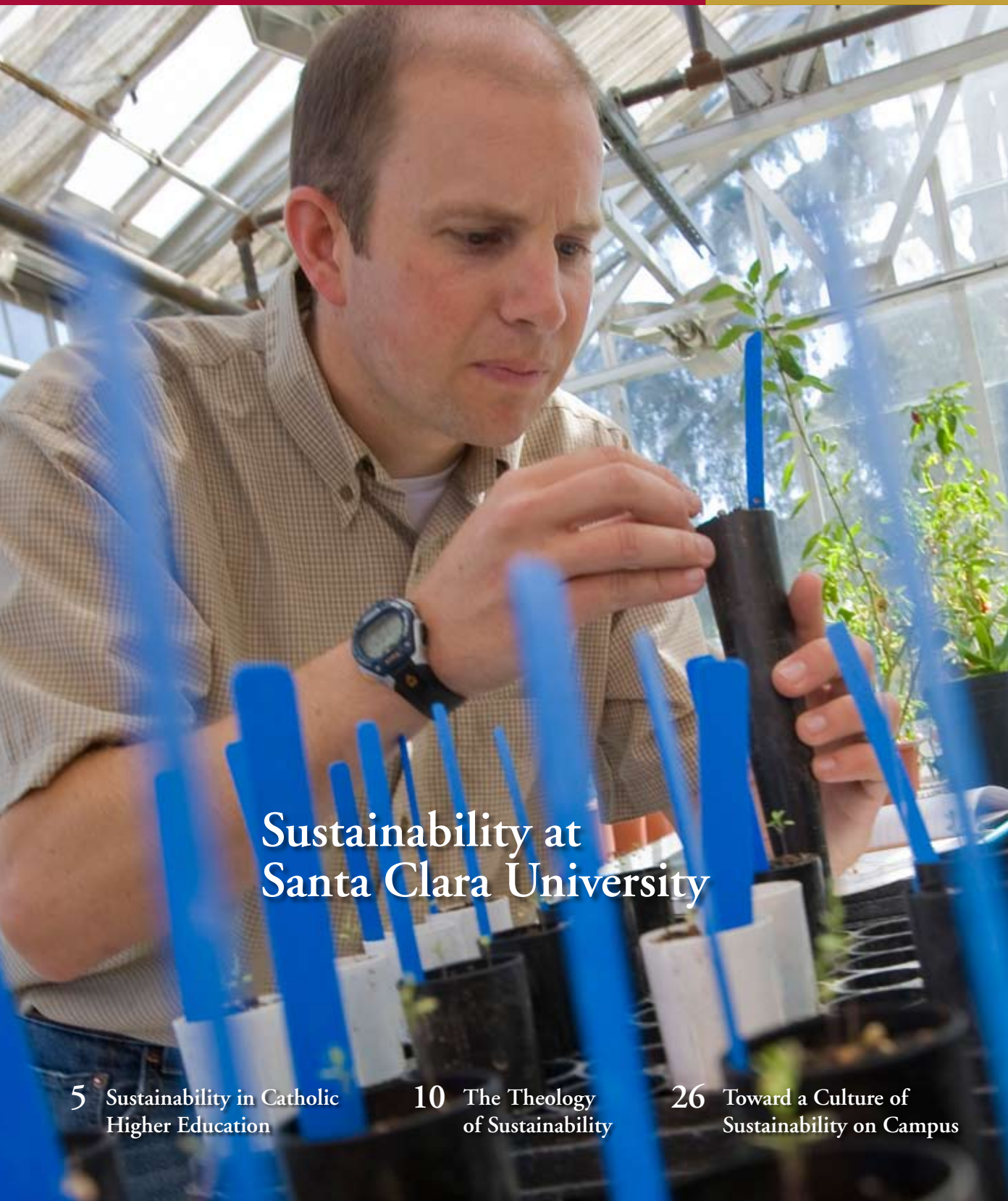


explore

PUBLISHED BY THE IGNATIAN CENTER AT SANTA CLARA UNIVERSITY

AN EXAMINATION
OF CATHOLIC
IDENTITY AND
IGNATIAN
CHARACTER IN
JESUIT HIGHER
EDUCATION

SPRING 2009 VOL. 12 NO. 2



Sustainability at Santa Clara University

5 Sustainability in Catholic
Higher Education

10 The Theology
of Sustainability

26 Toward a Culture of
Sustainability on Campus



Peter Thamer '08

SPRING 2009

explore

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JESUIT EDUCATION AT SANTA CLARA UNIVERSITY

FROM THE CENTER DIRECTOR

Sustainability is the new watchword. Before arriving at Santa Clara three years ago, I ranked “sustainability” with the likes of “post-modernism” as concepts regularly used on college campuses but elusive to define. I did my best when I tossed an empty water bottle into the recycle bin. But that was it, and I was quite satisfied. This issue of *explore* challenges my naive preconceptions and, I trust, yours. The message in the pages that follow is a simple one: as citizens of a globalizing world we need to call forth a culture of sustainability now for the sake of future generations.

The editorial staff of *explore* intends this issue as a primer on sustainability. Keith Warner sets the stage by insisting that sustainability is more than environmental ethics. It has a complex inter-disciplinary character that also includes economic development, social equity, and education. Turning to theology, Paul Fitzgerald examines the proper understanding of God’s charge to humankind to exercise “dominion over the works of his hands” (Psalm 8:6, see Genesis 1:26ff). For him, our power over creation is limited: “God remains the master... of the universe. We serve in the household of the Lord, carrying out God’s will and caring for each other, all humans, and all creation as God’s stewards.” To promote sustainability is the secular answer to this theological insight.

Here on campus, educating for and about sustainability is now a high priority. Sara Garcia from SCU’s education department insists that contemporary teacher education must promote ecological literacy and environmental ethics across the curriculum. Her theoretical comments are complemented by Lindsey Cromwell’s report on practical initiatives at SCU that include sustainability academics and research, energy and water conservation, and waste minimization. Ed Maurer’s Bannan grant report on an immersion trip to Nicaragua by an interdisciplinary group of faculty and students intent on learning about sustainability and water development in the international context likewise highlights the global nature of SCU’s sustainability concerns.

As Meghan Mooney concludes in her article, to create a *culture* of sustainability on campus, Santa Clara still has much to do. But I agree with her: let the fun begin!

Peace,

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The Ignatian Center for Jesuit Education seeks to preserve and extend the Catholic identity and Jesuit mission at Santa Clara University. As a Center of Distinction, the Ignatian Center is dedicated to advancing the University’s strategic vision of “educating men and women to be leaders of competence, conscience, and compassion,” by serving students, faculty, staff, and community partners.

Santa Clara University, a comprehensive Jesuit, Catholic university located 40 miles south of San Francisco in California’s Silicon Valley, offers its more than 8,000 students rigorous undergraduate curricula in arts and sciences, business, and engineering, plus master’s and law degrees and engineering Ph.D.s. Distinguished nationally by one of the highest graduation rates among all U.S. master’s universities, California’s oldest operating higher-education institution demonstrates faith-inspired values of ethics and social justice. For more information, see www.scu.edu.

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COVER PHOTO BY FJ GAYLOR PHOTOGRAPHY.

Assistant Professor Justen Whittall '96 is an expert on West Coast plants, especially the federally endangered Metcalf Jewelflower and California's Torrey Pines, one of the rarest pines in the world. His work is one of the many examples of sustainability research at SCU. Visit www.scu.edu/explore for a link to more information about and a video of Professor Whittall.

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BY LINDSEY CROMWELL '04 Rather than create a “sustainability requirement,” SCU is integrating sustainability into many disciplines, in the same manner as it appears in the real world.

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Sustainability in Catholic Higher Education



BY KEITH DOUGLASS WARNER, OFM

Assistant Director for Education, Center for Science, Technology, and Society; Lecturer, Religious Studies Department; and Faculty Director, Xavier Residential Learning Community

ORIGINS AND MEANINGS

THE WORLD COMMISSION ON ECONOMIC DEVELOPMENT BROUGHT THE IDEA OF SUSTAINABILITY TO THE GLOBAL STAGE IN 1987. THE UNITED NATIONS SPONSORED THIS STUDY OF THE RELATIONSHIP BETWEEN ECONOMIC DEVELOPMENT AND THE ENVIRONMENT, PUBLISHED AS “OUR COMMON FUTURE,” ALSO KNOWN AS “THE BRUNDTLAND REPORT.” PRIOR TO THIS, THE UNITED NATIONS HAD STRUGGLED TO FIND A WAY TO ADDRESS GLOBAL ENVIRONMENTAL PROBLEMS. The industrialized countries had proposed international treaties and action, but the developing nations had prioritized the need for economic development, with little interest in environmental regulation. The commission provided the conceptual framework for coordinated action, proposing that all nations have a stake in fostering economic development,

but of a new kind: sustainable. It proposed sustainability as an integral framework, in which economic development, social equity, and environmental protection are seen as inseparably related goals.

The Brundtland Commission advanced public understanding of the link between economic growth of the poorer nations and global environmental protection. The commission argued that poorer countries must have the opportunity to develop economically—if they are denied this opportunity it will be much harder to convince all countries to support practices that can be sustained over time—but richer countries must foster policies to favor environmental conservation with economic development. “Our Common Future” laid the foundation for the “Earth Summit” at Rio de Janeiro, Brazil, in 1992. This summit marked the real beginning of international environmental protection initiatives and proposed a sustainable development agenda.

