Introduction
The Kefalonia Program in Sustainable Community Development was conceived following talks with leaders from the Prefecture of the Island of Kefalonia, Greece. The Kefalonia Governor was asked by the faculty program director from Huxley College of the Environment at Western Washington University to support an American university research project as a form of community service learning. Village leaders emphasized the importance of respecting the village’s past while planning for a “sustainable” future village. The project was warmly embraced by village leaders and residents alike.

An academic framework was designed that would apply an interdisciplinary curriculum in urban design and planning, environmental resource management, historic preservation, sustainable technology, agro-ecology, transportation planning, social anthropology, and other related disciplines. The program would incorporate a philosophy that would seek to balance historic restoration with sustainability principles. The curriculum would evolve each year, shaped by the work accomplished in previous academic quarters. As progress proceeds, new courses would be added to the curriculum in order to examine all aspect of community planning. Despite the fact that the village has remained uninhabited for the past 50 years, remnants of the village’s 160 former structures remain, providing students a skeletal template from which to accurately depict the past and draft baseline site plans. With the assistance of the villagers, individual homes were carefully identified and deconstructed in order to characterize features of architecture and building style, and, most importantly, to uncover the social history of the village.

Community Service Learning
“Community Service-Learning” is a form of experiential learning that combines community service with classroom learning. Real-life experiences in the community are linked to academic content through applied research projects. Community Service-Learning has been shown to have positive effects on academic performance. It promotes community cultural understanding and student leadership skills. Community Service Learning is a pedagogical model used extensively in the Kefalonia Program. The program is committed to a philosophy of bridging applied knowledge in sustainability practices within an international cultural context in order to help students prepare for careers focused on attaining just and sustainable societies. The program reflects an integrative approach to inquiry based learning and real-world problem solving.

Overview of the Kefalonia Program
The aim of sustainable community development service learning is to help local communities access knowledge, methods, and technologies so that development decisions can result in socially, environmentally, and economically positive community outcomes. The philosophical approach adopted in the Kefalonia program is one of “threading the past with the future.” The program carefully seeks to combine the wisdoms of the past with the efficiencies of sustainable technologies in order to revive a sustainable future in this Venetian-era community. It provides a collaboration of research and education through a network of students, teachers, researchers, non-profit organizations and the local community. The purpose of the collaboration is to formulate a place-based model for sustainable development.

The Kefalonia Program operates two academic semesters each year and began in the fall of 2005. The project is a long term and dynamic project, where outcomes are as important as learning processes. By emphasizing the relationship between historic knowledge and sustainable technologies, the program represents a model for sustainable development education throughout Greece and beyond.

Adaptive Academic Curriculum
The program offers a well-integrated, and applied multi-disciplinary curriculum serving advanced undergraduate and graduate students in the fields of sustainable design, urban planning, geography, environmental studies, landscape design and architecture, natural resources management, social anthropology, and sustainable economic development. The curriculum consists of 9 “floating” courses which include site planning, architecture, sustainable infrastructure design, green building techniques, energy systems,
sustainable tourism and economic development, agro-ecology, language, history and culture.

The selection of courses and design of syllabi are adapted each term to reflect progress in plan development. The classes are taught by American and Greek faculty. The program’s curriculum is designed to extend over a 5-year period before shifting attention to project developmental phases, as well as to other island-wide sustainability topics. Future courses will identify alternatives for the community’s self management of project implementation, development of plans and design guidelines, land and building entitlements, development financing, and the evaluation of economic development models to help sustain the future village economy.

Partnerships
A partnership network was formed comprised of village representatives, the municipality of Argostoli, the Prefecture of Kefalonia, colleague universities, international professionals and NGOs working in sustainability fields. The project is affiliated with the United Nations Community Sustainable Development Partnership Program, A World Institute for a Sustainable Humanity and the Mediterranean Information Office for Culture, Environment, and Sustainable Development. In 2006, the Kefalonia project received prestigious international recognition as the recipient of the Mediterrana Honorific Award for its innovative applied research work in sustainable rural development.

