In this issue of Ka Pili Kai...

As a national leader in the area of smart growth, the University of Hawai‘i Sea Grant College Program championed the theme of environmentally, economically, and culturally sustainable coastal communities and elevated this concept into an exciting new focus area for Sea Grant programs across the country. Here at home, a dynamic team has been working directly with communities across the state to elevate the quality of life for our residents. In this issue we will take you to the western shores of O‘ahu where students and faculty have contributed their expertise in sustainable design to the expansion of MA‘O Farms and also to the Wai‘anae Coast Community Mental Health Clinics. In addition, we will share some of the ongoing efforts occurring in the seaside town of Kailua and also on the island of Hawai‘i to assist the communities guide growth and development and help to create places that people are proud to call home.
The academic year, culminating in the summer of 2008, has seen the greatest convergence of activities between the University of Hawai‘i Sea Grant College Program (UH Sea Grant) Center for Smart Building and Community Design (CSBCD) and the University of Hawai‘i School of Architecture (SoA) since this center’s inception in 2004. As CSBCD continues to hone its mission and acquire a respectable list of completed projects, it is also widening its effective reach into the community and becoming a more central force for advancing sustainability on the University of Hawai‘i at Mānoa (UHM) campus. Dedicated to reducing the environmental footprint of coastal communities and improving the interaction among the built, human and natural environments, CSBCD utilizes its university base as a platform to identify, analyze and address critical issues at both the university and community levels.

When UH Sea Grant and SoA embarked on this unique partnership and formed CSBCD, their vision was to elevate the quality of life within our coastal communities by forming strong partnerships and bringing professional resources to assist communities in their decision-making. The Center for Smart Building and Community Design’s earlier work, such as the smart growth workshops in Kapolei, O‘ahu’s second city, were large-scale planning activities. In this instance a national team of smart growth experts were brought in to work with local landowners, developers and city planners, and as a result the development of 15,000 new housing units were completely redesigned to minimize the coastal environmental impact. This year, CSBCD continues to work closely with UHM administration in developing the campus Long-Range Development Plan and coordinating efforts to create innovative public/private models for new mixed-use and pedestrian/transit-oriented developments being considered by UHM.

While the planning activities continue, a more concerted thrust of activity this past year has been on the energy front. Hawai‘i’s citizens pay the highest electricity rates in the country, and Hawai‘i is more dependent on burning fossil fuel for its electrical generation than any other state in the country. With no heavy industry, no heating loads nor any long-distant driving opportunities, Hawai‘i’s per capita greenhouse gas emissions are 27 percent higher than California’s. After the military, UH is the largest consumer of electricity in the state. As the state’s third largest employer and the center of...
higher education in the region, the university can be an engine of positive change on a variety of levels.

With this in mind, CSBCD’s director, Dr. Stephen Meder, has been combining resources, student and staff time, and support from Hawaiian Electric Company (HECO), the State Energy Office, and external engineering services to seamlessly integrate work at the university and in the community. Community projects are focused on assisting non-profit community-based organizations, and since these groups often have pressing needs and inadequate resources, they are perfect laboratories for elevating students’ educational experience while supplying needed and valuable services to the organization’s facilities and mission. UH Sea Grant and SoA, among others, supply graduate assistant support to SoA and other UH students to perform planning, energy analysis, and sustainable design assistance to community groups. Through this process new skills are acquired and new design and analysis methods are established. The faculty and students are able to transfer the benefits gained from the projects in the community to opportunities for new projects on the UHM campus. Currently, a group of these students is performing energy assessments on campus buildings. Their findings are brought back to the newly formed Campus Energy Advisory Committee (EAC) which will make recommendations to the Facilities Department on energy efficiency retrofits. The energy team has been dubbed the Mānoa Energy Performance Assessment Team (MEPA) and it is expected that the work from this team will reduce the campus energy bills by hundreds of thousands of dollars a year, lessen the impacts of state budget cuts on programs

by capturing savings from energy reduction, reduce the campus greenhouse gas footprint, build consensus on the campus for energy savings, improve interior environmental conditions for occupants and provide an outreach service to needed sectors of our community while elevating the educational opportunities for our students.