The three pillars of sustainability

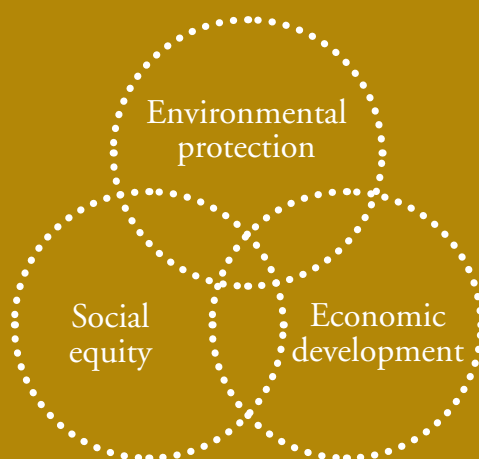


figure 1

A simple definition of sustainability is “meeting the needs of the present generation without compromising the ability of future generations to meet their needs.” The official U.N. definition of sustainability has three dimensions, or three pillars, also known as the “Three Es” of sustainability. These are environmental protection, economic development, and social equity (figure 1).

Sustainability has now become a concern of virtually every sector of human society. It enjoys more popular support than environmental resource conservation because it focuses on human needs, but also because it provides a positive vision for the future of the human family. From a motivational perspective, few people are inspired by the notion of “being less bad” in their environmental impact. In contrast, sustainability provides a framework and markers for making positive change.

THE JUSTICE DIMENSION OF SUSTAINABILITY

The social equity pillar has the clearest ethical component, that of socio-economic fairness or social justice. The lifestyles of the richest and poorest members of the human family pose the greatest threat to the integrity of Earth’s life support systems, but for different reasons. The wealthiest consume vastly more than their fair share of resources, more than the planet can provide for everyone. The poorest 1/3 of human society, those living on less than \$2 per

day, have no alternative but to use resources in a short-sighted way—for example, cutting down trees for firewood before they are able to grow to their full height. The wealthiest countries have the capacity to make choices for a more sustainable lifestyle, while the poorest members of the human family generally do not. Thus, sustainability is built upon the practice of solidarity with the poor; fostering economic development for them will enhance sustainability. The social equity dimension suggests that sustainable development is an inherent moral good, but its consequences are likely to be ethically positive as well.

The sustainability framework extends ethical concern to future generations. Human society now consumes natural resources faster than they can be replenished, and this is compromising the ability of future generations to meet their needs. Current and future generations are inheriting a world that is biologically impoverished, has fewer resources, and suffers from more pollution than ever before. Sustainability challenges present day humans to consider the well-being of future generations, to view their needs as worthy of our moral concern. Modern humans are not accustomed to considering future generations, but the power of our markets and technologies threatens their quality of life. We can express a moral concern for the future by restraining our consumption of non-renewable resources today. Note that some resources, such as minerals,

are essentially finite. Other resources, such as wind and plants, because they draw their energy from the sun, can be managed so as to provide a continuous source of goods.

It is important to recognize that sustainability, much like “efficiency,” does not have an intrinsic meaning. In a simplistic sense, sustainability merely means the capacity to keep doing something. For example, some economic institutions use the term to communicate their ability to sustain their business activities, but this reflects their self-interest. Some governments use the term only in regard to national economic growth. This is why the social equity dimension of sustainability is so critical. Some use the term “environmental sustainability,” but this makes no sense without its two companion pillars. An ethical approach to sustainability suggests that society has an obligation to restrain wasteful uses of resources among the affluent, but it also has a special obligation to foster economic development for the poorest of the poor, all the while maintaining environmental resource

protection. When referring to sustainable development, one needs to define what is to be sustained, for whom, and for how long. Sustainability is not an absolute condition, but always partial. Sustainability, like justice, occurs along a continuum, and making progress along this continuum is necessarily incremental. Restraint is its price.

SUSTAINABILITY AT SANTA CLARA

Catholic higher education offers opportunities—and has obligations—to advance sustainability. Santa Clara University adopted a comprehensive policy on sustainability in 2004, addressing environmental stewardship, education, and service. All activities are now coordinated by the Office of Sustainability. University Operations coordinates the stewardship of the campus facilities. The Environmental Studies Institute has taken the lead in educational efforts. Environmental Services facilitates outreach from SCU students and faculty to communities near and far.



Photo courtesy of Devcon Construction

This photo of straw bale walls was taken during the construction SCU's Kennedy Commons, one of several new green buildings on campus.

University Operations has long cared for the comfort and beauty of our SCU learning environment, but has added resource efficiency to its responsibilities. All new facilities must meet stringent “green” building standards. This resource stewardship is good in and of itself, but these buildings also serve as learning laboratories for the broader campus community. University Operations carries out an integrated strategy that allows for campus growth while reducing overall use of energy and water resources.

Educational theorists have proposed a fourth pillar of sustainability to integrate the original three: education (figure 2). We need leaders able to foster innovation and collaboration among engineers, business officials, social and natural scientists, and scholars in the humanities. Indeed, sustainability challenges every human organization—private, public and community-based—to become a learning institution. Today at Santa Clara, sustainability is incorporated into teaching across more than twenty disciplines.

Sustainability challenges the traditional segmentation of research and learning into isolated academic disciplines. Sustainability requires critical inquiry all the more, but across and between multiple intellectual domains, as society struggles to balance all three pillars. In deliberating a new undergraduate core curriculum, the campus faculty decided not to require students to take a designated course in sustainability, but rather to weave this theme into disparate—and perhaps surprising—disciplinary courses, such as mathematics, psychology, philosophy, religious studies, marketing, geology, and poetry. This educational strategy challenges students to make connections across the disciplines, and come to grips with sustainability’s complex interdisciplinary character.

Sustainability is shaping research and outreach at Santa Clara as well. Not content to win the bronze medal in the international solar decathlon competition, engineering faculty have begun a research project in quantifiable

The fourth dimension of sustainability

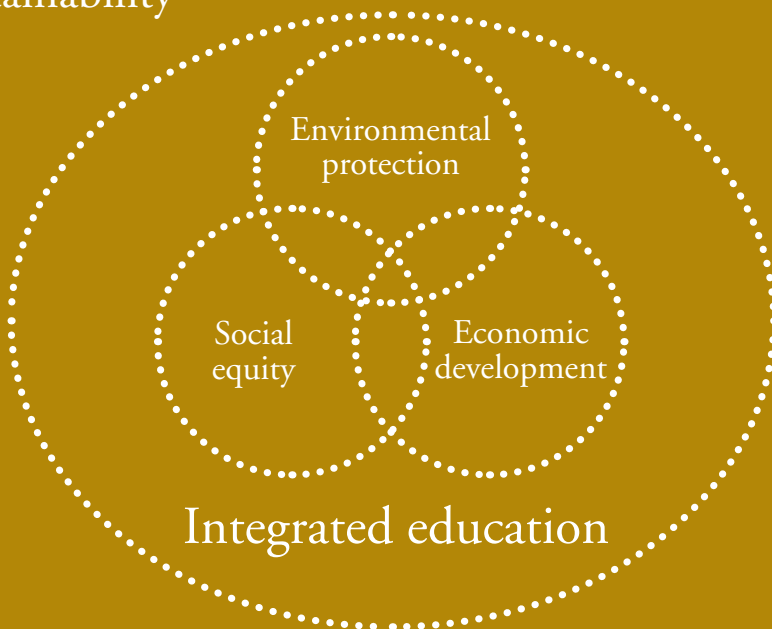


figure 2

University Operations has long cared for the comfort and beauty of our SCU learning environment, but has added resource efficiency to its responsibilities. All new facilities must meet stringent “green” building standards. This resource stewardship is good in and of itself, but these buildings also serve as learning laboratories for the broader campus community.




Lindsey Cromwell

SCU student mentors for the 2009 Sustainability Decathlon pose in front of the 2007 SCU Solar Decathlon home. Mentors are freshmen through seniors from all three colleges.

sustainability. Some arts and sciences students created a “sustainability decathlon” outreach project to local high schools, piggy-backing community outreach on the 2007 solar house, and now again in 2009. The Global Social Benefit Incubator (GSBI), a project of the University’s Center for Science, Technology, and Society, provides an intensive two-week residential program that enables successful social entrepreneurs to scale up their endeavors while incorporating sustainability principles. The GSBI combines the discipline of business planning and Silicon Valley’s entrepreneurial resources with sensitivity to culturally embedded models of social change across the globe.

Advancing toward sustainability goals requires scientific and technical expertise to be linked with moral and political leadership skills. Jesuit education has been an engine of cultural creativity from its origins in 1548.

The principles of sustainability readily take root in the humanist foundation of Jesuit education, but this calls for additional attention to humanity’s relationship to our natural and built environments. No longer can one study society without regard to nature, any more than one can study technology without its human impacts. Making progress along the sustainability continuum requires studying humans and nature—together—as they inevitably mutually influence each other. Our Jesuit tradition of integrated education means Santa Clara University is uniquely poised to be able to develop the kind of whole-person leaders necessary to lead us into a more sustainable future. The humanistic values of Jesuit education offer us an advantage as we educate the whole person, in solidarity with the poor and needy, in a globalized world. 

The Theology of Sustainability



BY PAUL J. FITZGERALD, S.J.
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and Associate Professor,
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THE SCIENTIFIC DEBATE IS SETTLED CONCERNING THE FACT THAT MODERN HUMAN ACTIVITY HAS DIRECT EFFECTS ON THE BIOSPHERE OF OUR PLANET. OUR INDUSTRIAL PROCESSES, TRANSPORTATION NETWORKS, AND BUILDING PROJECTS ARE INFLUENCING CLIMATE CHANGE AND CAUSING THE EXTINCTION OF SPECIES. Certainly, human communities have always adapted to local environmental conditions through the use of technology (hunting, agriculture and animal husbandry, the production of tools, clothing, shelter, other goods and services) in order to survive and flourish in the most diverse climates. These typical human activities have always had effects on local environments, whether it was clearing forests or draining swamps to gain farmland, or releasing waste into streams and rivers. Since the Industrial Revolution, however, there has been an acceleration of the changes caused by humankind and a broadening of

the scope of these changes. Presently, we find ourselves wondering how we will develop new technologies to enable us to “live and breathe and have our being” amidst the changing conditions of the planet. Even as we confront myriad specific and unique problems, it would seem that the present moment of our living on earth also affords us the opportunity—perhaps it even obliges us—to re-examine holistically the way in which we interact with our world. “Sustainability” has become a watchword in scientific, political, economic and social conversations. It has also entered into the theological conversations of people in churches, temples, synagogues, shrines and mosques around the world.