The Kefalonia program also coordinates independent graduate research. Currently, several graduate students are conducting parallel case study research in sustainable tourism, alternative energy systems design, sustainable water supply systems, and agricultural development. The complementary research projects are integral to the Kefalonia partnership. In cooperation with local authorities, the program also sponsors annual seminars, conferences, and workshops disseminating knowledge developed by the Kefalonia program.

The Project Community: Farsa Village
Kefalonia is the largest of the Ionian Islands, with a total area of 688 square kilometers. It lies south of the Islands of Corfu and Lefkada, west of Ithaca, and north of Zakynthos, opposite the mouth of the Gulf of Corinthis. Kefalonia is a beautiful island of contrasts: it has quiet, windless sandy beaches, verdant slopes, and steep cliffs plunging into the Ionian Sea. The climate is mild and belongs to the Mediterranean maritime category, with a dry summer and a warm and wet winter. It is a mountainous island; its tallest peak rises to 1,626 meters. A rare species of fir tree is also unique to Kefalonia.

The view from Farsa Village is staggering. The Bay of Argostoli, which adjoins the Ionian Sea, lies directly below the village. Looking across the Bay is the Palki Peninsula; believed by many to be Odysseus’ Kingdom of Ithaca. August 11th, 1953 marked the start of a series of earthquakes that led to devastation to the islands of Kefalonia, Zakynthos and Ithaca. People on the Islands were left homeless. The economy was shattered. Abandoning their olive fields and villages, many islanders left the Island for Athens or went abroad seeking employment. Others stayed and helped rebuild the islands. Amidst this chaos, the remaining residents of Farsa Village abandoned their mountainside village and relocated to a new settlement located down slope, along a more accessible municipal road.

The original village has remained untouched since the earthquake. Among the olive trees and the stone terraces, the village’s blue lapis lazuli and ochre plastered walled ruins remain. Farsa Village was once a sustainable community established some 400 years ago during the long Venetian occupation of the Ionian Islands. Farsa Village was a unified and close-knit community. The three institutions of governance, church, and education played a central role in village life. Leaders included the village president, priest, and school teacher, each held in high regard. These institutions deeply influenced village functions, traditions, and daily life. The village is now governed by a community council, which manages village affairs and assumes a central role in planning the village’s reconstruction. Many Farsians no longer live as traditional a life as they once did, partly because tourism has replaced agriculture as the island’s major economic activity, but more significantly, because of their relocation to urban areas.
Community Design

Interdisciplinary research is central to the Kefalonia curriculum. The research began with investigations into the community’s historic, cultural, economic, and physical conditions to determine traditional settlement patterns and land tenure conditions. Baseline site information was compiled from historic aerial photographs and topographic maps, field verification, and personal interviews with village residents. This resulted in GIS base maps illustrating the spatial characteristics of the village. CAD drawings depict the footprint of the original structures located throughout the settlement. Interviews with building owners help the students identify structural attributes not obvious from field observation alone. Cultural histories that explained the clustering of family residences into 5 distinct neighborhoods were also mapped.

Historic Preservation Objectives

Reestablishing historic design character is the community’s central redevelopment goal. Design codes can help the community reach consensus on an acceptable village design vocabulary and ensure that future development of individual properties “fit” within a unified design scheme. Design guidance requires the consideration of physical form as well as the traditional functional relationship between private buildings and the public village landscape. Design guidance is especially important as the village is prone to severe earthquakes. The island imposes strict hazards mitigation requirements for new building, requiring the use of reinforced concrete or other engineered construction techniques. A good design code should incorporate both structural codes to ensure building safety while concurrently applying design guidelines to ensure continuity with the village’s historic character. Property owners work closely with student design teams to evaluate design goals while considering specific use requirements of future occupants. Design guidelines address exterior surface materials, color, building bulk, window and door styles, entrance ways, arches, roof slopes and materials, balconies, courtyards, exterior staircases, and lighting.

