCT

Figure 1 illustrates the basic components of the sustainable value framework developed by Hart and Milstein (2003). The framework consists of two dimensions with the vertical axis

reflecting the organization's need to manage today's business while simultaneously creating tomorrow's markets and opportunities. This dimension denotes the pressures experienced by the need to realize short-term results while simultaneously generating expectations for future growth (Christensen, 1998). The horizontal axis reflects the organization's need to grow and protect internal organizational skills and capabilities while also infusing the firm with new perspectives and knowledge from the outside. This dimension reflects the pressure experienced by the need to buffer the technical core so that it may operate without distraction, while simultaneously remaining open to fresh perspectives and new, disruptive models and technologies (Thompson, 1967; Leonard-Barton, 1992; Teece, Pisano, and Shuen, 1997).

The two dimensions result in a matrix with four distinct quadrants of performance that are important to generating sustainable value. The lower left quadrant, Cost & Risk Reduction, represents those aspects of performance that are primarily internal and near-term in nature. It is important that the organization operate efficiently and reduce its risk in proportion to its rate of return, otherwise, shareholder value will be diminished. The lower right quadrant, Reputation & Legitimacy, focuses on near-term performance and includes significant stakeholders external to the firm such as customers, suppliers, regulators, community members, and the media. Including the interests of these stakeholders can foster a differentiated position for the organization leading to the preservation and growth of shareholder value. In the upper left quadrant, Innovation & Repositioning, it is important that the organization not only perform efficiently in today's economy but should also be mindful of generating the services and products of the future. This means developing or acquiring the skills, competencies, and technologies internally to reposition the organization for future growth. Focusing on innovation is critical for the organization to create the new product and service needed to ensure that the organization will prosper well into the future. The creation of shareholder value in this quadrant is dependent on the organization's ability to creatively destroy its current capabilities in favor of the innovations of tomorrow (Hart and Milstein, 2003). Lastly, the upper right quadrant, Growth Path & Trajectory, focuses on the external environment associated with future performance. Credible expectations for future growth are key to the generation of shareholder value. This is dependent on the firm's ability to articulate a clear vision of what its future will be. The growth trajectory provides guidance and direction for new technology and product development.

Figure 1  
Sustainable Value Framework



Organizations must perform well simultaneously in all four quadrants of the model on a continuous basis if they are to maximize sustainable value over time which is analogous to the concept of the Kaplan and Norton Balanced Scorecard framework (Kaplan and Norton, 1992; Hart and Milstein, 2003).

## DRIVERS OF SUSTAINABILITY IN HIGHER EDUCATION

There are four sets of drivers related to sustainability in higher education. One of the major drivers prodding sustainability in higher education relates to the institution's stakeholders, both internal and external. These stakeholder members exert much power and possess strong influence in regards to decision making, control, funding as well as media interest. Members of this group assume an aggressive role in monitoring and enforcing social and environmental standards. External stakeholders would include pressure groups, local community, alumni, and the media. Internal stakeholders would include students, staff, and school administrators, other campus community members. Across campuses, students have actively embraced sustainability principles and much of their actions have resulted in their achievement of a culture of sustainability. A major challenge with this driver is balancing the cost effectiveness of going green with the campus' mission of education.

A second driver related of sustainability relates to increasing trends of industrialization which is often accompanied by its associated material consumption, pollution, and generated waste. Development and build up activities are expected to grow on Guam over the course of the next five to ten years. In many cases, industrial build up and related activities have grown to a point beyond repair and the impact on the environment irreparable. Industrialization has provided tremendous economic benefits, however, it has also resulted in major pollution burdens, increasing consumption of natural materials and resources whose impact will be felt by all organizations in the surrounding area. Resource efficiency and pollution prevention are crucial to sustainable development.

The third driver relates to current and emerging technologies that impel strong, disruptive solutions that could cause many of today's largest consumers of energy and material intensive industries to become obsolete. Advancements of new science models, information technology, and renewable energy hold the potential to drastically reduce the levels of carbon footprint on the planet. This driver is important at the global level due to the far reaching ramifications of depleting natural resources and may affect the way organizations think about supplier chain relationships.