It is quite appropriate that some of the same people who consider our current environmental situation under the rubric of secular disciplines also do so via theological considerations. This is apt because religious outlooks deeply affect how most people on the planet make sense of reality. Because most human beings are

What are the long-term consequences of the choices and decisions we make today? If our religious considerations of the ecological crisis lead us to conclude that we must make certain sacrifices in terms of our comforts and conveniences, and if we must devise new ways of living that are truly sustainable, then perhaps religious reflection has a crucial role to play in ecological conversations.

religious, broadly defined, religion is typically a preeminent way in which people accept that their challenges are not merely technological nor only political. Humanity wants and needs to ask such questions as, “What is the proper relationship between human beings and the world?” “Do non-human living creatures have any moral standing, any intrinsic worth, beyond their mere usefulness to human beings?” “What are the long-term consequences of the choices and decisions we make today?” If our religious considerations of the ecological crisis lead us to conclude that we must make certain sacrifices in terms of our comforts and conveniences, and if we must devise new ways of living that are truly sustainable, then perhaps religious reflection has a crucial role to play in ecological conversations, for theologians do know something about “sacrifice.” And as the largest single religious organization in the world, and as an essential source and guide to western and world opinion and behavior, the Catholic Church has a special obligation to contribute to the global conversation that is taking place on this most pressing topic.

To recast the three questions posed above in religious language, Catholics could well ask, “Is our wanton disregard for non-human creatures sinful? Is the seeming enmity between human beings and the rest of creation as recounted in the Book of Genesis (3:14-19) the result of sin? And what of the divine command to exercise

dominion over other creatures (Genesis 1:26)? Does this permit humanity to ride roughshod over the whole planet? Does it deny non-human creatures intrinsic moral worth? And if God in Christ has worked the salvation of human beings, reconciled Heaven and Earth, and opened for us the way to eternal life, what is the final destiny of non-human creatures?” As is befitting of all Christian theology, we must look at scripture and tradition through the lens of the person of Christ, and examine all reality in the light of the Christ event. In so doing I hope that these reflections offer some food for thought.

“In the beginning was the Word, and the Word was with God and the Word was God. He was in the beginning with God. All things came into being through him, and without him not one thing came into being” (John 1:1-3). With these words, St. John begins his account of the coming of the Messiah in the person of Jesus of Nazareth. This theological prologue to the words and deeds of Jesus speaks volumes, for in the simplest Greek, the Beloved Disciple is inspired by the Holy Spirit to frame the two great redemptive mysteries he will recount, viz. the Incarnation and the Resurrection, within—and as the completion of—the first great redemptive mystery, Creation. The Triune God, from all eternity a community of love, chooses to create, redeem and sanctify a universe, within which human beings are essential to the divine project. John writes that everything came to be through

the Logos, i.e., the Christ, who exists as the beloved Son of the Father “before” the Creation, the Incarnation and Resurrection, the seminal events that lend velocity to salvation history, the divine project which is co-extensive with the history of the universe. Thus, when the Son puts off divinity and puts on human flesh to come to dwell within creation, it is all of creation that welcomes him as the one through whom it all came to be. And while human beings are central to the creative and redemptive project of God, and thus the most noble of all the creatures, it is ironic that human beings alone possess the possibility, because of free will and the propensity to sin, of having the blessing and the burden of choosing to accept or reject him.

The Son takes human flesh from the Virgin, who knit him together in her womb, and who herself, as creature, is totally enmeshed in creation. Once born, the Son of Man must eat and drink, breathe air and warm himself by the fire, clothe his body and wear sandals on his feet. Indeed, like us in all things except sin, the Christ depended on non-human creatures in order to be able to live a human life. His daily bread came from the wheat that grew on the hillsides.

The roast lamb and bitter herbs he ate every Passover as a child were products of the earth and of human labor. Jesus also depended on the 500 or so species of microorganisms that lived in his digestive tract, helping him to metabolize food, fight off diseases and live in relatively good health until the time came for him to go up to Jerusalem. Like us, the incarnate Word was enmeshed in creation and totally dependent on it to sustain him. Further, the Christ needed the mustard plants and the fig trees and the fish in the seas in order to figure out the reign of God, just as he needed the quiet of the desert in order to figure out his role as Messiah. And after his resurrection, when he appeared to the disciples gathered in the upper room, to help them overcome the fear that paralyzed them, he ate a piece of dried fish. Even as the glorified Lord, the risen Christ was encountered by his disciples as fully present to and inextricably bound up with creation—until the time of his ascension. Was Jesus’ relationship with non-human creation more than merely utilitarian? Did he demonstrate affection for the lilies of the field, whose task was simply to be delightful? Did Jesus thus lend a second ineffable dignity



FJ Gaylor Photography

SCU Assistant Professor Justen Whittall '96 is an expert on West Coast plants, especially those that are endangered. Learn more about his research at www.scu.edu/explore.

Nature is the necessary context in which humanity meets the Triune God, chooses to accept grace, manifests faith, and lives out faith's consequences. This certainly suggests a foundation for an anthropocentric argument in favor of wise human policies aimed at the sustainability of our interactions with nature; we need to leave a habitable world for our grandchildren, so that they too may meet the living God in the context of creation.

to all creatures, all of whom came to be through him, and upon whom he depended during his earthly life?

I propose that we answer yes to those three questions and see where it gets us. Non-human creation has long had a utilitarian role to play in the life of human beings. It is undeniable that the many relationships we have with other species—for food, for clothing, for labor—have been necessary for our survival and development as a species. But beyond the mere nourishment and protection of our bodies, it is also true that nature has also played an essential role in our moral, aesthetic, spiritual, and religious development as a species. Our relationship with God has grown steadily throughout salvation history, which unfolds in the world. Nature is the necessary context in which humanity meets the Triune God, chooses to accept grace, manifests faith, and lives out faith's consequences. This certainly suggests a foundation for an anthropocentric argument in favor of wise human policies aimed at the sustainability of our interactions with nature; we need to leave a habitable world for our grandchildren, so that they too may meet the living God in the context of creation. It also suggests that non-human creation, henceforth called 'nature' in heuristic distinction to human beings, has a second (if chronologically prior and in this regard essential) worth and dignity *per se*, being also the direct object of God's creative activity. Only by having its own essential

dignity can nature be the means through which God can manifest God's self in gracious self-revelation to human beings. If nature has an essential goodness, lent it by God, then this would suggest a second, non-anthropocentric foundation for the dignity and worth of nature, one that is theocentric. Our present exploration seeks to found a renewed human respect and responsibility for nature by prioritizing the anthropocentric and the theocentric, thus clarifying the proper relationship between human beings and nature in conjunction with the proper relationship between human beings and God.

An anthropocentric impetus for a species-wide human commitment to ecologically sustainable practices in every aspect of human living rests upon the essential worth and dignity of every human being. The claim that human beings enjoy an inalienable right to respect is a religious claim, based upon divine revelation in sacred scripture: "Then God said, 'Let us make humankind in our image, according to our likeness'" (Genesis 1:26). To say that human beings are creatures *in imago Dei* is to say that they receive and reflect something of the essence of God, are deeply, inalienably good, worthy of love and respect, and are capable of inspiring awe by acting as a means for God's self-communication as grace in the midst of creation. As image and likeness of God, every human person is lovable as the object of God's love and as the vehicle of God's love. This religious insight

founds the Catholic belief in and advocacy for a seamless respect for human life, from conception to natural death. This respect for human life demands of us not merely an attitude of respect but also practical actions and personal engagement in creating and sustaining the conditions for the possibility of dignified human life: education and health care, meaningful work and just wages for all who can work, humane correction for those who go astray, religious freedom, and respect for inviolable human conscience. It happens that, in the West, there is more respect for certain negative rights (freedom from censorship, freedom from oppression) than for positive rights (food, clothing, shelter, health care, etc.). Yet both types of rights adhere to the human person in a Catholic worldview. Further, a Catholic social imagination rejects the utilitarian individualism that has long dominated social discourse in the United States in favor of a Christian personalism that would see the human being not in isolation, nor in competition, but rather as enmeshed in a great web of mutually life-giving relationships that sustain communities of faith, hope and love. If such an anthropology informs an anthropocentric approach to the current environmental crisis, it would demand of us that all human beings have an obligation to interact with nature in such a way that we protect and improve the ability of all human beings to have a sustainable, life-giving relationship with nature as well. And this obligation to care for all human beings by being careful about how we interact with the biosphere extends not only across the entire face of the planet today but also well into the future. The ecological vocation elicits a regard for the well-being of future generations of humanity as well.

A theocentric approach to the same ecological crisis points us in the same direction and elicits from us the same creative engagement but is based upon a deeper fundamental truth of faith. To return to the prologue of John's Gospel, we hear in the first words an echo of the first words of Genesis, "In the beginning." In fact, John the Evangelist makes a deliberate grammatical error in the first line, omitting the definite article (In [the] beginning was

the Word...") to make clear his reference to the Hebrew text of Genesis—Hebrew doesn't have definite articles. John wants the reader to appreciate the triune character of all God's actions, including those that are done for our salvation. As well, John signals God's deep and abiding relationship with all of creation. As we said above, the Christ enters into that which came to be through him. The Father creates through the Son in the Spirit; the Father sends the Son into the world, through the power of the Holy Spirit; the Spirit leads us to the Son, who shows us the Father. John presents the mystery of the person of Jesus both within and beyond the context of creation so that we find in him the means of understanding and accepting our (healed) relationship with God and the world. Christ comes into the world, and it knows him not (John 1:10), yet it does respond to his command as he calms storms, turns water into wine, cures diseases, feeds the multitudes, praises the birds and delights in the prodigious power of mustard seeds and yeast.


