SLATT UNDERGRADUATE STUDENT FELLOWSHIP
PROGRESS REPORT

SLATT SCHOLAR:	Janaya Brown
FACULTY ADVISOR:	Dr. Abigail Mechtenberg
REPORT PERIOD:	Summer 2019
PROJECT TITLE:	Empowering Ugandans to Power Uganda: Analyzing the Mechanical Properties and Various Impacts of Novel Weaved Wind Turbine Blades
CONNECTION TO ND ENERGY'S RESEARCH AREAS (CHECK ALL THAT APPLY):	**( ) Energy Conversion and Efficiency** **( ) Sustainable and Secure Nuclear** **( ) Smart Storage and Distribution** **( ) Transformation Solar** **( ) Sustainable Bio/Fossil Fuels** **(✓) Transformative Wind**

MAJOR GOALS AND ACCOMPLISHMENTS:
List your major research goals and provide a brief description of your accomplishments (1-2 sentences). Indicate the percentage completed for each goal. Please use a separate sheet to share additional details, technical results, charts, and graphics.

MAJOR RESEARCH GOALS	ACTUAL PERFORMANCE AND ACCOMPLISHMENTS	% OF GOAL COMPLETED
Test and derive the mechanical properties of weaved wind turbine blade samples	All large samples were cut, tested, and analyzed. After delving further into the literature, it was found that a certain procedure had to be followed to gain the best comparison, so the data is being reanalyzed.	50%
Compare mechanical properties of said wind turbine blades with other wind turbine blades for the purpose of a collaborative article	Comparison is being done as the blades are reanalyzed. Discussions about what the article should include and where it will be submitted are underway.	25%
Determine the economic competitiveness of the weaved wind turbine blades	This portion is in the literature review phase. We hope to develop our method for determining price of weaving labor soon.	10%
Test miniature weaved wind turbine	The construction of the mini weaved wind turbine in nearly complete and testing will be underway soon	60%

RESEARCH OUTPUT:
Please provide detailed information below regarding any output resulting from your research project. Please check with your faculty advisor if you are unsure how to respond.

CATEGORY	INFORMATION
EXTERNAL PROPOSALS	
EXTERNAL AWARDS	
JOURNAL ARTICLES	
BOOKS AND CHAPTERS	
PUBLIC PRESENTATIONS, SEMINARS, LECTURES	
AWARDS, PRIZES, RECOGNITIONS	
INTERNAL COLLABORATIONS FOSTERED	Kalule Guwatudde, ESDD, fostered communication between the groups of weavers in Ugandan and those of us in the US, once or twice weekly for two months
EXTERNAL COLLABORATIONS FOSTERED	Emmanuel Etwalu, Makerere University, continued construction of weaved wind turbines as well as the development of hydroelectricity, intermitted over the course of the summer. Solar Sisters, started to discuss collaborating, intermittently over the past month. Women Weavers of Katende Masaka Road, began talks of starting an all women energy innovation team, a couple a times a month
WEBSITE(S) FEATURING RESEARCH PROJECT	https://sites.google.com/nd.edu/energy-sustainable-development/
OTHER PRODUCTS AND SERVICES (e.g., media reports, databases, software, models,	

curricula, instruments, education programs, outreach for ND Energy and other groups)	

RESEARCH EXPERIENCE:

Please let us know what you thought of your research experience: Did this experience meet your expectations? Was there something else that could have been done to improve your research experience? Were lab personnel helpful and responsive to your needs? What could have been done differently, if anything, to achieve additional research results?

This research experience has helped me to grow as a collaborator, leader, and student. Learning that our calculations would have to be redone took a toll on my spirits. Our research lab was quick to come to my aide, however, reassuring me that they would be there should I need any assistance. I now feel resolved in my determination to continue to empower the so-called "least developed" through our research efforts in the Energy and Sustainable Development with Design lab. In the future, I hope to finish the mechanical property analysis and comparison and to move on to the economic analysis portion of our research. I believe we should utilize the ATS machines located in Fitzpatrick Hall in Engineering for the further sample tests.

MAJOR GOALS AND ACCOMPLISHMENTS

(Additional Details, Technical Results, Charts and Graphics)