

MAASAI MARA UNIVERSITY



THE POTENTIAL OF SOLID WASTE AS A SOURCE OF ENERGY: A CASE STUDY OF NAKURU TOWN, KENYA

BY

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ABSTRACT

Every year large quantities of MSW are generated in Nakuru Town. Waste generation in Nakuru is expected to increase rapidly in the future. As more people migrate to urban areas and as incomes increase, consumption levels are likely to rise, as are rates of waste generation. The high volatility in fuel prices in the recent and past the resulting turbulence in energy markets has compelled many countries to look for alternate sources of energy, for both economic and environmental reasons.

Some of the reasons why the MSW to energy route makes a lot of sense in Nakuru are due to the fact that there are huge volume reductions (80-90%) that can be achieved, the consumption of the waste can happen on a daily basis, all the processes are pathogen free, various technologies can be used for different types of MSW, these waste to energy technologies are capable to treat non-organic and organic matters such as wood, rubber, plastic, etc., and finally there is a ready market for energy which makes waste to energy from MSW commercially viable.

The County Government being the responsible authorities for MSW in addition to wide range of responsibilities related to health and sanitation has not been very effective as far as MSW services are concerned. Collection, transportation and disposal of all the three components of waste lack in terms of infrastructure, maintenance and up gradation.

Waste to Energy (WTE) is a proven, environmentally sound process that provides reliable electricity generation and is extensively used in Europe and other developed nations in Asia. MSW depending upon the moisture and energy content of waste material is a good fuel source. The thermal treatment of MSW results in the generation of 500 -600 Kwh of electricity per ton of MSW combusted. (ASME, 2010)