It would seem that Christ's attitude towards the world is not only different from that of modern people but also from that of folks of his own time. Where others saw illness as the work of the devil, Jesus saw it as an opportunity for God's compassion to be made manifest, to such an extent that Jesus calls himself a physician of souls (Luke 5:30). Where others discounted the birds of the air as neither useful nor productive, Jesus saw them as the recipients of God's providential care and concern (Matthew 6:26). And to describe the deep connectedness that he offered to his disciples, he called himself the true vine, whose branches are those who abide in him and are bound to him in love, and while his Father trims the branches, the vine, well-rooted in the earth, gives life to the branches and allows them to bear fruit (John 15). In these and in many other figures of speech, parables and symbolic prophetic actions, Jesus signaled the overturning of the original curse, the result of the original sin of Adam and Eve, their estrangement from each other and from God, their enmity with the rest of creation (Genesis 3). The authors of Genesis capture well the sinful human propensity to denigrate nature, to

A theocentric world view...would extend our regard well into the future, leading us to ask and to answer the hard questions about the long-term consequences of our choices, actions and inactions, our sins of commission and our sins of omission, against generations unborn.

instrumentalize it, to disregard its beauty and to overlook its wonderfulness. Jesus overturns these sinful attitudes and restores nature to its rightful place in the order of creation and in the process of redemption.

A theocentric worldview would lift our regard from our own individual self-interest (an egocentric view), and from the interest of our clan or cult only, to an altruistic regard for the good of all humankind, and in turn contextualize that anthropocentric worldview in the final and lasting frame of reference that alone gives meaning and purpose to all of reality, the human capacity and desire to fix our hearts on God, in whom we live and move and have our being—as does all of creation. What is the proper attitude towards God? As a response to God's proffered love, we return love in the form proper to creatures who worship and adore their creator: gratitude, reverence, awe, and trusting obedience. How would this attitude enlighten our regard for all other human beings? In the matter of our use of the goods of nature, it would broaden our vision and open our interest to the needs of all, and it would temper our systemic and habitual disregard for consequences. A theocentric world view would afford us the possibility of contemplating creation from the divine perspective, God who creates all that is and pronounces it "very good." Such a stance would oblige us to close the loop on our production and distribution systems so that the basic needs of all are met before the luxuries of a few are entertained. And it would extend our regard well into the future, leading us to ask and to answer the hard questions about the long-term consequences of our choices,

actions and inactions, our sins of commission and our sins of omission, against generations unborn. And how would this in turn lead us to a more than utilitarian attitude towards the rest of creation? Perhaps it would lead 21st Century human beings to recover some of that practical wonder, some of the reverential fear, some of the mysterious delight that our ancestors took in contemplating the works of God.

The person of Jesus allows us, finally, to understand and properly carry out our charge by God to exercise "dominion over creatures" (Genesis 1:26-30). God remains the master and sustainer of the universe. We serve in the household of the Lord, carrying out God's will and caring for each other, all humans, and all creation as God's stewards. We have in Christ the perfect model, for in him we find perfect obedience to the Father and universal love for all creatures. And in addition to Jesus' actions and attitudes as the pattern of the good human life, we have his assurance that we, along with all the other creatures, are on a common pilgrimage. For do we not as Christians believe in the resurrection of the dead and the life of the world to come? Do we not hope for the renewal and the perfection of creation, the new and eternal Jerusalem? For eternal life to have meaning for us human beings, the resurrection of the body is necessary, for only thus can we live on as embodied spirits in the presence of God and in the communion of the saints. For us to sit at the wedding feast of the lamb, we will need the context of a renewed and perfected universe. And just as our eternal life overlaps with our mortal life, so too does our care for creation overlap with God's final perfection of the universe. 

Empowering Teachers as Environmentally Literate

Ethical Considerations



BY SARA S. GARCIA
*Associate Professor,
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ECOLOGICAL ETHICS IS THE BASIS FOR ENVIRONMENTAL LITERACY. THIS LITERACY INCLUDES THE RELATED NOTIONS OF INTER-CONNECTED, INTERDEPENDENT SUSTAINABILITY AND RESPONSIBILITY, AND REQUIRES A MORE THOUGHTFUL REFLECTION ON THE WORLD IN WHICH WE LIVE, BOTH PHYSICAL AND SOCIAL. Needless to say, environmentally literate teachers are more likely to engage in ethical thinking that is sensitive to the environment and the people in it. This thinking becomes a tool of the imagination which, when cultivated consciously, the teacher uses to confront new moral, economic, and political challenges. The cognitive tools acquired through conscious responsiveness stimulate the capacity for imagination to anticipate the effects of our actions. The focus on ecology linked to a more environmentally sensitive ethical thinking is supported by moral obligations that prohibit actions to satisfy needs that are not essential to humans when they negate the needs of animals,

plants, and the environment. The ethics of environmental literacy deals primarily with human relationships, and the interdependency between them is based on conscious representation of nature as a community of interdependent components of which humans are part.

Human activities that are sustainable are those that are universal and take into consideration ecological restrictions imposed by a finite biosphere. The ethics of sustainability consists of a sense of moral responsibility that leads to individual and collective actions that do not endanger the survival of humanity on Earth. This moral responsibility is required of sustainability.

Empowering teachers as decision makers and environmentally literate leaders requires creating situations that enable them as practitioners to exercise greater reflection in planning education for the future. Ecologically literate teachers, as socially responsible agents of change, will take the helm of leadership by integrating natural science concepts into

Empowering teachers as decision makers and environmentally literate leaders requires creating situations that enable them as practitioners to exercise greater reflection in planning education for the future. Ecologically literate teachers, as socially responsible agents of change, will take the helm of leadership by integrating natural science concepts into curricula for students who have no real access for learning about the rapidly changing world and the devastating effects of rampant urbanization in their own communities.

curricula for students who have no real access for learning about the rapidly changing world and the devastating effects of rampant urbanization in their own communities. This critical ecological literacy is the ability to make meaning of *place* to *self* and *others* through active engagement with that *place*. Ecologically responsible citizenship requires critical ecological literacy, which in turn is dependent upon both *functional ecological literacy* (comprehension of ecology) and *cultural ecological literacy* (comprehension of the human dimension of landscapes such as land use patterns and cultural icons, which includes the use of multiple languages).

According to David Orr,¹ ecological ethics is a process that is continually evolving socially, something that never stops. Implicit in this process is the work of individuals in a group, committed to restructuring the relationships within the group. The evolution is tentative because it never ends. Thus, the development of environmental literacy should enable teachers to make appropriate ethical decisions in a wide variety of contexts over time. The evolving transformation of teachers from an ethical standpoint is a process which challenges the system of certification since it requires a realignment calling for experiments in ethics focused on community based learning. As a

systemic change this transformative process needs to happen with teacher educators themselves if the field of teacher education is to make a difference in environmental education.

Unfortunately, in many cases teacher educators are not reflexive practitioners; that is, they are not as sensitive as they can be to both the physical and social environment from which their own students come. In general, their role in an evolving process of changing social structures connected to schools needs to be strengthened. This complex situation is due primarily to teacher educators who follow traditional guidelines for research and do not forge participatory action research or practices that contribute to change. Although the formal certification of teachers stipulated by the Commission on Teacher Credentialing presumes that the education process follows an “integrated” education model, in most cases, it is not holistic but fragmented. These are challenges to teacher education programs and to the future of environmental education in schools. In addition, the social ethic that is articulated as “equity” which requires students to serve communities that are socially, institutionally, economically, and politically underserved is insufficiently implemented. In general the field of teacher education nationally is in a state of flux over values and future directions.

Although change is inevitable, the political and economic context will determine the direction of schooling. In this milieu, environmental issues are at the forefront and ecological ethics could in the future guide the process of reconstructing the gap between theory and practice.

Teaching as a service profession is focused primarily on the learner in classrooms and in schools. In rare cases, learning is done outside the classroom in school gardens or in conjunction with outdoor schools. These “spaces” or “places” are the fundamental base for transformation and reflexive practice in environmental literacy for teachers as well as students. Ecological action is most powerful if the text that one is able to comprehend functionally, culturally, and critically is one’s home place. Environmental literacy demands understandings, skills, attitudes, and habits of mind that empower individuals to relate to their environments in a positive fashion, and to take day-to-day and long-term actions to

maintain or restore sustainable relationships with other people and the environment. The ecological ethic requires a process of imagination and experimentation in which individuals and groups create new ways of being in their own context. Through participatory action, teachers, by making schools public spaces, can question what is worthwhile to know and experience, and the kind of learning environment that will engage their students. By transforming the environment into a reflexive practice of continual curriculum inquiry focused on sustainability, teachers can grow as individuals in collective concern, along with their students, in generating fundamental ecological ethics. Anthony Weston,² states that environmental ethics has multiple possibilities but needs much exploration. Thus, development of the field of environmental ethics needs to be a prolonged process with tentative results and continual experimentation. He posits the creation of a *space* for values to evolve. This *space* is social



Charles Barry


Campus Minister Matt Smith shows his worm compost bin to students at Campus Sustainability Day 2006.

Environmental literacy demands understandings, skills, attitudes, and habits of mind that empower individuals to relate to their environments in a positive fashion, and to take day-to-day and long-term actions to maintain or restore sustainable relationships with other people and the environment.

and psychological and has ethical preconditions that are necessary to facilitate the evolutionary process. It is also fundamental to have the *ethical freedom* to stimulate thought. In this way individuals and groups can create or co-evolve new values as a result of daily practices focused on sustainability in and outside classrooms and schools.

