

SUSTAINABLE BIOFUEL PRODUCTION IN SOUTHERN AFRICA : OPPORTUNITIES AND CHALLENGES

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The potential of Africa to produce plant biomass is at least as large as any other continent and far exceeds the requirements for food and basic needs for the African population. This provides for an opportunity to use agriculture and forestry to produce, in addition to food, bioenergy (transport or cooking fuels or electricity) using clean and efficient biomass conversion technologies. Bioenergy production could serve the needs of rural and urban communities, foster development of the industrial sector, reduction of greenhouse gas emissions, agricultural infrastructure development and land restoration. Actions need to be taken to ensure that Africa benefits along the full value chain of bioenergy supply and utilisation. These include scalable demonstration projects using latest state of the art technologies and African raw materials for learning perspectives e.g. training to strengthen local manpower and human capital development.

The Senior Chair of Energy Research (CoER) : Biofuels at Stellenbosch University focuses on the technological interventions required to develop commercially-viable 2nd generation lignocellulose conversion technologies to biofuels in Southern Africa. The CoER: Biofuels research programme undertakes to develop both biochemical and thermo-chemical technologies for complete conversion of plant biomass to biofuels. These technologies will be discussed briefly and how we envisage establishing South Africa as a technology- and services-provider to biofuel producers in southern Africa.

Furthermore, integration of cellulosic ethanol production into existing bio-based industries also utilizing thermochemical processes to optimize energy balances will be discussed. Biofuels have played a pivotal yet sub-optimal role in supplementing Africa energy requirements in the past. Capitalizing on Sub-Saharan Africa's total biomass potential and utilizing second generation technologies merits a fresh look at the potential role of bioethanol production towards developing a sustainable Africa while addressing food security, human needs and local wealth creation.

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