The fourth set of drivers relate to other higher education institutions. Campuses have long been a source of social change and a growing number of higher education institutions are actively engaged in a new kind of society transformation by leading the green movement and doing what they can to address environmental problems. A number of higher education institutions have readily committed to campus climate change initiatives under various membership organizations advocating green practices. Given the environmental challenges and opportunities this generation of students will face, campuses demonstrating ecological stewardship and environmental sustainability find themselves on the leading edge.

Overall, sustainability is a complex, multidimensional concept that cannot be addressed by any one single action. Creating sustainable value requires that campuses embrace each of the four sets of drivers. To create value, campuses can invite stakeholders to contribute their input on campus sustainability issues supporting the organization's effort of operating at greater levels of

transparency and responsiveness. Second, institutions can create value by reducing the amount of natural resources consumed and reducing the level of pollution. Third, institutions of higher learning can create value through the development of new technologies that hold the potential to shrink the size of the human footprint on the planet. Lastly, with the growth in campus green initiatives and pledges to climate commitment, the environment has become a strategic issue that can be used as a competitive advantage. Campuses with a distinct green advantage will possess value creating processes and positional advantages that will put them in a position to exceed their competition.

## APPLYING THE FRAMEWORK

In May 2008, the University of Guam inaugurated its tenth president, Dr. Robert A. Underwood whose inaugural speech highlighted UOG as his now coined term, the “natural choice.” In August of that same year, in his Fall 2008 Faculty Convocation speech, President Underwood highlighted UOG’s “technological know-how, the scientific knowledge and the academic resources to make a difference in our immediate environment as we deal with issues pertaining to energy, waste disposal and recycling.” Dr. Underwood further indicated, “. . . we haven’t embraced the sustainability of our environment as a goal in our institutional life.” Highlighting the university colors of green and white, Dr. Underwood envisions UOG to be at the cutting edge of trends by becoming the model green institution for Guam and the entire region. “We will learn how to manage our own waste and become the model for recycling on the island. We will not only follow the rules and regulations, we will set the pace for a greener Guam by becoming truly UOG Green.”

The Sustainable Value Framework offers an opportunity to explore how the four drivers discussed in the previous section might improve all four dimensions of shareholder value for UOG. In this section, strategies and practices will be developed to support President Underwood’s Go Green initiative for each driver of sustainability and its corresponding shareholder value as illustrated in Figure 1. Thinking through the full range of challenges and opportunities is the first step the president can take towards the creation of sustainable value for the organization.

Quadrant 1: Cost & Risk Reduction focuses on minimizing waste and emissions from operations. The issues of raw material consumption, waste, and pollution associated with economic build up and industrialization present an opportunity for UOG to lower cost and risk through the development of skills and capabilities in pollution prevention and eco-efficiency (doing more with less). This involves increasing its academic product or service value; optimizing the use of resources; incorporating new course or program offerings related to sustainable development; and engaging in sustainable development research to identify ways to reduce environmental impact. Addressing the opportunity for cost savings associated with each of these objectives makes good business sense. Eco-efficiency has been shown to stimulate productivity and innovation, increase competitiveness, and improve environmental performance. Benefits that result from eco-efficiency include improved market share, reduced costs through more efficient use of energy and materials; reduced risk and liability by designing out the need for toxic substances and products; increased revenue by utilizing innovative products; enhanced brand image through marketing and communicating improvement efforts; increased productivity and employee morale through closer alignment of organization values with the personal values of the employees; and improved environmental performance by reducing toxic emissions, and increasing the recovery and reuse of waste material.

Quadrant 2: Reputation & Legitimacy integrates stakeholder views into business processes. Whereas Cost & Reduction focuses on internal operations, Reputation & Legitimacy extends beyond the organization. This quadrant involves activities that call upon all involved in the lifespan of the product or service to take responsibility to reduce its environmental impact from “cradle to grave.” All stakeholders are involved in the life-cycle process by constant interface with external factions such as suppliers, customers, legislators, community members, and the media. This provides a way to reduce environmental impacts across the value chain and enhance legitimacy and reputation by involving stakeholders in the conduct of ongoing operations. By engaging stakeholders, the organization’s reputation is enhanced as a result of increased external confidence in regards to the organization’s intentions and activities. Stakeholder involvement also helps to broaden the range of sustainable practices within the system. Organizations must develop the capability to convert wastes from one operation into the inputs to another. Products that could be redesigned, restructured, and reused are central to the organization’s growing reputation for environmentally sustainable products and have helped to fuel gains in market share against competitors.