The credential program at Santa Clara University has always had a strong social justice strand; it is focused not only on the pragmatics of teaching but also on preparing teachers to be transformative thinkers. A main goal of our teacher education programs is to guide prospective teachers to “feel with” people they regard as different via knowledge about how they and others come to occupy particular social positions. Whenever possible, we use an integrated cohort approach to teacher education to provide a reflective dimension to the professional development and growth for individual teachers and the community of teachers to which they belong. In addition, we continually strive to organize community-based experiences that provide a basis for teachers to become agents of social change. The growth and transformation of the department require constant awareness to insure that the goals of social justice are integrated into our new programs. The education department is strengthened by the Jesuit mission of social justice as an ethic for a transformative process. Through this process we stress the notion of a society in which the concern for concrete needs of all people and the creation of reciprocal interdependence as fundamental requires

institutionalized patterns of mutual actions. As such, the concepts of social justice and social responsibility are synonymous, especially when the act of teaching is characterized by social agency.

In several of the most recent Masters level degree programs, the pedagogy consists of faculty team collaboration, critical reflection, and action toward meaningful social change. The intent is a concerted effort to approach the interdisciplinary blending of content and to forge collaborative approaches for guiding prospective classroom teachers who will acquire the necessary content knowledge as well as become environmentally literate. The objective is not only for teachers to become reflective and conscientious practitioners in the most virtuous ethical manner, but also to educate future generations to be ecologically aware and strive to become ethical in understanding the environment and develop “good thinking” through ecological literacy and ethical action. 

ENDNOTES

- ¹ David W. Orr, *Earth in Mind: On Education, Environment, and the Human Prospect*, rev. ed. (Washington, DC: Island Press, 2004).
- ² Anthony Weston, “Before Environmental Ethics,” *Environmental Ethics* 14 (4): 321-338 (1992).

Where is Sustainability Happening at SCU?



BY LINDSEY CROMWELL '04
*Sustainability Coordinator,
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A CULTURE OF SUSTAINABILITY
AS A JESUIT UNIVERSITY, SCU HAS A MISSION FOR STUDENTS, STAFF, AND FACULTY TO BE ENGAGED WITH SOCIETY AND BE COMMITTED TO FASHIONING A MORE HUMANE, JUST, AND SUSTAINABLE WORLD. WE ARE DEDICATED TO ENSURING EVERY SCU STUDENT GRADUATES WITH “A CULTURE OF SUSTAINABILITY.”

Sustainability is not achieved simply by “greening” campus operations. Developing a culture of sustainability means embedding this ethical philosophy across our campus, including the food we serve, the way we interact with the community, the decisions we make as individuals, and the way we teach.

EDUCATING STUDENTS TO CHANGE THE WORLD

How do we create a culture of sustainability in our curriculum? At Santa Clara, we believe that sustainability is not the property of one department or one major but instead has to be owned by everyone. Rather than create a

check-box “sustainability” requirement, SCU is integrating sustainability into many disciplines, in the same manner as it appears in the real world. The Penstemon Project, a peer-led faculty workshop in 2007, showed faculty how to integrate sustainability into their existing courses. Currently, 19 academic departments offer sustainability-related courses. Students in communication created documentaries about sustainability on campus, sociologists assessed barriers to greening campus offices, economists conducted cost/benefit analyses of implementing smart power strips at residence halls, and biologists explored the ethics of genetically modified crops. The sustainability pathway in the new core curriculum will enable students in business, engineering, and the arts and sciences to integrate sustainability into their studies.

Our students realize the opportunities and challenges facing their generation, many of which involve finding solutions to economic, environmental, and social problems. And at SCU, our students have myriad hands-on ways to explore solutions to these challenges. For instance, SCU was one of 20 schools in

Developing a culture of sustainability means embedding this ethical philosophy across our campus, including the food we serve, the way we interact with the community, the decisions we make as individuals, and the way we teach.

the 2007 Solar Decathlon, an international competition to design, build, and operate an energy-efficient, sustainable, solar-powered home. More than 100 SCU undergraduates' efforts led SCU to earn third place.

The School of Engineering's Center for Sustainable Studies strives to quantify sustainability. Faculty and students at the Center are committed to enabling sustainability through well-defined and rational metrics, system integration synergies, technologies to inform consumption choices, and industry/University collaboration to build on and enable sustainable living.

The Environmental Studies Institute (ESI) offers majors in environmental science and studies, and the number of students in those majors has exploded from only five majors in 2000 to more than 100 in 2009. ESI houses the Office of Sustainability, the Penstemon Project, Sustainable Living Undergraduate Research Project (SLURP), the core curriculum sustainability pathway, and multiple community outreach programs.

THE CAMPUS AS A LIVING LABORATORY

Not only are students involved in sustainability academics, but more and more faculty are conducting research related to sustainability. In 2007-08, more than 25 percent of Santa Clara's internal research funds were devoted to sustainability research. In 2009, SCU will launch a strategic research initiative focused on sustainability. The initiative will be coordinated by the Office of Research Initiatives, ESI, and the Center for Science, Technology, and Society. Faculty and students who are actively engaged in sustainability research will be invited to participate in reading groups, a colloquium

A Brief Timeline of Sustainability at SCU

Visit www.scu.edu/explore for more information and links to sustainability at SCU.

2004

Santa Clara University adopted a Comprehensive Policy on Sustainability, devoting the University to sustainability through stewardship, education, and outreach.

2005

SCU's commitment to sustainability was highlighted in the strategic plan as one of SCU's "Future Directions."

2006

Lindsey Cromwell '04 was hired as the University's first sustainability coordinator. One of her first tasks was to interview champions and stakeholders on campus: the individuals whose passion and dedication laid the groundwork and set the standard for sustainability at SCU.

2007

The first Campus Sustainability Assessment was completed. University President Paul Locatelli, S.J. became a signatory of the American College and University Presidents' Climate Commitment, declaring the University will develop a plan to reach climate neutrality.

2008

The Office of Sustainability was formally established to support campus efforts, coordinate initiatives, serve as the clearinghouse for campus sustainability data, and to showcase University sustainability programs to the public. The Sustainability Council was also formed at this time to guide the efforts of the Office of Sustainability.

series, writing retreats, and opportunities to form interdisciplinary research teams.

SLURP provides undergraduates opportunities to conduct research on sustainability as it relates to residence life. SLURP is a joint project of ESI and CyPhi, the residential learning community focused on sustainability and the arts, which houses 20 percent of all campus residents.

In SLURP's inaugural year, one research group studied energy conservation as it relates to behavior change. The group explored a variety of actions, from turning off lights in unoccupied restrooms to unplugging microwaves when not in use. They tracked Swig Hall's energy consumption and reported back to residents each week, showing their energy consumption patterns to identify the weekly action with the highest participation levels (i.e. was it convenient?) and largest amount of energy conserved.

Their results: students in Swig conserved the most energy when they plugged their electronic appliances into smart power strips, a device that breaks the electric connection between appliances and the wall socket when they are not in use. Based on their study, the SLURP research group was able to quantify the amount of energy conserved and convert it to dollars saved. At their research exposition in May 2008, Assistant

Vice President for University Operations Joe Sugg decided to implement these devices on a larger scale—faculty members in Lucas Hall, the University's new business school building, were offered smart power strips as they moved into their new offices.

ENERGY CONSERVATION

A key component to developing a culture of sustainability is literally modeling the way. The SCU Facilities Department is the lifeblood of our campus sustainability. We are able to integrate sustainability into academics because our campus operations lead the way. A key example: the University is dedicated to becoming a climate neutral campus. A major factor in reaching climate neutrality involves reducing our greenhouse gas emissions.

Energy, in the form of electricity and natural gas, is the primary contributor to our campus' greenhouse gas emissions. University Operations targeted our buildings as opportunities to use energy more efficiently. Retrofits to existing buildings improve their mechanical efficiencies, while new buildings are designed to be as energy efficient as possible.

A great example of sustainable design in practice is the Commons at Kennedy Mall. Building occupants are well aware of the



Charles Barry

Joe Sugg, assistant vice president for University Operations, checks out SCU's 50-kW photovoltaic array which is on the roof of the Support Services Building.

Commons' unique design features because they are visible: peek-through windows showcase straw bale and denim insulation, the rooftop is covered with plants, and placards on the walls highlight other not-so-visible sustainable design elements. Kennedy Commons is not the only "green" building on campus. Since 2006, all new construction has been based on sustainable design principles. SCU's latest expansion will be a Leadership in Energy and Environmental Design (LEED) Silver building—the Paul L. Locatelli, S.J. Student Activity Center, which was partially funded by a \$7 million gift from Mary Mathews-Stevens '84 and her husband, Mark. The University hopes to break ground on that project next year.

Though twice the size of the former Orradre Library building, the new Harrington Learning Commons, Sobrato Technology Center, and Orradre Library use about the same amount of energy. This is achieved through passive lighting (more than 90 percent of the public space in the building has access to natural light), under-floor air distribution, and automatic lighting sensors.

Lucas Hall was built using LEED guidelines to reduce energy consumption. It boasts many energy-efficient features, including

- "low-e glass" windows that reduce heat from the sun without reducing light
- energy-efficient heating and air conditioning
- motion-sensitive lighting
- carpet tiles on 35,083 square feet of the building. These enable easy replacement of stained tiles, rather than removal of an entire section of carpeting.
- classroom chairs made of recyclable materials

The Facilities Department is always looking for new technologies to improve the sustainability of our campus. The Support Services Building is currently testing interior lighting that uses one-third less electricity than equivalent fluorescent bulbs, as well as highly reflective exterior paint said to reduce a building's cooling costs by more than 20 percent.

The University has also increased its commitment to supporting renewable energy: SCU purchases 11,256 mW-hrs of renewable



About 85 percent of the SCU campus is irrigated with recycled water—previously used water that has been treated for re-use for non-potable needs.

wind energy from Silicon Valley Power. This amount is equivalent to the annual output of three and a half wind turbines.

