Biogas: SustaInable alternative renewable energy of today and the future in Arica

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Abstract

In Africa organic biomass wastes represent an abundant underutilized bioresource, which has considerable potential as a source of renewable bioenergy, but currently constitute serious environmental pollution problems. The hugest fraction of the waste is biodegradable and amenable to anaerobic digestion. Successful exploration and adoption of biogas technology within the African continent context could bioconvert the vast organic wastes generated into biogas, an alternative energy source that is renewable, economically feasible and sustainable. Therefore, the aim of this study was to review the potential of biogas as a sustainable alternative renewable energy of today and the future in Africa. This article highlights on contemporary status of energy production and consumption patterns across the globe. It also elaborates Africa's energy picture both immediate and in the future which currently relies heavily on biomass. Moreover, the paper summarizes briefly biogas process and biogas technology as a mature technology and complete system in itself. This paper provides comprehensive extensive detailed information about the diverse organic biomass, which is abundant allover Africa and their potential biogas yield. In Africa, animal manure is not the only viable biogas digester feedstock, but there are other substrates also, which have been shown to have a better biogas potential than animal manure. Finally, strategies to ensure pilot to full-scale potential application of biogas technology are explained. Also the areas where particular research and more attention are required in the near future are identified. It was concluded from this study that waste to biogas conversion through anaerobic digestion is feasible in Africa, when approached innovatively and responsibly. This energy revolution could consequently result in a major economic impact in Africa continent.