Quadrant 3: Innovation & Repositioning involves developing the sustainable competencies of the future. In this quadrant, it is important to develop sustainable competencies of the future that would circumvent standard routines and knowledge. The rapid emergence of disruptive technologies especially those heavily dependent on natural resources and toxic materials are compelling reasons to reposition the organization’s internal competencies around more sustainable technologies. Rather than simply seeking to reduce the negative impacts of their operations, organizations strive to solve social and environmental problems through the internal development or acquisition of new capabilities that address the sustainability challenge directly. The sustainable competencies that emerge from the search for clean technologies are central to the organization’s efforts to reposition its internal skill set for the development and exploitation of future markets. It seems appropriate that the University of Guam will need to begin developing the next generation of clean technology to drive future economic growth. Investments in solar, wind, and other renewable technologies that might ultimately replace their traditional fuel- and energy-consuming operations must be developed. Towards the effort to reduce its carbon footprint, UOG must set bold targets to reduce greenhouse gas emissions, keep total energy use flat and increase its use of renewable resources.

Quadrant 4: Growth Path & Trajectory involves creating a shared roadmap for meeting unmet needs. It is likely that future economic growth will be driven by those organizations that are able to develop or adapt to disruptive technologies that address society’s needs. To succeed, it is crucial to develop a vision not only for what needs the organization is trying to address and how they relate to sustainability, but also where the most appropriate markets can be found. By segmenting the external environment, unmet needs of those at the base of the economic pyramid may present the best opportunity for organizations to define a compelling trajectory for future growth (Hart, 2007). Developing a more inclusive and collaborative relationship with stakeholders can help open new pathways for growth in previously unserved markets. Increasingly, organizations are recognizing that listening to the voices of the poor and disenfranchised can be a source of creativity and innovation (Hart and Milstein, 2003). Today’s economic conditions demand a closer look at this fast, growing income-deficient segment. Moreover, recognizing that information poverty may be the single biggest roadblock to sustainable development, more attention to the isolated and disconnected is an opportunity for future focus.

## THE SITUATION

In November 2008, Dr. Underwood issued a memorandum appointing members to the newly formed UOG Green Steering Committee led by Dr. John Peterson and composed of students, faculty, and administrators (Toves, 2009). The university website ([www.uog.edu](http://www.uog.edu)) includes a UOG Green page which provides information on the objectives of the UOG Green Initiative, the Green Initiative Protocols as well as a UOG Green Newsletter. The goal of UOG Green is to develop a sustainable campus environment that can serve as a model for the island and the region. Objectives of the initiative, as indicated on the webpage, are to:

- Generate campus awareness, planning and interest in improving energy efficiency and reducing energy consumption from traditional sources
- Implement a campus-wide recycling program, to include the management of solid waste, waste water, and reusable goods, and to promote conservation
- Develop alternative energy sources to minimize reliance on traditional energy sources
- Serve as a demonstration of a green environment and as leaders in advancing sustainable development on island and in the region

The UOG Green program will involve three levels of concurrent activities to address its campus needs: Level 1: marketing and education to promote habit change amongst students, faculty and staff towards a greener campus life and socially conscious living; Level 2: provides opportunities for the University and surrounding community to actively engage in responsible management of resources and waste products through the procurement of local produce and recycled goods and the disposal of goods through recycling; Level 3: engage the local community, private, non-governmental and governmental organizations in obtaining resources for the development of alternative energy system(s).

On January 20, 2009, Dr. Underwood issued a memorandum to the university community regarding the UOG Green Initiative. This two page memo outlined the steps the university would be taking towards meeting the UOG Green Initiative objectives. The UOG Green Protocol covered areas such as procurement, recycling stations, and green facilities. The President announced the launching of the UOG Green Initiative would take place during the 2009 Charter Day events (March 9) and encouraged staff, faculty, and administrators to plan demonstrations or exhibits that support this initiative.

