

International Conference on

# Green Energy & Expo

September 21-23, 2015 Orlando, USA

## Climate changes and sugarcane productivity in northeastern region of Brazil

**Andre Luiz de Carvalho**  
Federal University of Alagoas, Brazil

Climate changes have stimulated the increase in the use of renewable energy to replace fossil fuels because their lower impact on the climate. Biomass is one of the main renewable energy sources especially sugarcane that is used for production of ethanol and thermal energy. In northeastern Brazil, sugarcane is grown in the Atlantic Forest region (Zona da Mata) mainly between Alagoas and Paraiba states. This region presents great rainfall variability with high precipitation in coastal strip favoring sugarcane cultivation. However, some areas have high water deficit especially in the north portion of northeastern region. In these areas, sugarcane cultivation is limited and may become even drier in the future, according to the climate change projections generated by the main global circulation models. Thus, computational models like Century model simulating carbon cycle and nutrients dynamics in agricultural and forestry systems have been used to reproduce sugarcane behavior on several management and climate scenarios. These simulations aim to generate prior information of production to allow the adoption of adaptation strategies to avoid losses in the future. Climate scenarios projected by global climate models and regionalized for specific areas by the Eta/CPTEC model are used to simulate sugarcane potential productivity in future climate. Climate scenarios are based on greenhouse gas emission projections defined by the IPCC: A2 scenario (high emissions) and B2 (low emissions). The combined use of crop simulation models in agronomic systems with climate scenarios can become viable further analysis of the possible impacts of climate changes on potential sugarcane yield.

[del.andre2@hotmail.com](mailto:del.andre2@hotmail.com)

## Research analysis into an appropriate biogas technology for a farming community: Case study Uganda

**Eriisa Yiga Paddy**  
Edinburgh Napier University, UK

Biogas is a source of renewable, alternative and sustainable energy produced from the anaerobic digestion of organic material by bacteria. Uganda's energy matrix is dominated by biomass as a source of energy contributing about 95% of the total primary energy consumption. This is in form of firewood and charcoal, this has caused rapid depletion of forests in rural areas and an increase in price levels of charcoal and firewood in urban areas of Uganda. This project will give an overview of the biomass energy in Uganda, literature review on biogas technology, biogas technologies available in the world market, the success and limitations of this renewable technology in meeting the energy needs of Uganda, a Sub-Saharan African country whose main economic activity being predominantly agriculture. The research is necessary, as it will avail awareness to the government, agricultural farmers, readers and other stakeholders about the different biogas digester designs and the appropriate type that can be adopted in Uganda. The huge amount of waste produced by the agriculture industry in Uganda can be converted into biogas thus eliminating harmful micro-organisms. Furthermore, it will be possible to tap the variety of biogas technology benefits. The project will recommend the appropriate type of biogas digester that can be adopted by the rural farming community in Uganda whose economy is agricultural based. Different methods of attaining data amongst which include review of academic research journals, interviewing, reading of biogas books will be applied.

[yigapad@gmail.com](mailto:yigapad@gmail.com)