The Center for Smart Building and Community Design is dedicated to collecting and applying university expertise and resources to improve conditions within the university and within the larger community. It is very appreciative of the support that is provided by UH Sea Grant and SoA. We look forward to building more strategic partnerships and developing outcomes with even greater success through our in-reach and outreach projects in the future.
Clark Llewellyn: Visionary New Dean of Architecture

By Cindy Knapman, UH Sea Grant Communications Leader

In July 2007, the University of Hawai‘i at Mānoa welcomed Dr. Clark Llewellyn as the new Dean of the School of Architecture (SoA). He brought a wealth of experience and a passion for “green building” to the position from, among others, his years as director of the School of Architecture, Montana State University and also his term on the American Institute of Architects (AIA) Sustainability Task Force, which helped foster new goals for sustainability within the AIA.

Dean Llewellyn’s focus on the connection between the natural and built environments is a perfect complement to the mission of the UH Sea Grant Center for Smart Building and Community Design (CSBCD). In 2004 UH Sea Grant and the SoA embarked on a unique partnership to identify and improve the intricate relationships between built and environmental systems and human patterns within our coastal communities. From the beginning, Dean Llewellyn embraced the mission and goals of the CSBCD and supported the work of Dr. Stephen Meder, who holds a joint appointment as director of the CSBCD and is also faculty member of the SoA.

In just one year, Dean Llewellyn’s vision and dedication to creating vibrant, socially inclusive and economically vital coastal communities has touched the lives of many residents throughout the State of Hawai‘i and beyond.

Coastal Community Development Group Now Sustainable

By Peter Rappa, UH Sea Grant Coastal Resource Management Extension Agent

In November 2003 a group of Sea Grant extension agents gathered in Washington, D.C. for a smart growth workshop, which focused on ways to lessen the impacts to the environment caused by development, especially in coastal areas, through better land use planning. Since Sea Grant is a national network, the extension agents began to exchange information across programs in order to help one another tackle planning issues. These agents formed a group called the Coastal Community Development (CCD) group to focus on protecting coastal and nearshore habitats by controlling shoreside development.

Because Sea Grant programs were not accustomed to land use planning at this time, the CCD group helped foster communication among extension agents about effective ways to work with planning officials and local governments to achieve better planning. The University of Hawai‘i Sea Grant College Program (UH Sea Grant) and its director, Dr. E. Gordon Grau, helped to create the organization by underwriting an annual meeting of the CCD group. UH Sea Grant Extension Agent, Peter Rappa, was one of the founding members of the group and is currently its West Coast/Pacific Island representative.

CCD underwent a name change in February at its fourth annual meeting in Washington, D.C. to the Sustainable Coastal Community Development (SCCD) group. This was meant to reflect the recent change in the National Sea Grant Office from theme teams to focus groups. The name change also better reflects the goals of the SCCD. For years, there has been a steady movement of people to the coast, and as more people relocated, the quality of the physical and social environment began to deteriorate. The central focus of the SCCD extension program is to enable the United States to develop vibrant and productive coastal communities integrated into healthy and productive coastal and marine ecosystems. We will do this by putting the tools of sustainability into the hands of coastal citizens and decision makers and by facilitating the widest possible spectrum of participatory decision-making.
The University of Hawai‘i Sea Grant College Program connects research and outreach, delivering the most up-to-date information to our island communities. Our scientists study pressing local issues and produce real results, then our extension faculty translates that research into useful information for a myriad of audiences. This column regularly highlights the important work done by our extension faculty on your behalf.

Since its launch in 2004, the UH Sea Grant Center for Smart Building and Community Design (CSBCD), has enlisted several exceptional team members with a range of experience in sustainable planning, development, and community issues. As the newest member of this team, Olwen Huxley not only brings her extensive knowledge in sustainability and environmental policy to UH Sea Grant but her dedication and endurance as a world-class athlete as well.

Born in Cambridge, England, Huxley moved to the United States in 1987. She earned her bachelor’s degree with honors in the History of Science from Harvard-Radcliffe College and her master’s degree in Environmental Studies from Boston University.