The January 2009 UOG Green Newsletter is intended to inform the campus community of regional and local research efforts in the field of non-carbon based energy production. The newsletter appears to be in the development phase containing mostly bullet points listing demonstrative projects, regional notes, a list of acronyms, and general fuel facts.

### History of UOG

The University of Guam is a U.S. accredited, regional Land-Grant institution that is dedicated to the search for and dissemination of knowledge, wisdom, and truth. Its mission statement is, To Enlighten, to Discover, to Serve. UOG serves the communities of Guam, Micronesia and the regions of the Pacific and Asia. Enrollment for Spring 2009 was up 8.5% over the previous year with 3,297 student enrolled. President Underwood indicated, "I believe this positive enrollment trend will continue, and we must prepare now for a further increase in enrollment for fall 2009 . . . We hope the legislature and the governor note the positive trends at the University and look favorably on our FY 2010 budget request so we can expand our courses and programs to meet student demand." (Marianas Variety, 2009).

## The Budget Saga

On October 10, 2008, President Underwood held a University of Guam Community Budget Discussion to share the status of the requested budget and solicit input from university stakeholders. In May 2008, the UOG budget was presented to the Guam Legislature. The budget was divided into a base budget of \$29.2 million and a series of UOG Initiatives that totaled in value over \$4 million. The president indicated in his discussion that UOG was assured that their base amount, if nothing else, would be received to sustain the university's current academic infrastructure. In September, UOG administrators went back to the Legislature and found that the university's base budget was scaled back to fiscal year 2008 levels (approximately \$26.7 million) and the proposed fiscal year 2009 budget had been "scrapped." After much debate, the university's budget was cut further to \$27.1 million and signed into law which included both financial and administrative provisions. Among the administrative provisions was the authority granted to the Governor to transfer up to 10% of the UOG budget into other Government of Guam accounts.

In light of this event, the President would like to pursue funding at least \$300K of the growth initiatives. The scaled back budget leaves the university in the position to make some basic decisions that would impact the next generation of students and "undermines the socio-economic fabric of the entire island" (Underwood, 2008).

## About Guam

As with most of the world, Guam residents are seeking alternative energy sources and are willing to go green. But unlike residents in the U.S. mainland and Hawaii, Guam has neither federal nor local energy tax credits. The U.S. mainland offers a 30% tax credit to those using alternative means to powering their home as well as other efforts towards becoming more energy efficient (Donato, 2009). However, Guam residents are not privileged to such support because local taxpayers do not pay the federal government. Currently, there are no laws that grant incentives to local residents who use renewable energy.

## GREEN TRENDS IN HIGHER EDUCATION

More than securing green memberships, results of going green trends have been accounted. According to the Society for College and University Planning, trends in higher education (January, 2008), green energy sources will become increasingly important to institutions that have signed the Presidents' Climate Commitment and likely for everyone else.

The American Wind Energy Association in their "Wind Power Beats Predictions" article, reported that the United States gained 4,000 megawatts worth of wind power in 2007, double what was predicted at the start of that year (November, 2007).

The College Sustainability Report Card for 2009, which measures campus greening efforts of 300 campuses with the largest endowments in the United States and Canada as measured by the 2006 data from the National Association of College and University Business Officers. The College Sustainability Report Card focuses on policies and practices in nine main categories.

Administration: this aspect of the report card reviews action taken regarding sustainability at the administrative or board level. This would involve policies or commitments to sustainability in the institution's mission statement or master plan as well as commitments to local, national, or international sustainability agreements. Findings indicate 56% of the schools surveyed

report having a dedicated sustainability staff. Nearly 23% of the schools have a sustainability office specifically focused on achieving campus sustainability goals. About 61% of the schools use a website to communicate both to the campus community and public about sustainability initiatives. The survey found 80% of the schools have a campus advisory committee on sustainability with multiple stakeholders (faculty, staff, and students) that advise administration on issues of campus sustainability. Approximately 52% of the schools have made a commitment to carbon reduction; 42% have signed the Presidents Climate Commitment; and 20% made carbon reduction commitments in addition to or instead of the Presidents Climate Commitment. Green purchasing has become a priority at a majority of schools with about 61% having some form of green purchasing policy. Of these schools, 46% have a single area green purchasing policy (buying Energy Star appliances); 15% have a more robust policy that spans across many different types of purchasing areas. About 62% of the schools surveyed are members of the Association for the Advancement of Sustainability in Higher Education (AASHE) which numbers about 435 members.

