

ABSTRACT

ENERGY SYSTEMS AND DYNAMICS IN MAASAI MARA OF NAROK COUNTY

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Energy is a key input in the development process of any nation or county. Its availability, production and utilization is critical for a countries socio-economic growth. Petroleum and Electricity are currently the key drivers of the modern commercial sector in Kenya. Wood fuel provides energy needs of the traditional sector including rural communities and the majority of urban households. In addition, industry (e.g. food processing, agro-processing and cement) and institutions are also switching from petroleum based fuels or coal to using wood fuel for heating applications. Kenya's electricity generating capacity is made up of Hydro 48%, Thermal (fossil fuel) 38%, Geothermal 12%, Cogeneration (bagasse) 2% and Wind 0.3%. Hydro generation dominates the electricity supply mix but is highly vulnerable to weather conditions and climate change. Geothermal energy resources in Kenya are mainly located within the Rift Valley some of which fall within Narok County with an estimated potential of up to 10,000 MW. This resource is not affected by climatic variability and has high availability (capacity factor) at over 95 %. Kenya is similarly endowed with significant. The Narok County is a major source of biomass energy in the form of fuelwood, and charcoal which combined are leading to massive deforestation and devegetation, and ultimate contribution to anthropogenic climate change in the next few decades unless stopped by the Government. A comprehensive assessment, mapping and appraisal of all the renewable energy resources in the country have not been done to determine their technical and economic viability. This paper will review the available energy resources mentioned above, their technologies, challenges they present, and opportunities with special focus to the Maasai Mara portions of Narok County. Research on various sources of energy will be paramount to enable Narok County to contribute to environmentally safe energy production without creating new problems for the county, and for Kenya as a whole. Changes in the energy sector are already required to stop land degradation in the next 20 years, and experiences from the Maasai Mara will be crucial for finding alternative technologies to save the environment from total destruction.