QUARTERLY PROGRESS REPORT

April 1, 2017 to June 30, 2017

PROJECT TITLE: Florida Solid Waste Management: State of the State

PRINCIPAL INVESTIGATOR(S): Timothy G. Townsend

AFFILIATION: Professor, University of Florida
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COMPLETION DATE: September 30, 2017 **PHONE NUMBER: 352-392-0846**

PROJECT WEB SITE: http://pages.ees.ufl.edu/townsend/research/hc16/

Work accomplished during this reporting period:

County Solid Waste Management Case Study

Five county evaluations are being conducted for Alachua, Escambia, Palm Beach, Polk, and Sarasota County that focus on alternatives for more sustainable materials management that has the potential to achieve the Florida 75% recycling rate goal. Data collection for each county's historical solid waste generation rates, demographics, and current collection, processing and disposal practices, and the economic costs are retrieved from the counties.

The project goals for these counties vary depending on the alternative waste management approaches of interest; after meeting and touring facilities on site in each county narrower interest were defined. The case studies aim to assess the magnitude, disposition and costs associated with each County's solid waste management program. Specific goals include examining alternative waste management strategies to increase county and statewide recycling rates and to evaluate the economic and environmental burden associated with each alternative strategy. The research has been conducted by a UF student under the supervision of a UF faculty member.

Economic Data Collection

The project team lead a data collection effort to obtain the Full Cost Accounting (FCA) data for each county and municipality from 1988 to 2016 by initially contacting solid waste and public works directors directly, however not all required data was retrieved. The Full Cost Accounting Rule, 62-708, F.A.C. needed local governments to annually calculate the full cost of their solid waste management services however as of February 16, 2012, local governments are needed to conduct the FCA but they no longer need to send to the state their full cost accounting calculations and documentation of public disclosure. To further obtain data the research team traveled to the FDEP offices in Tallahassee to manually scan any FCA data available. The data is in the process of manually being extracted from the scanned documents into a database for future analysis.

Sustainable Materials Management (SMM) Assessment

An important detail of the study is to assess the potential to use SMM principles in solid waste regulatory practices, such as reusing materials into secondary markets and encouraging a circular economy and positive economic and environmental upstream decisions. In the study, application of SMM principles in Florida was done by assessing the 75% recycling rate and as a proposed potential alternative metric. This was done by proposing a baseline that can be used as a metric that alternative waste management approach use to compare. The metrics units were in a recycling rate, greenhouse gas and energy savings; the environmental burden metrics were found using a life-cycle assessment (LCA) model.

Work planned for the next reporting period:

County Solid Waste Management Case Study

The UF students will continue to work closely with each county to extract data regarding mass flow, economic flow, and the environmental burdens associated with the current waste management and potential alternative waste management. After researching current literature on approaches an analysis using LCA models will provide a brief feasibility study that include the economic and environmental burdens of each scenario. The results of each case study will be presented and reported in a summary document for the individual county to be used to provide scientific results and to interpolate missing data gaps.

Economic Data Collection

The project team will assess any remaining missing gaps in the database and use the information gathered to interpolate into the missing gaps. Data available for counties and municipalities that are representative in population and solid waste management will be used to interpolate the missing gaps within similar counties and municipalities. Also, the missing data will be retrieved through news clipping services since the ruling required newspaper public disclosures.

Sustainable Materials Management Assessment

Further evaluation of SMM principles will be incorporated into the project as a measure to assess using SMM metrics as a goal that can potentially be used as a reporting measure and/or to replace the current 75% recycling rate goal. Other metrics will be developed using LCA models such as EPA MSW-DST and openLCA; such metrics include: toxicity, ocean pollution, eutrophication potential, etc. The economic data, MSW mass flow data, and the LCA model metrics will be used to accurately evaluate SMM applicability and appropriateness within Florida's solid waste management. The initial results were be discussed and presented in a stakeholder working group meeting and then summarized into the whitepaper.

Metrics:

Graduate Students

Name	Rank	Department	Professor	Institution
Malak Anshassi	Master's Student	Environmental Engineering	Townsend	University of Florida

Undergraduate Students

Name	Rank	Department	Professor	Institution
Kevin Kijanka	Undergraduate Research Assistant	Environmental Engineering	Townsend	University of Florida
Madeley Guerrero	Undergraduate Research Assistant	Environmental Engineering	Townsend	University of Florida
Matthew Morse	Undergraduate Research Assistant	Environmental Engineering	Townsend	University of Florida
Matthew Ivers	Undergraduate Research Assistant	Environmental Engineering	Townsend	University of Florida
Edward Galvan	Undergraduate Research Assistant	Environmental Engineering	Townsend	University of Florida

Stakeholder Working Group Meeting: None planned or occurred during this period.