Huxley’s first introduction to Sea Grant was as a master’s student when she interned at the Massachusetts Institute of Technology (MIT) Sea Grant. There she worked with MIT Sea Grant Director, Dr. Cliff Goudey, to prepare an aquaculture feasibility analysis for a planned urban project. After earning her master’s degree, Huxley pursued an array of intensive professional experience in Silver Spring, Maryland and Washington, D.C. for federal and governmental agencies including the National Oceanic and Atmospheric Administration, the Northeast Midwest Congressional Coalition, and the House Committee on Science.

In September 2006, Huxley joined UH Sea Grant as a CSBCD professional staff member. In addition to being a dedicated full-time member of the UH Sea Grant team, Huxley is a full-time triathlete who has become adept at implementing her daily training regime to complement her heavy work schedule. In fact, Huxley has integrated her commitment to the goals of UH Sea Grant and CSBCD with her commitment to physical endurance in a unique and effective way.

After achieving 4th place in her division at the Ironman Florida triathlon in 2006, Huxley qualified for a position in the 2007 Ironman World Championships held in Kailua-Kona. It occurred to her that athletes sometimes use the opportunity of a crowning event in their careers to raise money for a good cause, and her participation in Ironman Kona was an opportunity to do just that. In response, she established the UH Mānoa Campus Energy/Sustainability Fund and began accepting pledges. Huxley’s efforts earned $3000 for her newly established fund which will pay for equipment and enough compact fluorescent light bulbs to save UH thousands of dollars a year in energy costs. This unprecedented proactive approach to energy conservation at UH will hopefully inspire individuals as well as organizations on the UH Mānoa campus to take an active role in campus energy reduction systemwide. With her passion for this issue and boundless energy and enthusiasm, it is difficult to not be inspired by her.
In October 2006, the interim chancellor of the University of Hawai‘i at Mānoa (UHM) campus, Dr. Denise Eby Konan, held the Chancellor’s Energy Summit for students, faculty, staff, and university partners to discuss the growing challenges of campus electricity consumption. Steady increases in the cost of electricity were putting a mounting strain on UHM campus resources. It was becoming clear that the cost of electricity, for the Mānoa campus would continue to rise beyond $18 million per year, which was the annual cost to the university in that year. At the same time, there was growing awareness in the community that the UHM campus was brimming with opportunities to conserve energy and other resources. The purpose of the Energy Summit was to bring the campus community together to discuss these opportunities and set short and long-term goals. In the ensuing two years the new administration, lead by UHM Chancellor Virginia Hinshaw, Kathy Cutshaw, Vice Chancellor for Administration, Finance and Operations, and the Assistant Vice Chancellor David Hañer, have redoubled that earlier commitment to energy solutions for the campus.

From the outset, the University of Hawai‘i Sea Grant College Program (UH Sea Grant) and in particular the Center for Smart Building and Community Design (CSBCD), initiated and administered by UH Sea Grant, worked closely with the UHM administration to identify solutions to this pressing issue. Both entities assisted with the organization of the Energy Summit and invited energy experts from across the country to share their expertise. The summit culminated with a pledge by the participants to support a set of energy sustainability goals for the UHM campus. At the same time, CSBCD was designated the temporary campus energy office until a more formal office could be established in the Facilities Management Office. The energy sustainability goals were as follows:

- A **30% reduction** of campus-wide energy use by 2012, based on a 2003 campus energy benchmark;
- A **50% reduction** of campus-wide energy use by 2015, based on a 2003 campus energy benchmark;
- **25% of campus-wide energy** use supplied by renewable sources by 2020;
- By 2050, the UHM campus will achieve self-sufficiency in energy and water, and will treat and transform its wastes into useable resources through its actions to conserve and re-use, and through its adoption of renewable energy technologies.

