

UM-UWC Linkage Program Report

NAT-SERCH: Natural Resource Socio-Economic Research Cluster Hub for the SADC region

Submitted by

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Statement of Accomplishments

The Natural Resource Socio-Economic Research (NAT-SERCH) Cluster Hub for the SADC region was created to (a) facilitate data and knowledge exchange between faculty and graduate students at UWC, the University of Missouri and Centres of Higher Learning in the Region associated with the Institute for Water Studies, (b) train post-graduate students in questionnaire design, implementation, validation, management and analysis of socio-economic data relevant for the sector, (c) develop a repository of primary data collected and quality controlled by NAT-SERCH as well as secondary data gathered from other sources, and (d) design short courses for training professionals and students in data collection techniques (e) foster financial support from funding agencies and international donors.

Between July 1-14, Dr. Francisco Aguilar (Assistant Professor, Department of Forestry, MU) visited UWC to work with Dr. Jacqueline Goldin (UWC, WaterNet Chair, Water and Society, Institute for Water Studies) to:

- Instruct social scientists at UWC in the establishment of data collection, transferring and analytical methods, and numerical data analysis,
- Initiate the writing a of a research grant proposal to support continuing research and educational efforts.

A. Instruct social scientists at UWC in the establishment of data collection, transferring and analytical methods, and numerical data analysis

During July 3-13th, Drs. Aguilar and Goldin in cooperation with Mr. Richard Knight (Lecturer, Landscape and Social Ecology, Department of Biodiversity and Conservation Biology, UWC) worked in the design, preparation and delivery of a week-long course titled: **Socio-Economic Research Cluster Hub (SERCH) for the SADC Region - STATA Training**. The course targeted postgraduate students at UWC and other institutions of higher education in the SADC region. The group of 12 students included students from UWC, Stellenbosch University and in addition to South African students also students from Malawi, Kenya, and Zimbabwe.

The course aimed to introduce students to the concepts and principles necessary to conduct human dimensions research applied to natural resource management, specifically designed to:

- 1) Assist researchers to gain confidence and expertise in data analysis
- 2) Strengthen their ability to design and gather more rigorous, valid and reliable data
- 3) Strengthen participants' ability to access and analyze secondary datasets
- 4) Help bridge the gap between social scientists and other disciplines working in the field of water, natural and forest sciences through analytical socio-economic rigor
- 5) Foster a spirit of interdisciplinary exchanges within and across faculties.

The course was delivered between July 9-13 under the following format:

Monday: Introduction, course overview, discussion of student and instructor expectations.

Presentation by Professor Goldin titled: "What you measure is what you get" regarding data analysis and interpretation. The afternoon session consisted in an introduction to the Stata screen face, commands window and basic import and export commands.

Assigned readings: Major, J. 1969. Historical Development of the Ecosystem Concept. In: The Ecosystem Concept in Natural Resource Management. G.M. Van Dyne (Ed.). 9-22.

Tuesday: Discussion of assigned reading as motivation for the study of human dimensions behind ecosystem management. Introduction of statistical measurements including mean, median, quantiles, standard deviation, standard error, variance and linear correlation to describe samples. The afternoon session included the estimation of descriptive statistics using Stata.

Assigned reading: Stanley, R.T. 1995. Ecosystem management and the Arrogance of Humanism. Conservation Biology 9(2):255-262.

Wednesday: Discussion of assigned reading, the need to understand the importance of reliable data to guide resource management while recognizing its limitations. The statistical session reviewed analysis of continuous and categorical data. Introduction to simple, multiple and binary regressions, homoscedasticity and tools for data management for unbiased parameter estimation. Students were assigned to groups of four to facilitate the introduction of Stata commands and overview correct analysis.

Assignment: Tabulate data in two-way tables. Conduct binary regression where dependent variable is access to safe water and selected explanatory socio-economic variables.

Thursday: Review of results of binary regression, group discussion of preliminary findings and interpretation including value of coefficients and *p*-values. Opportunities for data analysis to guide public policy in regard to natural resource management. Analysis of water management dataset and exploratory assessment of gender equality in access to water and water quality sources.

Assignment: Complete and revise statistical analysis of water access data, write one-page summary summarizing methods, findings and implications. Generate a power point presentation to share results with fellow students.

Friday: Student presentations, feedback and conclusion.

Other related activities:

Seminar: In addition to the week-long course, Dr. Aguilar offered a seminar titled “Wood Energy: Market Status and Trends” on Thursday July 12th: Wood is the main source of renewable energy in the ECE region. Generating wood energy involves burning pellets, firewood, and other types of wood or its derivatives. Wood energy does emit carbon like the combustion of other carbon-based fuels. However, wood energy key distinction is the capacity of forests to recycle carbon emitted and turn it into new wood for energy and timber.

Sustainable management, that includes harvesting wood for energy, can enhance forest environmental services such as wildlife habitat – no fossil fuel extraction is known for ecological benefits. Fuel treatments can help reduce the intensity of wildfires while supplying wood for energy. Summer 2012 provides a good example of the magnitude of the damage caused by wildfires in the US Southwest. Sustainable harvesting of wood for timber and energy can also improve forest aesthetics and recreational opportunities, issues of major importance to ECE forest landowners.

Practicality of wood energy is highly contingent on timber markets. Often, the removal of wood for energy is only financially feasible if combined with the harvesting of timber products. Research shows that wood energy consumption is closely associated to harvesting levels by the wood products industry. Moreover, the more timber harvested (at sustainable levels), the more carbon that stays fixed in the form of long-life products from houses to dining tables. Strengthening the timber product industry might be one of the most efficient approaches to increasing wood energy use. Public policy should embrace the multiple benefits provided by wood energy.

Social: A social gathering was held on Thursday July 12th at the Cape Town Downtown Waterfront. This was an informal interaction between students and instructors. The event was supported by Dr. Jacqueline Goldin.

B. Initiate the writing of a research grant proposal to support continuing research and educational efforts.

We held various meetings to coordinate the writing of a proposal to the USDA Foreign Agricultural Service (FAS). The proposal will involve an assessment for improvements in water access and gender equality in a country to be determined including Malawi where FAS maintains an active funding program. FAS call for proposals are commonly issued in March. Other funding opportunities will be explored and a skype meeting has been scheduled for Mid-November.

C. Other activities currently in progress:

In order to complement the training of UWC graduate students we will explore starting a graduate scholar visiting program. The aim is to identify outstanding UWC students who could benefit from a short stay at MU to work on data analysis of human dimensions of natural resources under the mentoring of Dr. Aguilar.