SAVING WATER... ONE FLUSH AT A TIME

Most urinals on campus no longer flush, and it's not as unsanitary as it might sound. Actually, some say it's more hygienic because there is no need to touch anything. Over 200 waterfree urinals have been installed throughout campus, and each conserves roughly 40,000 gallons of water per year through a passive-flush system. More recently, women have the opportunity to participate in water conservation-via-flushing: SCU is pilot testing dual-flush toilets in the Malley Center's women's restroom. These toilets allow users to determine the amount of water needed to flush. A low-flow flush uses up to two-thirds less water than a typical flush.

Also, the University has expanded its use of recycled water—previously-used water that has been treated for re-use for non-potable needs. Not only is 85 percent of our campus irrigated with recycled water, but all toilets in the Harrington Learning Commons, Sobrato Technology Center, and Orradre Library are flushed with recycled water.

WASTE MINIMIZATION

The culture of sustainability regarding waste minimization is most crucial at the level of the individual. The University can (and has) set up the infrastructure to recycle, but the ultimate decision to recycle a soda can or water bottle is made by the individual. Besides placing clearly marked containers in convenient locations, how can we further encourage recycling beyond our current 20 percent diversion rate?

A classifieds website facilitates re-use of materials and furniture, so students, faculty, and staff can post and search for items. Waste reduction programs during campus move-out divert approximately 10 tons of waste, with items donated to local charities or stored and re-sold to incoming students in the fall. Roughly 90 percent of construction and demolition waste from the Learning Commons was recycled.

Initiatives, directed by our undergraduate recycling intern, inform the campus community about recycling procedures and encourage participation in waste reduction. These initiatives include instructional and educational signage for residence hall recycling/waste areas, recycle trivia competitions, a website with frequently asked questions, and a Facebook group for students to interact and sign up for events.

The University is currently developing a composting system that will initially focus on dining waste in Benson Center, our main on-campus student dining area. Our ultimate goal is to transform it into a zero-waste dining facility. Besides reducing waste associated with food preparation, our University catering company, Bon Appétit, fosters sustainability by serving local and organic produce (up to 80 percent seasonally), fair-traded coffee, sustainable seafood, antibiotic-free meats, and cage-free and certified humane eggs. Vegan and vegetarian options are offered at every meal. Dining Services has replaced disposable to-go containers and utensils with more environmentally friendly options featuring biodegradable materials.

FOSTERING A CULTURE OF SUSTAINABILITY BEYOND OUR CAMPUS BOUNDARIES

Spearheaded by Meghan Mooney '09 (the Communications and Community Outreach Coordinator for Santa Clara's 2006–07 Solar Decathlon team—see her essay on Page 26), SCU undergraduates developed the Sustainability Decathlon—a high school outreach component of the Solar Decathlon. Our students mentor local high school students as they explore sustainability and “green” their campuses in 10 categories. Three schools participated in the inaugural 2007 Sustainability Decathlon, and seven high schools are participating in the 2009 competition. Being a mentor for the Sustainability Decathlon requires SCU students to internalize the ideals of sustainability so they may teach and model those values to others.

The SCU Environmental Studies Institute (ESI) is leading the development of a new half-acre education, demonstration, and community garden one block north of campus. The garden will be used as a living laboratory and training facility for the Bronco Urban Garden (BUG) Program, which helps communities and schools in low-income neighborhoods in San Jose build and utilize new gardens.

NOW ONWARD...

We have made great strides as a University to integrate sustainability into our academics, operations, and outreach. We strive to develop a culture of sustainability, but what does a culture of sustainability feel like? How do we know when we have truly developed a culture of sustainability?

Thanks to Meghan Mooney's research (described in her article in this issue), we have a better idea of what our students value and identify with. We can continue to work on bringing the sustainability movement to each campus community member and to encourage our students to enrich the world around them. College is a time of discovery, learning about who you are and how you fit into the world around you. What better time to consider how your actions and decisions affect others? ☐

Sustainability on the Web

Sustainability at SCU

www.scu.edu/sustainability/

The Association for the Advancement of Sustainability in Higher Education (AASHE)

www.aashe.org

AASHE is an association of colleges and universities in the U.S. and Canada working to create a sustainable future. It was founded in 2006 with a mission to promote sustainability in all sectors of higher education—from governance and operations to curriculum and outreach—through education, communication, research and professional development. AASHE aims to advance the efforts of the entire campus sustainability community by uniting diverse initiatives and connecting practitioners to resources and professional development opportunities.

American College and University Presidents Climate Commitment (ACUPCC)

www.presidentsclimatecommitment.org/

ACUPCC aims to address global warming by garnering institutional commitments to neutralize greenhouse gas emissions, and to accelerate the research and educational efforts of higher education to equip society to re-stabilize the earth's climate. The Commitment recognizes the unique responsibility that institutions of higher education have as role models for their communities and in training the people who will develop the social, economic, and technological solutions to reverse global warming. Presidents signing the Commitment are pledging to eliminate their campuses' greenhouse gas emissions over time.

Catholic Coalition on Climate Change

www.catholicsandclimatechange.org/

What are the moral implications of climate change? Who is most impacted? What should the Catholic community do? The Catholic Coalition on Climate Change was launched in 2006 to help the U.S. Conference of Catholic Bishops and the Catholic community address these issues.

Disciplinary Associations Network for Sustainability (DANS)

www2.aashe.org/dans/

Sponsored by the U.S. Partnership on Education for Sustainable Development, DANS is an informal network of professional associations working to educate the public about sustainability; curricula, standards, and tenure requirements to reflect sustainability; legislative briefings on what higher education can bring to sustainability-related policies; and cross-disciplinary projects on education for sustainability.

Higher Education Associations Sustainability Consortium (HEASC)

www2.aashe.org/heasc/

HEASC is an informal network of higher education associations with a commitment to advancing sustainability in both their constituencies and in the system of higher education itself. The organization seeks to help higher education exert strong leadership in making education, research, and practice for a sustainable society a reality.

Society for College and University Planning (SCUP)

www.scup.org/resources/topic_issue/sustainability.html

SCUP believes that there may well be no better area than campus sustainability in which to apply two of the society's core values—integrated planning in support of excellence in the academic enterprise, and innovative, collaborative, and multidisciplinary approaches to planning issues. SCUP reaches out to leaders in sustainability for higher education, and provides learning experiences and resources for SCUP members, our wider constituency, and others.

U.S. Partnership for Education for Sustainable Development

www.uspartnership.org/main/view_archive/1

The U.S. Partnership consists of individuals, organizations, and institutions in the United States dedicated to education for sustainable development. It acts as a convener, catalyst, and communicator working across all sectors of American society.

Toward a Culture of Sustainability on Campus



BY MEGHAN MOONEY '09

Anthropology major, Communications and Community Outreach Coordinator for Santa Clara's 2006–07 Solar Decathlon team, and Undergraduate Fellow in Environmental Ethics with the Markkula Center for Applied Ethics

WHEN WE THINK OF SUSTAINABILITY ON CAMPUS WE OFTEN THINK OF RECYCLING, SOLAR PANELS, GRAY WATER SPRINKLER SYSTEMS—MATERIAL TRANSFORMATIONS AND MEASURABLE COMMITMENTS. BY THESE STANDARDS, SANTA CLARA UNIVERSITY IS CREATING FOR ITSELF A SUCCESS STORY. However, what remains unclear is the state of the human climate on campus—the extent to which sustainability has become part of campus culture and an internalized value in the beliefs and actions of Santa Clara University students, faculty, and staff.

Recently named one of the top twenty-five College Sustainability Leaders by the College Sustainability Report Card,¹ the only independent campus sustainability evaluation in the country, Santa Clara University and its administration have clearly made a strong commitment to sustainability. With top scores in the categories of Administration, Climate Change and Energy, and Food and Recycling,

there are reasons to celebrate. Though the College Sustainability Report Card does include a category called “Student Involvement,” (in which SCU scored a letter grade B), the results evaluate only programs, clubs, and events available to students. Though student sustainability programs *are* indicators of student interest, I still felt something lacking in even this progressive measurement of campus sustainability.

“What makes a university campus sustainable?” I asked myself in the fall of 2007 as I prepared to conduct a year of research as an undergraduate fellow in environmental ethics through the Markkula Center of Applied Ethics.² Sure, campus sustainability includes energy use, food choice, and water systems—all the traditional indicators large institutions have addressed when minimizing carbon footprints. But should university sustainability be held to a different standard? What is an institution of higher education if not an amalgam of ideas centralized in one location? If not the aggregate body of thinkers, of students, faculty, and staff

Photo courtesy of Silicon Valley Power



SCU is currently the largest supporter of Silicon Valley Power's Green Power Program. The University purchased 11,256 MWh of wind energy from the turbines pictured.

who move through its doors each year? And what is a Jesuit institution of higher education if not a project in molding leaders who live and lead by their values? What would we find if we were to measure the sustainability of the *living* institution, if we were to analyze the extent to which students, faculty, and staff internalize sustainability in their beliefs and actions, and the likelihood that they will carry those beliefs forward in their lives after they leave the University?

This new definition of campus sustainability—sustainability as a value necessarily embodied in the hearts and minds of the campus community—drove my research on the culture of sustainability at Santa Clara University.³ By focusing primarily on how students understand, define, and express environmental values, I was able to elicit in-depth interview responses from nearly 60 diverse undergraduate students and a variety of staff and faculty members. What follows is a discussion of this experience, and a rough but meaningful image of sustainability “on the ground,” as evidenced by significant discourses and personal narratives of decision-making, lifestyle choices, and sustainable behaviors.

ENVIRONMENTAL ETHICS IN ACTION

With few exceptions, environmental ethics among Santa Clara students are ethics of practicality, ethics of daily utility that appear to fall on a spectrum ranging from those who ask, “How can I do the least environmental harm with minimal inconvenience?” to those who ask, “How can I do the most environmental good within the constraints of today’s society?”