Recognizing that these goals were extremely ambitious, Vice Chancellor Cutshaw designated the CSBCD to take the lead in helping to meet these targets. The Vice Chancellor looked to the CSBCD to identify energy efficiency projects, keep the campus energy community energized, and gather information on current electricity consumption. This dynamic group, led by CSBCD director Dr. Stephen Meder, UH Sea Grant director Dr. E. Gordon Grau, and supported by Olwen Huxley, laid out a number of goals and projects that would put the UHM campus on the path to greater energy efficiency. The following list highlights select examples of the work CSBCD has done to support the energy efficiency goals of UHM:

**Pauley Laboratory at the Hawai‘i Institute of Marine Biology (HIMB)**

The Pauley Laboratory at HIMB, constructed ten years ago, needs to be updated to reduce its energy demand and improve the conditions for the scientists in that facility. The building's heating, ventilation, and air conditioning systems (HVAC) are in need of performance upgrades and the building's envelope (walls, roof, and windows) do not provide adequate insulation to keep the building cool or free from moisture, that is so challenging in the marine environment. Thanks to its close affiliation with the Laboratories for the 21st Century Program (Labs21), a federal program which promotes sustainable laboratories, the CSBCD is able to provide information and build capacity for better, more thoughtful design and construction of laboratories on the UHM campus. It was, therefore, put in charge of ensuring that the renovation work at the Pauley Laboratory on Coconut Island...
Laboratory, for which the Hawai’i State Legislature provided funding, was carried out in such a way as to implement the best practices of the Labs21 program and perhaps even qualify the building for Leadership in Energy and Environmental Design (LEED) certification, a rating system for green buildings. From this project, university staff could also learn about commissioning and how to design a sustainable laboratory utilizing new technologies that are available to help to reduce resource consumption in buildings.

**UHM Partnership with the Hawaiian Electric Company (HECO)**

HECO was an active participant at the Chancellor’s Energy Summit, and consequently CSBCD began to meet regularly with HECO staff to work on projects where HECO would be an effective partner. HECO had previously funded a benchmarking study of energy use in all the UHM campus buildings and was very familiar with the problems the campus was facing. After several discussions it was decided that HECO would work with the UHM campus most effectively through a formal partnership, and consequently in April 2007 the official UHM-HECO partnership charter was signed. The charter enables cooperation between the two entities on projects such as electric meter upgrades, collaboration on research and demonstration projects, and student research projects. HECO is making its engineering staff available to provide technical support on all things electrical, and will facilitate the process of obtaining rebates for the various Energy Conservation Measures (ECMs) that UHM plans to implement.

**Establishing the UHM Campus Energy Efficiency Fund**

Although the energy efficiency projects such as replacing incandescent lightbulbs with compact fluorescents (CFLs) and buying Energy Star™ equipment pay for themselves in an extremely short time (sometimes a matter of weeks!), it is still necessary to make an up-front investment. With current severe State of Hawai’i budgets constraints, either with regard to the level of funding that is available or how it can be spent, even a minimal amount of money can be difficult to set aside for such purposes. Other university campuses have established energy efficiency funds to fund these types of investments, and some have converted them into complex (but very effective) revolving loan funds. In these situations, the departments or organizations borrow money to pay for ECMs and then pay back, with interest, out of the savings generated from the ECMs. The UHM administration is rigorously pursuing alternative options to public funding that will enable the campus to become an energy performance model for the state and region.

In October 2007, Olwen Huxley raced in the Ironman World Championship on Kona, raising $3,000 in donations to establish the UHM Energy Efficiency Fund. So far, the fund has paid for measuring equipment to identify energy-wasting plug loads and over-lit rooms and for CFLs whose installation (so far) is saving the campus almost $5,000 a year in electricity costs. Huxley will be competing in Ironman New Zealand in March 2009 with the intention of qualifying for Kona again, and plans to use that event to raise another $10,000 for the fund.

**Campus Lighting**

**De-Lamping:** The UHM campus has many exciting possibilities related to improved lighting. The first is a student-initiated effort to reduce excess lighting throughout Saunders Hall. Saunders Hall underwent a lighting retrofit a few years ago, but afterwards the students noticed that the lighting levels were unusually high, so high in fact that people were complaining of eye strain. After a careful lighting census they determined that the lighting throughout the building exceeded industry recommendations for offices, in some places nearly three times the recommended level. The students then developed a proposal for a de-lamping project which would disable parts of the lighting fixtures permanently, bringing light levels to more tolerable levels and reducing energy consumption by several thousand dollars a year. CSBCD recognized that this project would be an excellent model for other buildings or departments experiencing the dual problem of poor lighting and high energy costs, and is working with students from the School of Architecture and the College of Engineering and other student volunteers on a lighting census of UHM’s Hamilton Library, which will culminate in a report on how to implement a similar strategy.

