



UC Davis Horticulture Collaborative Research Support Program
Exploratory Projects
Performance Report - 1st Quarter (October 1, 2010 to December 31, 2010)

Title of Project: **Geographic information accessibility for improving horticultural-based income generation in the Mzimba district of Malawi**

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Part I - Performance Indicators

Please see Performance Indicators table uploaded to HORT CRSP depository site.

Part II - Monitoring and Evaluation Plan Matrix.

Objective: GIS base mapping and database development				
Activities	Outcomes	Measures of Success	Documentation of Success	Progress to Date (1 st Quarter ending December 31, 2010)
1. Acquisition of satellite imagery for study area – approximately 50 km ² region of Embangweni 2. Acquisition of pre-existing GIS data layers from private and public sources 3. New GIS spatial and attribute data development using on-screen digitizing and satellite imagery, GPS field data collection integration, and with collaborative communication between BSC and WRM partners about features to map and attribute information for those features	1. Satellite imagery acquired 2. Data layers acquired 3. GIS and GPS data developed	1. GIS base mapping and database developed	1. Monthly reports	1. Acquisition of satellite imagery for study area – approximately 50 km ² region of Embangweni 2. Acquisition of pre-existing GIS data layers from private and public sources 3. New GIS spatial and attribute data development using on-screen digitizing and satellite imagery

Part III. Narrative.

Project work from October 31, 2010 to December 31, 2010 was focused on: 1) contractual activities, 2) preliminary data collection, and 3) trip preparation and equipment acquisition (trip for January 2011).

1. Contractual activities –documents: *subaward_contract.docx*, *subaward_scope_of_work.docx*, *subaward_terms_conditions.docx*

The Bridgewater State University (BSU) contract was received late October and a subcontract between BSU and World Relief Malawi (WRM) was finalized in December. The subcontract included a scope of work and terms and conditions for the Commonwealth of Massachusetts. These documents are available at the HORT CRSP depository site.

2. Preliminary data collection and equipment acquisition document: *purchases_first_quarter.xls*

We began the process of building a database through Initial map, data and equipment acquisition (activities 1-3 of the monitoring and evaluation plan matrix above). A detailed list of our purchases has been uploaded to the HORT CRSP depository site (*purchases_first_quarter.xls*). A summary of data acquired as of December 31, 2010:

- *Imagery and digital map products:*
 - IKONOS imagery – A 50 square kilometer area of high resolution satellite imagery collected on May 12, 2002 (1m resolution panchromatic and 4m resolution multispectral). The data were purchased December 16 as a pan/ms bundle.
 - Topographic quadrangle – purchase of a scanned, georeferenced 1:50,000 topographic map.
 - ASTER DEM – A portion of the Global Digital Elevation Model (GDEM) created by stereo-correlating ASTER satellite imagery, has 30 meter postings.
- *Shapefiles (GIS data layers):*
 - Free data from GeoCommunity www.geocomm.com that include vector data of national boundaries, district boundaries, basic transportation and hydrography
 - Clark University GIS data from previous research in 1990s. Data were not of the Mzimba District but of southern Malawi which might be helpful in later work.

During our discussions about the importance of irrigation in horticulture schemes led to ideas about how to increase access to irrigation water using wind energy. To address this component of the problem, we decided to purchase and install anemometers to gather baseline wind speeds for the study area. Our equipment budget was modified to include the purchase of four anemometers. A summary of equipment acquired as of December 31, 2010:

- Hardware
 - Three Dell Latitudes E6410
- Software
 - HOBOWare Pro software v 3.1.0
- Other equipment
 - Two Garmin GPS handheld receivers
 - Three wind-speed anemometers
 - One wind-speed and direction anemometer
 - Projector

3. Trip preparations document: *preliminary_schedule.docx*

The details for our first trip to Malawi (January 2011) were set out during December. The preliminary schedule for the January 2 through 16 visit was to be divided among team meetings, a visit to the study area for relationship building and installation of the anemometers and several visits to potential future collaborators.

Part IV - Trip Report

Project-related travel during October 31, 2010 through December 31, 2010: A day trip to Worcester, Massachusetts to visit James Toledano, Executive Director of Clark Labs, Clark University to discuss his previous GIS work in Malawi during the 1990s.

Part V – Materials

Materials referred to in this report are uploaded to the HORT CRSP depository site.