



# Strengthening Educational Capacities in Geospatial Science and Technology for Agricultural and Natural Resources Management



Award # 2008-38422-19211, \$290,000

Center for Applied Tropical Ecology and Conservation,  
University of Puerto Rico, Rio Piedras  
The U.S. Forest Service International Institute of Tropical Forestry  
Texas A&M University

## CSREES/USDA

### Priority Needs Areas

- Strengthening institutional educational capacities;
- Attracting and supporting underrepresented students; and
- Facilitating cooperative initiatives among HSI (UPR-RP), units of state and federal government (U.S. Forest Service), and other tier institutions of research and higher education (TAMU).

### Educational Needs Areas

- Acquiring equipment and instrumentation for teaching;
- Developing student experiential learning opportunities;
- Reshaping curricula;
- Recruiting and retaining underrepresented students;
- Preparing faculty; and
- Preparing instructional delivery systems.



## OBJECTIVES

- "Enhance educational capacity in geospatial science in agriculture and natural resources , via infrastructure and curriculum development."
  - establish a state-of-the-art GeoSpatial Laboratory UPR-RP library for instruction and research.
  - reshape a course on Geospatial Analysis in Natural Resource Management and Conservation, offered to undergraduate/graduate students in Environmental Science and Biology at UPR-RP.

## OBJECTIVES (con.)

- "Increase outstanding opportunities for student experiential learning and faculty preparation via advanced training program (twenty students and four faculty) at TAMU and student summer internships (five interns) at IITF of USDA Forest Service and UPR-RP".
- "Diversify student populations entering and succeeding in agriculture and natural resources fields by recruiting and retaining Hispanic students, and preparing them for successful careers in these fields."
- "Develop long-term cooperation among Hispanic-Serving Institution (UPR-RP), top tier institution in agriculture (TAMU), and USDA (Forest Service) beyond the project, educating tomorrow's Hispanic leaders in USDA..."



## ACTIVITIES

- **Development of Systematic Educational approach Via Cooperation**
  - Curricula development;
  - Advanced training program at TAMU;
  - Student Summer Internship; and
  - Workshops for faculty to disseminate training materials and extend our model to other Hispanic-Serving Institutions.
- **GeoSpatial Laboratory**
  - Computer network including one high-speed server and 18 computer workstations; Geospatial software licenses; Standard software; High-resolution plotter; and Hand-held GPS.

## EXPECTED IMPACTS

The project will impact at least 50 UPR-RP students and faculty, improving the quality of their educational experience, and building the institution's capacity to attract and retain outstanding underrepresented students.

Specifically, a public geospatial lab in UPR-library will be established and benefit students/faculty accessible to UPR-library. A curriculum on Geospatial Analysis in Natural Resource Management and Conservation will be reshaped and offered each year. Training program will be offered to 10 students and 2 faculty each year at TAMU. Five students will have summer internships at both USDA Forest Service and UPR-RP. One graduate student will be supported via research assistantship.

## EVALUATION

- The extent to which the scientific instrumentation and education capacity for geospatial analysis is enhanced at UPR-RP through course development and implementation of laboratory facility that operate at an optimal level;
- The intensiveness and effectiveness of use of new instrumentation by researchers and students for studies and research projects in key areas to USDA priorities;
- Satisfaction from student and faculty survey on project activities; and
- Extent to which the participation enhances motivation and involvement in education and research in the area of natural resource management and conservation



(photos from El Yunque.com)



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**Acknowledgements:** this project was funded by USDA-CSREES-HSI Program.