**From Incandescents to CFLs:** Although the majority of the light bulbs on campus are fluorescent tubes, the Facilities Management Office estimated that there are approximately 5,000 incandescent lightbulbs in operation on campus. However, the locations of all of these lightbulbs are unknown. If these lightbulbs were on only eight hours a day during the week, and were only 60 watts, they would still cost more than
$100,000 a year to light, whereas the same number of CFLs would cost less than $25,000 a year. CSBCD is leading a campaign to find and replace most of the incandescent bulbs on campus by the end of the summer of 2008, and all of them by the end of the same year.

Light-Emitting Diodes: Although CFLs are an effective interim replacement for incandescent bulbs, the “holy grail” of energy efficient (and attractive) lighting are light-emitting diodes, or LEDs. Light-emitting diodes are widely used in traffic lights and other applications where the fixture is always turned on, but they are expensive and are not yet strong enough to match daylight or the light levels required for offices. CSBCD has performed an evaluation of several types of LEDs, testing them in an exhibition space in Hamilton Library (where the lights cannot be turned off) against existing conventional bulbs. Although the quality of the light was reasonable, the LEDs were too dim to be considered for a one-for-one replacement of the existing conventional bulbs. The experiment was successful in that it increased the knowledge of and awareness of LED technology which, although not yet ready for widespread use, is clearly getting close, and falling costs are making its application more financially feasible.

Advice on Sustainable Buildings
The University of Hawai‘i at Mānoa’s energy consumption takes place almost exclusively in buildings, and it has been estimated that, with a reasonable investment, 30 percent, or greater, of the energy could be saved. The reason why these buildings waste so much energy is two-fold: first, many of them are quite old and use dated technology in their lighting and air conditioning; second, many of the newer buildings, particularly the laboratories, were not designed with energy efficiency in mind. Thus their systems, although new, are extremely wasteful. In addition to saving energy in existing buildings, UHM will be required to completely change the way new buildings are conceived, designed and built, and be mindful of the price of electricity, or future buildings will only add to UHM’s crushing energy bill. As a state agency, UHM is required to meet specific LEED requirements for new construction. Meeting these requirements has been a learning experience for UHM campus planners, staff, faculty, and students, as well as the architects, engineers, and contractors who are involved in these projects. Many individuals and departments within the campus community now look to CSBCD as a source of information and technical support to smooth the transition to a more “green” way of planning and building at UHM.

Green roofs are constructions of lightweight soils that are placed on roofs and other horizontal surfaces. Plants are grown in the soil, and the plants and soil help to reduce the heat gain to the roof and the building beneath by blocking and absorbing the heat from the sun and evaporative cooling from plants and soil. This keeps the occupants cool, reduces demand for air conditioning, and extends the life of the roof which would otherwise deteriorate from excess heating. Green roofs reduce or eliminate runoff from rains that would otherwise be washed into storm sewer systems and contaminate sensitive aquatic ecosystems. In some cases they also provide habitat for birds and other wildlife.

On the University of Hawai‘i at Mānoa (UHM) campus, a series of test modules were constructed and planted with various native plant species by Leyla Cabugos, a UHM graduate student. Olwen Huxley, a specialist with the University of Hawai‘i (UH) Sea Grant Center for Smart Building and Community Design (CSBCD), and Dylan Whisenhunt, a Hollings Fellow hosted by CSBCD, assisted with the construction of the modules, the plantings, and the installation of the irrigation system. To study the green roofs’ impact on heat gain, Dr. Stephen Meder, CSBCD director, with students from the UH School of Architecture, installed measurement devices in large boxes underneath a number of the modules and is currently gathering the data.

Plants that are native to the Hawaiian islands can be successfully maintained within a green roof area.
In 2005, an enlightened Hawai‘i County Administration and County Council established and approved a tool named the “Community Development Plan” (CDP). The purpose of this tool is to provide the nine island districts’ citizens the opportunity to guide growth and development. To ensure that new goals and standards are implemented, these changes were to become ordinance amendments to the county’s General Plan, giving the CDP the force of law. Hawai‘i County’s Planning Department was designated the lead agency.