The Green Building category looks at the policies and practices of the school's adoption and use of high performance green building design. This includes campus-wide green building policies or guidelines, integration of green building practices into new construction projects and the incorporation of green building design features into retrofits of existing buildings. Key findings indicate 14% of schools report having at least one green roof on a campus building. Findings further indicated that 42% of schools have green building projects with at least one LEED-certified green building or are in the process of constructing one. Approximately 57% of the schools surveyed have adopted a campus-wide green building policy that specifies certain minimum performance levels such as achieving LEED Silver certification.

The Student Involvement category looks at student participation in sustainability initiatives and support for these activities by school administrators. This would include active student organizations that prioritize sustainability efforts and managing or overseeing sustainability challenges or competitions. This category also examined how school sustainability policies, practices, and culture are integrated into orientation programs for new students. Student involvement also concerns opportunities for sustainability-related work-study and "Eco-Reps" or other paid student positions to promote behavioral change campaigns. Key findings in this area showed more than one in four schools introduced sustainability awareness or similar educational components into new student orientation programs for all incoming students. Two in three schools offer paid sustainability opportunities to students for sustainability activities within the facilities department, sustainability office, or other relevant campus office. More than two in five schools have student representation on their board of trustees. More than two in five schools have a green residence, a green dorm that features green building best practices and/or a dedicated green residence for eco-minded students. About 95% of the responding schools have at least one active student environmental/sustainability group on campus. The survey results indicate 55% of schools host a sustainability competition on campus on an annual basis to promote one or more of the following: increased recycling, waste reduction, and energy or water conservation.

The Climate Change and Energy category focuses on improving energy efficiencies and conservation as well as efforts to obtain energy from renewable resources. Such activities may include conservation campaigns that encourage campus community members to monitor their energy consumption; retrofit appliances or power plants to make use of energy-efficient technology; conduct a carbon emissions inventory and committing to emissions reduction goals. Key findings indicate 52% of the schools have committed to carbon reduction; 42% by signing the

Presidents Climate Commitment; 20% made carbon reduction commitments in addition to or instead of the Presidents Climate Commitment. About 41% of the schools have conducted an inventory of their carbon emissions. Results show 29% of schools purchase renewable energy directly from their utility providers or buy renewable energy credits equivalent to a percentage of their campus energy use. The survey shows 37% of schools produce renewable energy on campus; facilities for producing solar, wind, bioenergy, or geothermal exist at these schools.

The Food and Recycling category looks at policies and practices of dining services in relation to sustainability. The quantity and availability of locally grown food as well as organic and sustainably produced food are evaluated. The utilization of reusable dishware and eco-friendly to-go containers is also taken into consideration. Recycling and composting are also examined. Key findings indicate 82% of the schools surveyed buy food from local sources and 29% have a community garden or farm on campus. Results show 75% of schools offer fair trade coffee and other food items. Approximately half, about 55% of schools have food composting programs while 46% report composting landscape waste. About 68% of schools are offering food to match different dietary needs and preferences such as vegan options. Biodegradable to-go containers are available at 32% of schools.

The Transportation category looks at how schools promote alternative transportation options through the policies and practices of facilities management and the administration. Evaluation of planning and implementation of policies that promote a pedestrian-friendly and/or bike-friendly campus; availability of bike-sharing programs is assessed; the utilization of alternative fuel as well as hybrid technology in vehicle fleets is taken into consideration. An incentive provided by schools to students, faculty, and staff for carpooling or for the use of public transportation is examined. The category also examines how schools provide access to public transportation or to popular off-campus destinations through the use of shuttles or similar systems. Key findings show bicycle sharing programs have been instituted at 31% of schools. Car sharing programs are available at 35% of schools. Reduced fare passes for public transit are offered at 50% of schools. Hybrid or other alternative-energy vehicles are used in 66% of school fleets.