Tourism as Supplemental Economy

Tourism comprises the chief economic activity in Kefalonia and can play an important and positive role in the redevelopment of the village. Tourism can be a positive activity when it provides new employment, contributes to the appreciation and understanding of local culture, and generates revenues to help pay for project debt financing. At the same time, negative impacts from tourism development adversely affect the local environment -- seasonality of jobs, infrastructure overload, and the loss of authenticity and cultural degradation. In formulating concepts for village tourism, potential negative impacts must be carefully evaluated. Establishing conditions for “good” tourism through careful planning and policymaking helps offset the negative effects inevitably presented by tourism. The central question is in what form and to what degree can tourism be sustained in a newly constructed village to ensure that the community’s economic and social objectives are met? A tourism plan should be in balance with the environmental and social carrying capacity of the village and its surrounding landscape.

Cultural and heritage tourism that reflects the unique and rich physical and natural history of Farsa is illustrated in a village heritage “walking trail” map developed by the students. A redeveloped Farsa Village can provide a showcase example of planned sustainable development that sensitively markets its natural resources, historical traditions, and sustainable development practices.
Underground cisterns. Collectors, with water supply stored in courtyards can serve as efficient rainwater management systems, especially during peak use conditions occurring during the winter months. These systems provide a reliable supply source throughout the summer season. The traditional village cisterns were constructed of stone and lined with lime plaster providing waterproofing as well as disinfection thereby maintaining an adequate drinkable water quality standard. An analysis of alternative storage methods considers both storage costs as well as the material’s ability to withstand ground movement from earthquakes. A sustainable water system solution for Farsa is one that can sustain a community’s current and future population without imposing a threat to the environment, to the economic stability of the community, and to the community’s social character. When users become more aware of their sense of place in the environment, and how their water is derived, their tendency is to practice greater conservation in water use.

Sustainable Infrastructure Design

Any future village redevelopment would require the provision of water supply, wastewater treatment, transportation, energy, and telecommunications services. Students have proposed the use of rain water as a primary water supply source, which was the village’s sole traditional water supply. As groundwater sources are prone to overextraction and risk of salt water intrusion to groundwater supplies in many island communities, rain catchment helps to minimize risks to local groundwater supplies.

The old village relied on rainwater to meet its agricultural, domestic, and drinking water needs for many centuries. Analysis of annual rainfall in Kefalonia indicates an adequate supply; the problem lies in that rainfall occurs mostly during the winter months with drought conditions occurring during the peak use summer months. Building roof surfaces and courtyards can serve as efficient rain collectors, with water supply stored in underground cisterns.

Wastewater treatment presents opportunities for adapting new technologies in collection, treatment, and disposal. Future classes will investigate the adaptation of sustainable community treatment systems that combine wastewater effluent disposal with olive orchard irrigation to increase olive fruit production. Treated effluent disposal through drip irrigation methods onto the orchards surrounding the village may serve to safely dispose of treated effluent while concurrently increasing the productivity of the revived agricultural economy.

Conclusion

This article presents several of the initial development concepts that have emerged in the Kefalonia program. It is a deeply engaging project as it concurrently focuses inquiry into how best to connect a village’s past cultural heritage to its sustainable, yet still unknown, future. The Farsian community, though dramatically reduced in population and relocated away from the original village site, still retains strong memories of a former past. The ruins of the old village are clearly visible on the mountainside. They evoke memories, nostalgia and hope, a hope that is being realized as restoration planning begins. One thing that seems a common thread among all Farsians is their collective desire to see their village reestablished, reestablished in a way that is true to its ancestral heritage, reestablished so that once again it may sustain many future generations of Farsians.

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The program is sponsored by Huxley College of the Environment, Western Washington University, in association with the Northwest Council of Study Abroad Universities (NCSA), a regional consortium of public universities in Oregon, Washington and Alaska. It is administered through AHA International, an international studies administrative unit of the University of Oregon. The program is committed to the educational goals of intercultural competency, interdisciplinary education, and community service engagement in order to prepare students for successful careers in the 21st century global community. Students enrolled in the program come from private and public universities throughout the US and internationally.

We invite inquiries from students and faculty interested in participating in international sustainable community development studies in Kefalonia. For more information, please view the program website at AHA International’s website: www.ahastudyabroad.org or www.wwu.edu/~zaferan, or contact the program director at: Nicholas.zaferatos@wwu.edu. Additional information on Kefalonia program activities is also available at www.awish-hellas.org.