Almost immediately, the North and South Kona Districts were chosen as the first CDP project to respond to exponential population growth and subsequent development pressure. As the pioneer project, processes for public education, visioning, and engagement were developed adaptively over two intensely active years with the combined effort of all county agencies, contracted professional community planners, public service volunteers, non-governmental organizations (NGOs) and the University of Hawai‘i Sea Grant College Program (UH Sea Grant). On the heels of North and South Kona, Puna District then North and South Kohala were sequentially involved. Based on UH Sea Grant’s previous volunteer work with the Kona CDP, the Hawai‘i County Resource Center (HCRC) invited UH Sea Grant to become part of the CDP Team for South Kohala District. At this point, Hawai‘i County Planning, Public Works, Research and Development and HCRC staffs needed (but did not have) nearly double the personnel. Managing multiple districts in different states of process, working with thousands of community members, and yet maintaining the normal work load represented a heroic feat likely unparalleled anywhere else in the country.

Community Readiness Programs were designed to expose island residents within each new district to the possibilities planned growth provides. The automobile dependent ‘freeway’ paradigm of the ‘60’s could realistically become a thing of the past, and more appealing alternatives, such as “cradle-to-grave” village communities, transit-oriented development, green spaces and alternative modes of transportation and energy were now once again within reach. Community members had no trouble envisioning a better way of living.

UH Sea Grant’s extensive experience in community capacity building, education and outreach was helpful during this process, and for the South Kohala region of the Big Island in particular. South Kohala has been characterized as four quite different community personalities and the task of somehow blending their visions to fit within the context of the new paradigm was challenging. The path to the vision has been exhilarating and at the same time exhausting for everyone involved.

Districts were required to define their planning goals and then identify a combination of land use changes using ordinances and reviewing codes, public-private partnership potential and funding mechanisms. They were led through these discussions by contracted firms from the mainland and Hawai‘i supported by Hawai‘i County staff, UH Sea Grant and cadres of community minded volunteers armed with a wide range of professional expertise.

The Kona CDP final draft has received approval from the Planning Commission, and is scheduled to be heard by the County Council in August and September of 2008. The other district CDP documents are nearly finalized and preparing for Planning Commission and County Council hearings in the latter part of August through October 2008. All the district plans incorporate elements of the General Plan as they relate to each community, including: economy, energy, environmental quality, flooding and natural hazards, historic sites, housing, natural resources and shoreline, transportation, land use, recreation, public facilities and utilities. All of the plans have included an implementation mechanism to ensure that actions will be taken to fulfill the vision.

The success of this monumental effort is marked by the strong sense of community expressed by many participating residents, and in particular the strong sense that they have been part of the crafting of a new planning paradigm and a renewed hope that change will indeed take place.
The Wai‘anae Coast Community Mental Health Clinics is a non-profit organization serving the largely underserved, low income, native Hawaiian population of the Wai‘anae coast of O‘ahu. They provide outpatient, residential, educational and outreach services to many whom would otherwise be overlooked by the standard healthcare programs. The clinics employ about 100 people and treat more than 5,000 patients a year. They have several facilities in the Wai‘anae district, all of which would benefit from design and energy efficiency upgrades. The organization’s main clinic is a two story, 20,000 square-foot pair of buildings that are in urgent need of a revitalization. The UH Sea Grant Center for Smart Building and Community Design (CSBCD) was contacted by Puanani Burgess, the director of the clinics, and requested the CSBCD’s assistance in assessing the facilities performance and provide design recommendations to improve the comfort, energy use, and programmatic needs of their flagship facility. In response to the request, CSBCD personnel made a site visit and developed a preliminary assessment of the facilities. Dr. Stephen Meder, director of CSBCD, then coordinated meetings with the clinic, Hawaiian Electric Company (HECO) and the State Energy Office at the Department of Business, Economic Development and Tourism to consolidate an assistance program for the clinic upgrades. The Hawaiian Electric Company has agreed to provide mechanical engineering services to assist the team to quantify the design recommendations.

