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UC Davis D-Lab & Horticulture Innovation Lab Regional Centers: Providing Support & Capacity Building to Bring Appropriate Technologies to Market

Summary: Among the most promising disruptive technologies for application to horticulture are those that address the uses of energy in the production, marketing, and processing of horticultural crops. This project tests a range of sustainable energy solutions in two U.C. Davis graduate student classes, D-Lab I and II, as well as implementing two pilot D-Lab classes in Horticulture Innovation Lab Regional Centers in Thailand and Honduras.

D-Lab student assesses solar panels



D-Lab students doing the "wallet exercise"

U.C. Davis D-Lab I and II

In winter quarter 2013 D-Lab I: Energy and Development: An overview, was offered. The class gave an overview of energy issues in developing economies that emphasized critical thinking. Curriculum included four hands-on energy labs, a business development clinic, case studies, and guest speakers. Multi-disciplinary teams worked with local partners to perform feasibility studies for proposed energy solutions. Projects: Electricity Feasibility Study in Ghana, Solar Irrigation in Uganda, Seed Saving Feasibility Study in Thailand, Solar Fruit Drying in Ecuador

In April 2013, D-Lab II: Energy and Development: Designing for the Market was offered. The class offered a studio-style design course that focused on low-cost energy solutions for the developing world. Student teams work with local partners and mentors, to design, prototype, and test scalable solutions for real world energy problems for their client's communities. Curriculum included lab modules, business development skills, case studies, independent research, and guest speakers. Projects: Rubber Tapping Knife in Thailand, Mobile Irrigation System in Uganda, Off-Grid Zeolite Bead Regeneration in Thailand





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Meeting the Local need for Design and Innovation curriculum: International D-Lab Classes

For 2013 D-Lab piloted courses in Honduras and Thailand as part of the larger capacity-building effort for the Horticulture CRSP Innovation Centers. The goal is for the centers to be able to carry out their own technology evaluation and development. Through this collaboration the centers will gain new methods for evaluating and developing horticulture innovations, better enabling them to attract investment and dissemination of these technologies.



Honduras- The inaugural D-Lab class was offered at Zamorano University in the summer of 2013. The class is segmented into three work modules, each lasting 3 weeks with 15 students each. The students are exclusively in the Environmental Engineering Department and are undergraduates in their final (4th) year. UC Davis D-Lab conducted an evaluation of the class in July 2013. Preliminary results seem to point to a very successful class. The Zamorano D-Lab has been efficacious in implementing a D-Lab class that encapsulates the essence of design and development,

as well as being a very positive experience for students.

Thailand- Kasetsart University offered a D-Lab curriculum beginning in November 2013. Principle Investigator Kurt Kornbluth and two graduate students traveled to Kastesart in November to help set-up the class and run a two-day workshop on the design process for the three professors who co-taught the class. The class will run from November 2013 to March 2014. The students are all in their final year in various engineering programs at Kasetsart University. An evaluation strategy was designed with input from the professors and U.C. Davis D-Lab is awaiting results for when the class ends in March.



Capacity Building results for 2013

- 42 U.C. Davis students trained in feasibility studies and design process.
- 75 Thai and Honduran university students trained in feasibility studies and design process.
- 6 graduate assistants and researchers trained on the design-process.
- Zamorano D-Lab instructor completed a design process and D-Lab training through a Fellowship at U.C. Davis.
- 3 Kasetsart University professors completed a Design Process and D-Lab Training through a workshop at Kasetsart University

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