Students at the first end of the spectrum generally believe that people should act sustainably as long as it does not unreasonably encroach on their lifestyle or livelihood. They stick to small-scale adjustments of daily habits—perhaps they recycle or turn the lights off when not in use, but tend to rate a concern for the environment low on the list of their daily concerns.

“Tell me about the last time you made a decision with potential effects on the environment?” “What was the last time you had an experience or conversation in which the topic of sustainability or the environment arose?” During each interview I asked such questions to prompt story-telling and personal narratives about the environment and sustainability in an effort to understand *specifically* how students

If we want to create truly sustainable campuses, it is going to take a culture of sustainability that extends past a small group of committed individuals, and a commitment that extends past graduation. How? I believe that it is time to complicate the message, time to focus on capacity-building, time to move from the “why” to the “how” in open discussions that bring all players to the table.

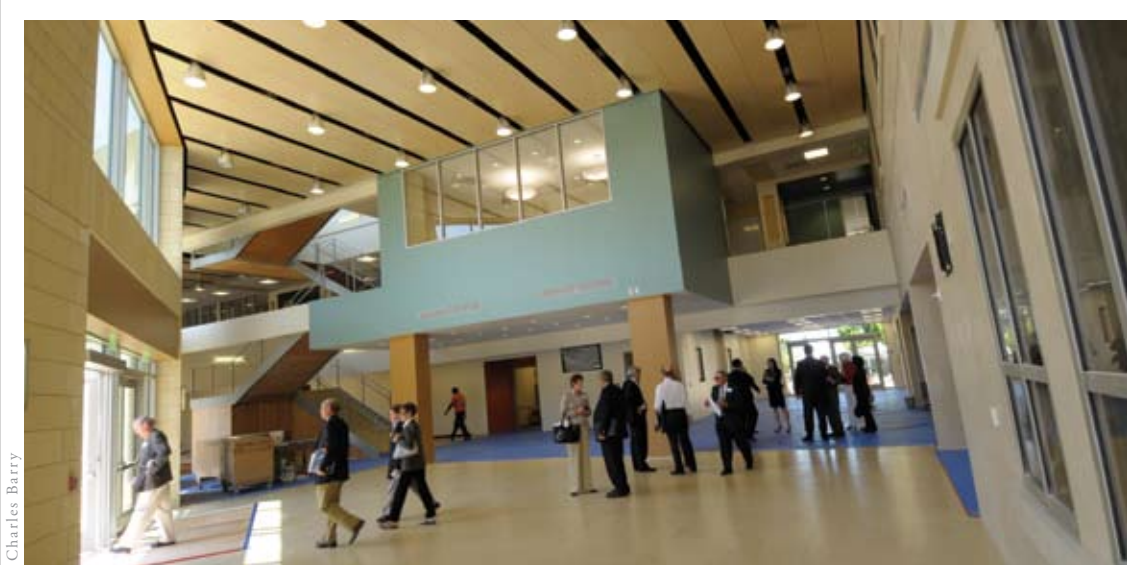
relate to the abstract concept of sustainability. The responses? Recycling. The vast majority of students talked about walking a few extra feet to a recycling bin, or about programs promoting recycling they had seen around campus, or about selling their aluminum cans for cash.

One group interview clearly illustrated the dominance of the recycling discourse in campus sustainability. A student had commented, “A lot of people, when they think about sustainability, just think about recycling. It’s the first thing that comes to mind.” In the pause that followed, I braced myself for a breakthrough, but the group simply nodded and then resumed discussing examples of recycling. Why was recycling so preponderant in almost all interviews I conducted? Is recycling attractive because it is the easiest thing to do? Or is it one of the only sustainable behaviors with which students are familiar? For answers, I turned to students at the other end of the environmental ethics spectrum.

I spoke with students more deeply involved in sustainability on campus, students who place sustainability at the top of their ethical priorities. As members of student environmental clubs, sustainability-oriented dorms, or environmental studies classes, these individuals tend to involve themselves in the types of student organizations measured by the College Sustainability Report Card. They place sustainability high on their ethical priorities and tend to rely on a set of values that asks, “How can I effect the most positive environmental change under current social conditions?”

When I posed the question, “Can you give me an example of a situation in which you made a decision with potential impacts on the environment?” one student shot back, “Can you rephrase the question? Because my understanding is that every second of every day we are affecting the environment.” These students discussed responsible consumerism, green marketing, greenwashing, sustainable lifestyles, and culture change as necessary steps to create a more sustainable society. One student criticized current programming, saying, “We limit the conversation to shallow examples of sustainability...the talks should encompass more than current conversations do. If anything we need to expand on the discourse as opposed to creating a top ten list of sustainability.”

Fair enough. These research findings may seem relatively straightforward. Some students are willing to place environmental ethics higher on their list of daily concerns than others. Surely many of us can identify someone we know on either side of this spectrum. Maybe we see ourselves in these examples. However, as I continued interviewing, I became increasingly suspicious that there may be very little, if any, middle ground between the “recyclers” and the “sustainabilityists,” suggesting two distinct camps of environmental thinkers. Is sustainability really “all or nothing”? As I began to investigate this further I realized that the sharp division between sustainable insiders and outsiders extended far beyond environmental ethics and was reflected even in basic understandings of sustainability.




Charles Barry

Lucas Hall was designed to be as energy efficient as possible, and it exceeds Title 24, California energy efficiency standards, by roughly 10 percent.

I took to the streets with renewed focus on one of my original questions, “How do students define and understand the concept of sustainability?” My questions were overwhelmingly met with long periods of silence as informants squirmed in their chairs, asked for the next question, or simply drew a blank. Surprised by this near-universal reaction, I wondered how the same students could voice ethical concerns for the environment and yet be so confused about the basic meaning of sustainability. Is it possible that they have been exposed to so much “sustainability talk” that they have accepted its validity without fully understanding what the concept of sustainability means or asks of us? Is this why they are unable to name any sustainable action other than recycling?

Amidst this sea of confusion is a small group of students involved in environmental programming on campus, who reflected upon this phenomenon. “A lot of these words [sustainability, environmentally friendly] are thrown around like buzz words. There’s a lot of talk about sustainability on this campus, but it’s often misconstrued as to what the word even means.” Campus sustainability efforts by students for students have tended to focus on awareness-raising of the importance of sustainability—the basic hypothesis being that all people need is more information and then they will care, then they will act. My

conversations suggest that the awareness is there, the tools are not. Perhaps campus sustainability has moved past the era of awareness-raising. Could we be hurting ourselves, limiting our progress by “getting the word out”?

If we want to create *truly* sustainable campuses, it is going to take a culture of sustainability that extends past a small group of committed individuals, and a commitment that extends past graduation. How? I believe that it is time to complicate the message, time to focus on capacity-building, time to move from the “why” to the “how” in open discussions that bring all players to the table. It is time to move past the buzzword and into the complex nitty-gritty discussion of what sustainability can mean, and what, *specifically*, we can do. This is not a time for discouragement; this is the fun part. 

ENDNOTES

- 1 College Sustainability Report Card, The Sustainability Endowments Institute, <http://www.endowmentinstitute.org/sustainability>. This is the first website to provide in-depth sustainability profiles for hundreds of colleges in all 50 U.S. states and Canada.
- 2 Markkula Center for Applied Ethics, <http://www.scu.edu/ethics/>. This website is a forum for research and discussion in all areas of applied ethics at Santa Clara University.
- 3 For a complete discussion of this research, see “Environmental Ethics and the Culture of Sustainability at Santa Clara University” which can be found at <http://www.scu.edu/ethics/articles/articles.cfm?fam=enviro>.

Water for Life

A Journey to Nicaragua Exploring Sustainable Development



BY ED MAURER
*Associate Professor,
Civil Engineering Department,
Santa Clara University*

WHEN I FIRST ARRIVED IN THE PERUVIAN ALTIPLANO AS A MARYKNOLL MISSIONER 15 YEARS AGO, I WAS STRUCK BY THE PRESENCE OF A BEAUTIFULLY ENGINEERED SYSTEM OF IRRIGATION CANALS EXTENDING THROUGH SEVERAL COMMUNITIES. ENGINEERS LOVE TO SOLVE PROBLEMS, AND SEEING PROGRESS LIKE THIS IN A VERY POOR REGION OF MOSTLY SUBSISTENCE FARMING WAS ENCOURAGING...UNTIL I LEARNED THAT IT HAD NEVER DELIVERED A DROP OF WATER, AND PROBABLY NEVER WOULD. The design of the system had been done by outsiders unfamiliar with the intricacies of farming in the harsh, high-elevation climate, completely unaware of the unique form of land ownership. As a water resources engineer, I began my journey of reflection on the role of engineers in serving the poor in less developed areas.

Peter Gleick, a leading global authority on water, has stated, “The failure to provide safe drinking water and adequate sanitation services to all people is perhaps the greatest development failure of the twentieth century.” In the late 1970s, when over 1.4 billion people lacked access to clean drinking water, the United Nations declared the International Drinking Water Supply and Sanitation Decade (1981-1990), with the goal of providing safe drinking water for all people by 1991. Despite laudable efforts during the past 25 years, about 1.1 billion people still lack this basic necessity, leading to the recent U.N. declaration of 2005 to 2015 as the International Decade for Action—Water for Life. This time the goals are more modest but still ambitious: to embrace the millennium development goal of halving, by 2015, the proportion of people who are unable to reach or afford safe drinking water, and who do not have access to basic sanitation.

The objective of the trip was to provide the participants with an opportunity to learn about sustainability and water development in an international context and to place the practical engineering task of designing a rural water supply system into the broader context required for assuring a sustainable system.