The site is located in a very hot and dry area of the island, and the buildings and surrounding areas are inhospitably hot and inhumane. The lighting and air conditioning systems are in decrepit condition and operating at ineffective and inefficient levels. All in all, the building is currently in need of renovation to improve its functionality as well as appearance. A team of students from the UH School of Architecture were convened to combine their talents with Architecture faculty, CSBCD staff and an engineering consultant to provide a detailed energy assessment, thermal, ventilation and daylighting analyses. Additional design recommendations will be offered that will include improvements for energy performance, aesthetics and improved operations. It is expected that the design recommendations will include extensive landscaping, areas for productive gardens, small-scale aquaculture, and a rooftop photovoltaic system. With additional partnerships and support for renovations and renewable energy systems, it is hoped that CSBCD can provide viable designs for a zero net energy building. This is an extremely exciting community-based project which assists a very notable non-profit to continue and expand their valuable work while helping to create a facility that can be a model in the state and throughout the region.

The three images below represent examples of daylighting/solar thermal analysis being conducted by the students:
Second-year design students at the University of Hawai‘i at Mānoa School of Architecture (SoA) are gaining real-world design experience while also benefiting their community. The students are working on expansion plans for MA'O Farms, a socially driven enterprise that merges the principles of organic farming with youth leadership development in Wai‘anae, O‘ahu. It will be expanding from its current 4-acre location to a nearby 11-acre lot which provides an opportunity for the farm to venture into new levels of agricultural production, organic farming and green building demonstrations, training venues and service to the community. Studying with Dr. Stephen Meder, director of the UH Sea Grant Center for Smart Building and Community Design (CSBCD), and other SoA design faculty, the students were provided with the opportunity to draft expansion plans that incorporate sustainable design features.

One of the core goals of the expansion is to develop an entire facility that is based on restorative principles. These principles guide the design and operations of the enterprise to have a minimally negative impact, and on the whole, contribute positively to the people, the environment and the immediate surroundings. The architecture students included maximized energy, water and resource conservation and minimized negative atmospheric and environmental impacts through all energy, water and material flows including building material choices. This criteria, brought by the farm itself, is a directive to each student to not only explore dynamic design options but to fully integrate passive design strategies with renewable energy applications and a deeper understanding of architecture’s response to programmatic, climatic and community conditions.

This commitment to sustainable design has long been embraced by Gary and Kukui Maunakea-Forth, who created and currently manage the farm. They have imbued the farm, and all of its operations, with an integrated approach to environmental preservation, sustainable economics, social equality and Hawaiian cultural values. In their view, MA'O Farms is not just about
growing food, it is about growing lives. To this end an underlying premise for the operation is to take youth from the Wai‘anae Coast area, integrate them into the farming operations and have them commit to a high school diploma and baccalaureate degree. Wai‘anae High School has a 50 percent drop-out rate, so this provides the youth with an invaluable opportunity to continue with their education while also gaining valuable employment skills. Many of the students are encouraged to continue with their education and are provided with paid work scholarships to attend Leeward Community College.

Over 30 students along with six instructors worked on this project for eight weeks. In May 2008, a final design review was held at Downtown Restaurant and attended by over 100 people including design jurors, public officials and potential funding entities. In the summer of 2008, two students, one supported through CSBCD and the SoA’s Environmental Lab and the other through MA’O Farms, will be finalizing the design plans.

This project is a perfect example of the mutual benefits that can be cultivated when the university works collaboratively with community partners. Working closely with MA’O Farms, the students in the SoA had the opportunity to create new sustainable design models for buildings and businesses in Hawai‘i. This was invaluable to the students and provided them with a unique opportunity to obtain real-world design experience that added immeasurably to their education. Even more importantly, however, the students had a chance to contribute something beyond architecture and to add their unique talents to a cause much larger than themselves. They are touching the lives of the more than 2,000 youths who the farm supports and using sustainable design features to help local agriculture be economically viable, which will greatly benefit communities in Wai‘anae and throughout the state.
In Kailua, O'ahu a seaside town on the windward coast, the University of Hawai'i Sea Grant College Program (UH Sea Grant) has worked closely with the community to address urban growth issues. Through its Center for Smart Building and Community Design (CSBCD), UH Sea Grant brought together national and local experts, university partners and governmental and non-governmental organizations, among others, to explore innovative environmentally appropriate options for redevelopment of its central business district (CBD).