The category of investment priorities focuses on return on investment, investing in renewable energy funds, and investing in community development loan funds. Schools received high marks if they investigated or currently invest in renewable energy funds or similar investment vehicles; investigated or invested in community development financial institutions. Key findings indicate 35% of schools currently have endowment investments in renewable energy funds or similar investment opportunities while an additional 18% are exploring endowment investments in this area. About 10% of schools invest in community development funds or similar investment opportunities while 6% are exploring endowment investments in this area.

The Shareholder Engagement category examines how schools conduct shareholder proxy voting. Forming a shareholder responsibility committee to advise the trustees allows schools to include students, faculty, and alumni in research and discussion of important corporate policies on sustainability; such committees offer exceptional educational opportunities at the intersection of policy, business, and sustainability. Key findings show 11% of schools have an advisory committee on shareholder responsibility of multiple stakeholders (students, faculty, staff, alumni) to help inform trustees' decisions on shareholder proxy resolutions.

Overall, The Sustainability Report Card 2009 indicates that progress is being made which is consistent with the conclusion reached by the AASHE in its Report on Campus Environmental Action. Colleges are committed to reducing their carbon footprint, with half the institutions surveyed pledging to reduce emissions, many through the ACUPCC. In its own research, AASHE

Digest (2006) reported the launching of student-run sustainability programs at CSU Chico where students approved a \$5 student fee increase to create a Sustainability Fund and the hiring of a sustainability coordinator. The students at CSU Chico also approved an advisory measure to make learning about sustainability an upper division graduation requirement. At the University of Idaho, a student-run Sustainability Center began operations in August 2006. The center was the result of a student campaign in 2005 to allocate \$85,000 for the center's operations. Potential activities include promoting fair trade coffee and local, organic foods in campus dining halls and developing a composting system for food waste.

A survey conducted for University Business magazine and Education and Institutional Cooperative Services (2006) show that "there is a distinct trend among colleges and universities toward environmental sensitivity" and "implementing [sustainability] initiatives will likely become a requirement for institutions desiring to be in the mainstream of higher education." As Grist Magazine indicated, "the greening of academe is nothing new, but it seems to have taken root in a big way . . . it's not just about doing a few good, green things – recycling, buying green energy, building green buildings, and all the rest – and it's not just about saving money or being seen as a good neighbor. It's about being seen as a sustainability leader in order to attract students, funding, and media attention" (2006).

Research opportunities are also being created by corporate representatives such as Google that plans to spend tens of millions of dollars on renewable energy research and development as well as related investments in 2008. Through their million dollar investments, Google hopes to discover a way to make renewable energy less expensive than coal power (December 2007). The literature review further reveals that green technology offers many opportunities for business growth and creation, and some business schools are preparing existing and future managers for them (January 2008).

In light of the growing number of green activity observed in these green schools, someone had to have taken the lead. At some institutions that leadership appeared to have come from the administration, some from faculty, and a big number from students themselves. Sustaining and expanding greening activities on campus has proven to be more difficult than easy and is further complicated by the cycling of students who enter and matriculate every four years or so. It is important to identify ways to address this and cultivate a program that will last over time. Furthermore, how will such green investments be paid for especially in light of the plaguing cash-strapped campuses across America and the globe. So the challenge is how might higher education institutions avoid a mediocre greening effort in light of the hype to go green. There is opportunity to develop standards to assess sustainability on campus, but does one size fit all?