Engineers receive intensive training in a number of the skills necessary to solve water problems. These devastating statistics provide motivation for many of them to work to address this basic injustice. The marriage of great technical skill and intense care for the promotion of the dignity of the human person constitutes the heart and soul of the Santa Clara University ethic. This ethic inspires many engineering senior design projects at Santa Clara University; these year-long projects provide students with an opportunity to integrate their diverse coursework into a larger, comprehensive effort. An excellent example of such a senior design project is that of two recent SCU civil engineering seniors, Steffany Castro and Edward Reyes. They chose to work with the sustainable technology of a gravity-fed water system design capable of supplying clean drinking water with no outside energy. I was pleased to be their advisor.

We were fortunate to connect with a small non-profit group, Agua para la Vida (ApIV, www.aplv.org) which has designed and built such systems in Nicaragua for more than 20 years. Recognizing the advantage of drawing on this wealth of experience, we offered to help with some of their work, and they introduced us to a project in the central Nicaraguan community of Liquia Los Olivos. Liquia consists of about 100 people in 16 houses and sits in a rugged landscape where subsistence farming and small-scale ranching are the main economic activities. To obtain water, women carry buckets from a stream to their houses at distances of up to half a mile. The stream is contaminated by

its use for bathing and clothes washing, and the presence of animals further dirties the water, making it unsuitable as a potable water source.

In 2006, ApIV began working with Liquia to help them secure a cleaner and more reliable water supply. However, technical problems led to the project's being stopped, and a redesign was begun. Steffany and Edward chose to help ApIV by redesigning this water system using two different techniques to look for improved design methods. The Bannan Institute generously provided support for Steffany, Edward, and an interdisciplinary group of faculty and students to travel to Nicaragua, to meet with ApIV staff, and to visit Liquia. The objective of the trip was to provide the participants with an opportunity to learn about sustainability and water development in an international context and to place the practical engineering task of designing a rural water supply system into the broader context required for assuring a sustainable system.

We left early on March 23, 2008, and because of airline delays so typical when traveling to a developing country, arrived 48 hours later. Our first tangible contribution to clean water development in Nicaragua was 350 pounds of brass faucets from the U.S., neatly packed into small packages to meet airline baggage limits. High quality faucets are difficult to obtain in Nicaragua, and these hand-delivered ones will be used by ApIV for many future projects.

Once on the ground in the capital of Managua, we jumped into the back of a Jeep, and then caught up to a bus that we



Ed Maurer

Agua para la Vida, the non-profit organization that is helping the community build a drinking water system, teaches villagers to protect the area above springs. Shown here is a nursery where seedlings are raised to reforest the watershed upstream of the supply spring, to prevent erosion and improve water quality.

The Agua para la Vida (AplV) technical school is an excellent example of how an organization can evolve in response to lived experience. By providing education at their institute, and by conferring on graduates a state-recognized “water technician” certificate, AplV helps to promote sustainable water development efforts (by developing local expertise) while it combats poverty by providing an education that qualifies students for employment after graduation. As a matter of fact, most AplV project design is now done by graduates of their program: a model for sustainability!

boarded for Rio Blanco, the small city in the center of Nicaragua that served as our base for the week. AplV has its main office in Rio Blanco, and operates a technical school there to train Nicaraguans in techniques of water development, from hydraulic design to construction. The dozen students at the technical school come from all over Nicaragua, and since they invariably come from very poor communities, they pay no tuition. Further, AplV supports them all with housing, food, and a small stipend. The school occupies one building, with a central classroom, shared dormitory rooms, a kitchen, and a small office for Gilles, a volunteer from France who is the instructor. When we visited the school, the students were most interested in hearing from the SCU students about what their studies were like. Our students recognized the equations on the blackboard as the same ones they had used in their hydraulics classes at SCU a few quarters earlier.

The AplV technical school is an excellent example of how an organization can evolve in response to lived experience. By providing education at their institute, and by conferring on graduates a state-recognized “water technician” certificate, AplV helps to promote sustainable water development efforts (by developing local expertise) while it combats poverty by

providing an education that qualifies students for employment after graduation. As a matter of fact, most AplV project design is now done by graduates of their program: a model for sustainability!

From Rio Blanco we traveled an hour in an old Jeep and spent another hour hiking through thorny brush to reach Liquia. Finally, we could see the location of the project that Steffany and Edward had been working with only on paper. As we reached the small spring on a hillside that is the water source for the new system, we learned that AplV works with the community to promote watershed management, providing for long-term water quality protection. They help to establish nurseries, with seedlings planted above the spring to prevent erosion. They also fence off the area up-slope of the spring, to prevent contamination from cattle waste. This process sometimes requires purchasing land, or developing a land use agreement, replacing cattle ranching with forestry.

A gravity-driven water system relies on tapping a water source higher than the delivery points. From our vantage point at the spring, we could see nearly all the houses in the community, and they were almost all on a level with each other. Not only that, but the pipe from the main storage tank (at the spring) would need to cross over a river to reach the

first house to be served. This would require building a small suspension bridge. We walked along the pipeline route, manually excavated by community members through rocks and clay to a depth of three feet. As we approached the first house, there was a meeting underway. When we arrived, the tension was palpable. Apparently, a “minor” error in surveying led to insufficient pressure in the system. The water could not be delivered! This error cost community members hundreds of hours of intense labor. The redesign, now under construction, worked as far as the first house, but the community was discouraged. They had invested much more effort than they had initially expected or planned for. However, encouraged by a working faucet at this first house, there was hope, and construction continued. It took more than two years to go from the initial surveys for the water project to the completion of construction (in July 2008). This provided a valuable lesson. It takes time to

engage a community and organize their efforts before, during, and after construction to ensure a successful water project.

This trip was motivated largely by engineering concerns: there was a clear problem, and a good engineer could fix it. What we learned was that, while technical design is essential, sustainable water development entails much more: engaging with the community, protecting the environment, and ensuring the long-term sustainable operation of the system. Nor does an engineering project end after the last of the concrete is poured. Community health promoters need to document improvements in human health, the ultimate purpose of water supply projects. This broadened perspective will inform our future work, as we temper our enthusiasm for technical solutions with our understanding that they provide only one piece of the complex puzzle of sustainable development. e



Ed Maurer

Trip participants help out by hauling dirt in a bucket brigade. The dirt will fill in behind a small embankment capturing a spring located in a small community outside Rio Blanco, Nicaragua.

Bannan Institute Retreats

Join us for this day-long retreat, held 9 a.m.–4 p.m., in the Multi-Faith Sanctuary in St. Joseph Hall, SCU.



Bon Soeng

DAY OF MINDFULNESS AND ZEN MEDITATION

SATURDAY, MAY 30

Join Zen Master Bon Soeng for teachings on Zen sitting, practice, and walking meditations, as well as talks on compassion, being a contemplative in action, and the search for peace within and in the world. Register online at: www.scu.edu/ignatiancenter/events/retreats/

DISCOVER Luncheon Speaker Series— The Search for What Matters

This series aims to foster discussion of personal experiences and values among SCU faculty, students, alumni, and staff. Held in the Williman Room in Benson Center at SCU, these events begin at noon and a light lunch is served. Please RSVP on line at: <http://www.scu.edu/ignatiancenter/events/speakers/>



Ingrid Williams

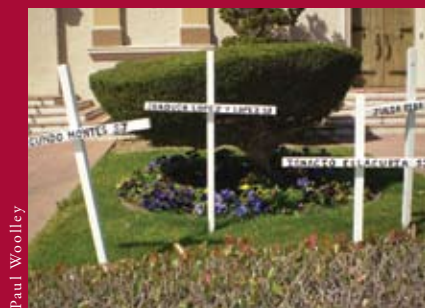
WEDNESDAY, MAY 13

Ingrid Williams, Associate Director, Human Resources,
Santa Clara University

NEXT ISSUE: FALL 2009

THE LEGACY OF THE JESUIT MARTYRS: WHAT THEY HAVE TAUGHT US

IN OUR NEXT ISSUE, WE WILL FOCUS ON the history of the 1989 assassinations of the Jesuits in El Salvador, their legacy in El Salvador, and how their witness to truth can inspire our lives at SCU. People in El Salvador talk about the “hope of the martyrs” and refer to Mons. Romero’s famous dictum: “If you kill me, I will be resurrected in the pueblo.” Part of how people find hope in the martyrs is through the ongoing experience of this fact: what people tried to kill not only lived, but grew stronger in the hearts, minds, and deeds of so many others. In this sense, the story of the martyrs expands and continues—they inspire us today, giving us hope that we too can sacrifice for what really matters, and pour out our lives in service of those who are most in need. **e**



Paul Woolley

Shortly after the killings, SCU placed memorial crosses in front of Mission Santa Clara, where they still stand today.

SAVE THE DATES:
November 2-5, 2009

**In Commemoration of the 1989
Assassination of the Jesuits in El Salvador:
A Twenty Year Retrospective**



A view of the memorial rose garden at the University of Central America where six Jesuits, their housekeeper, and her daughter were murdered in 1989.

Santa Clara University plans a series of public events in early November 2009 to commemorate the twentieth anniversary of the 1989 assassination of the Jesuits in El Salvador. On November 5, Jon Sobrino, S.J., will present a public lecture on the legacy of his fallen Jesuit brothers, after which SCU President Michael Engh, S.J., will present him with the University's Santa Clara Award.

Other events include:

- A faculty colloquium of "The Idea of a Jesuit University" with particular focus on the thought of Ignacio Ellacuria, S.J., rector of the Jesuit University of Central America (UCA) when he and his fellow UCA Jesuits were assassinated; keynote by Matthew Ashley from Notre Dame with several SCU faculty responding (November 4)
- A panel discussion with faculty, staff, students, and alumni reflecting on the legacy of the Jesuit assassinations and how it has affected their lives, personally and professionally (November 3)
- Several liturgical events including an opening prayer service and procession (November 2), and a special Eucharistic Liturgy to celebrate the lives of the UCA Jesuits (November 15)

For more information and the latest event schedules, visit www.scu.edu/elsal20.



**Santa Clara
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