As part of this ongoing effort, graduate students from the UH Department of Urban and Regional Planning conducted a neighborhood planning study with funding support from UH Sea Grant and under the direction of Professor Luciano Minerbi. The aim of the study was the collection and analysis of baseline data regarding the many aspects of life in Kailua to be considered in the town’s planning and redevelopment and was the first step in a community revitalization process.

As a key component of the community government, the Kailua Neighborhood Board was particularly interested in the analysis of social impacts and sustainability. Neighborhood boards are set up by the City and County of Honolulu to give communities a voice in how their area is managed. Though planning for Kailua is addressed at the regional level in the Ko'olaupoko Sustainable Communities Plan of 2000, it lacked the detailed analysis for addressing concerns at the watershed/ahupua’a level and at the neighborhood scale.

At the request of CSBCD, the Kailua Urban Design Task Force (KUDTF), a non-governmental organization dedicated to addressing community planning issues in Kailua, became involved with the study. By addressing issues from a resident’s perspective, these volunteers, many of whom have careers in professional planning, provide valuable input into the redevelopment and future of the town in which they live. Of particular concern to KUDTF is the enhancement and improved walkability of the CBD, in particular the area which includes the retail sector.

For this study, data was collected on existing conditions in Kailua and concentrated in three areas: the physical environment, the natural/cultural environment, and the social environment. Identifying the actual conditions and establishing a collective resource of baseline information provided the much needed context and factual information to allow the community to make informed decisions regarding its future. With a
quantifiable assessment of today’s conditions, it will be possible to evaluate change in the future.

**In The Beginning…**
The project study team worked diligently to gather relevant information on sustainable living issues in Kailua from sources such as newspapers, popular press publications, journal articles, and studies conducted in the area. Through the course of their research, the project team identified four surveys of relevance that had recently been conducted including surveys by Kāne‘ohe Ranch (the real estate management arm of the non-profit Harold K. L. Castle Foundation), the Neighborhood Board, the Kailua Urban Design Task Force, and by State Senator Bob Hogue’s office.

Additional information was gathered by interviewing community leaders, attending community meetings and participating in community events. The staff at Kāne‘ohe Ranch was an important informational resource regarding the CBD and the Kāne‘ohe Ranch redevelopment plans. Project study team members also conducted two additional small scale surveys to gather more information.

**The Results of Successful Team Work**
As a result of their research, the study team developed a number of maps, charts and figures that outlined the cultural, social and environmental aspects of Kailua. In particular, the team developed a Kailua social issues map, a Kailua town timeline which was of particular interest to the Neighborhood Board members as well as the public who viewed it, a map of significant cultural sites, and many types of land use maps.

Also, the project study team delved into the issues of transient visitor accommodations, affordable housing, parking, transit, as well as the actual development of the CBD. In its report to the Kailua Neighborhood Board and the KUDTF, the project study team made over 150 suggestions for improving the livability of Kailua. Suggestions ran the gamut from ways to prevent shoreline erosion to addressing the problem of homelessness. The overall recommendation of the practicum study team was for the residents of Kailua to prepare a comprehensive community plan based on the information gathered that would address the suggestions which arose directly from the community.

For more information or to request a copy of this study (on CD), please contact the University of Hawai‘i Sea Grant College Program:
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DR. STEPHEN MEDE R AWARDED FOR OUTSTANDING SERVICE TO THE COMMUNITY

The Hung Wo and Elizabeth Lau Ching Foundation Award was established in 1997 to recognize outstanding faculty members who have made significant contributions that strengthen the ties between the University and the community. Dr. Stephen Meder, director of the UH Sea Grant Center for Smart Building and Community Design and associate professor in the School of Architecture, was recognized for his unparalleled commitment in connecting university expertise with community needs. The primary focus of his research is linking economic and environmental sustainability with an elevated quality of life in our community, and he skillfully uses his position at the University to advance the principles of sustainability through outreach to professional groups and at the community level. In particular, Dr. Meder was recognized for his work with underserved communities in Wai'anae and Kalihi. The award will be presented at a special ceremony at the Kennedy Theater on the University of Hawai‘i at Mānoa campus in September 2008.