## KEY CHALLENGES

Despite the persuasive drivers for change and the proliferation of survey results showing the positive trends towards going green, the University of Guam must contend with some key challenges that are unique to its local environment. President Underwood identified the generation gap as one of the issues that may affect UOG's Go Green initiatives. While students most of which are part of the Net Generation are deemed the major proponents of green efforts on campuses, some of the generation X and much of the baby-boomer members of the campus community are having difficulty unlearning years of traditional ways of doing things. A second challenge UOG's president conveyed is getting the campus community to understand the sequential approach of going green. The first step is not necessarily how we might begin developing alter-

native sources of energy. Rather, immediate focus should be on basic, fundamental methods of conservation and saving energy. In addition to Dr. Underwood's two stated challenges facing the university's Go Green initiatives, other issues must be added for consideration. A third challenge relates to Guam's public policy and regulations. Without any legislation supporting environmental sustainability, the drivers influencing going green on Guam may potentially weaken. Another challenge of going green is the associated cost. The University of Guam must recognize the investment challenges that incorporating green strategies might bring, particularly in light of its ongoing budget constraints.

Given the potential benefits and support from stakeholders, more organizations will have to contend with the primary challenge of cost, closing the generation divide, practical strategies, and absence of strong environmental regulations and legislation to support environmental initiatives in order to achieve sustainable value in the increasingly growing green environment.

## CAMPUS SUSTAINABILITY ASSESSMENT MODELS

Some of the established frameworks for assessing sustainability examine selected indicators such as solid waste, energy, water/sewage, transportation, indoor air quality, landscape, food service, new structures/renovations, procurement, and curriculum. To assist campuses in achieving sustainability goals, Second Nature (2007) recommends some campus sustainability assessments. Second Nature is a non-profit organization whose mission is to "accelerate movement toward a sustainable future by serving and supporting senior college and university leaders in making healthy, just, and sustainable living the foundation of all learning and practice in higher education." Some assessment frameworks identified by Second Nature include the following.

Campus Sustainability Assessment Framework (CSAF) widely used among Canadian campuses and appears to be one of the more comprehensive systems. The CSAF system covers 170 social, environmental, cultural, political, and economic indicators to assess campus sustainability, including short- and long-term goals for many of the listed indicators.

The Campus Sustainability Assessment Project provides an extensive, searchable record of assessment projects throughout the United States and beyond and includes interviews and correspondence with campus leaders. The database documents over 1,100 assessment projects as well as selected projects from eleven other countries.

The New Jersey Higher Education Partnerships Campus Sustainability Snapshot examines ten selected areas to assess which have large potential impacts on sustainability and is dependent on the institution's choices. Indicators include solid waste, energy, water/sewage, food service, new structure, procurement and curriculum.

The Ecological Footprint Analysis tool measures the amount of renewable and non-renewable ecologically productive land area required to support the resource demands and absorb the wastes of a given population or specific activities.

The Greenhouse Gas Inventory Guide created by Julian Dautremont-Smith offers a guide to reduce greenhouse gas emissions required for establishing baselines from which to measure progress and to provide a foundation for meeting and setting targets. This guide is particularly valuable for those interested in greenhouse gas reductions.

The Sustainability Assessment Questionnaire (SAQ) is a qualitative questionnaire designed to assess the extent to which campuses are sustainable. Its aim is to raise consciousness and encourage debate about what sustainability means for higher education, give a snapshot of the state of sustainability and promote discussion on the institution's next steps. The SAQ is used

in a 3-4 hour exercise with a group of approximately ten representatives which include staff, students, faculty, and administrators.

The Sustainability Pathways Toolkit by Good Company offers a comprehensive campus assessment that provides a clear road to sustainability. Independent assessments provide meaningful snapshots of campus performance that include stakeholders, reduce costs, increase effectiveness of planning and communication, and align values with actions. This tool may be customized to meet each campus' specific needs.

## CONCLUSION

While the opportunities to explore such green possibilities are evident, some questions remain whether the combination of conservation and renewable energy will be enough to stabilize, if not reduce, greenhouse gases. It is anticipated that human behavior, including politics, may prove to be a bigger stumbling block than a lack of technological advances. Colleges with a substantial push from their students are anticipated to continue reporting an increased focus on sustainability and reduction of green house gases.

In light of the drivers, trends, and challenges facing higher education institutions, how might UOG gain a competitive advantage and build its strategies around the sustainable value framework? How might UOG overcome the challenges identified in this report and capitalize on the going green opportunities despite its small size and remote location.

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