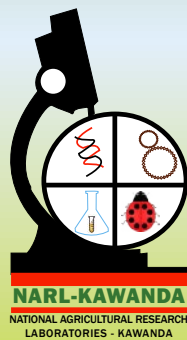




THE REPUBLIC OF UGANDA

The Potential of Bio-fuel in Uganda

An Assesment of Land Resources for Bio-fuel Feedstock Suitability



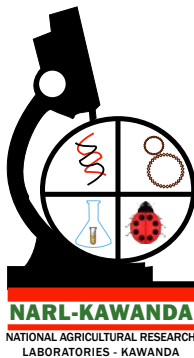


THE REPUBLIC OF UGANDA

The Potential of Bio-fuel in Uganda

An Assessment of Land Resources for Bio-fuel Feedstock Suitability

January 2010



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Cover page photographs: Jatropha in Uganda; Maize at Kawanda, Uganda; Cane at Kakira Sugar Works, Jinja Uganda; and a 4-year old palm tree at Bwendero, Kalangala Uganda.

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Foreword

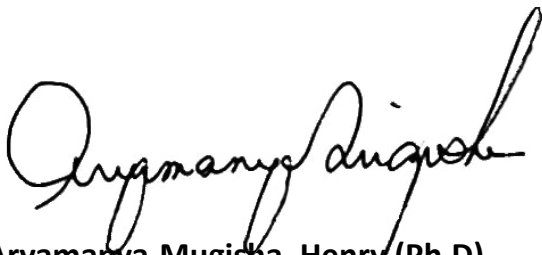
Bio-fuel production is rooting in Uganda amidst problems of malnutrition and looming food insecurity, and environmental degradation. Meanwhile, controversy surrounds the sustainability of bio-fuels as source of bio-fuel in Uganda with proponents and opponents having convincing reasons. There is concern that bio-fuel feedstock production is likely to aggravate food insecurity and environmental degradation. It is also apparent that bio-fuels can provide clean transportation fuel while contributing to rural poverty alleviation.

Given the above circumstances, adequate studies are required to determine the amount of feedstock or energy the agricultural and forestry sector can sustainably provide, the adequacy of land resources of Uganda to produce the quantity of biomass needed to meet demands for food, feed, fiber and also to provide energy.

This study was conducted under the framework of the **National Environment Information Network** with a major objective of assessing the suitability of land resources for bio-fuel production and identifying relevant policy options that seek to integrate bio-fuel feedstock production into the land use planning process.

Focusing on Jatropha, Sugarcane, Oil palm and Maize as bio-fuel feedstocks this report presents the suitability of land resources for bio-fuel feedstock and implications for food availability, rural poverty alleviation and environmental degradation. Areas of research focus and policy review options are highlighted.

I hope that the stakeholders spearheading the sustainable promotion of bio-fuel production in Uganda, those opposed to the introduction of bio-fuels, and policy makers will find this report resourceful during all decision making processes.



Aryamanya-Mugisha, Henry (Ph.D)

EXECUTIVE DIRECTOR

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

Summary

Bio-fuel production is rooting in Uganda amidst problems of malnutrition and looming food insecurity (Uganda government, 2002b; Bahiigwa, 1999). Worldwide, there is concern that food should not be used for energy since competition for resources between bio-fuel feedstocks and food crop production is inevitable. Controversy surrounds the sustainability of bio-fuels as source of bio-fuel in Uganda with proponents and opponents having convincing reasons.

Given the above circumstances, adequate studies are required to determine the amount of feedstock or energy the agricultural and forestry sector can sustainably provide, the adequacy of land resources of Uganda to produce the quantity of biomass needed to meet demands for food, feed, and fiber and to provide energy.

This study was conducted under the framework of the **National Environment Information Network** with a major objective of assessing the land resources suitable for production of bio-fuels and identifying relevant policy options that seek to integrate bio-fuel feedstock production into the land use planning process.

Assemblage of spatial data consisting of atmospheric temperature, digital elevation model, mean annual rainfall, soil productivity, gazetted areas and wetlands resulted into land resource suitability maps for the production of various bio-fuel feedstocks. Potential land-use conflict visualization was conducted to determine how much land is available for the production of bio-fuel feedstocks. Integration of commodity prices gives insight on the potential contribution of bio-fuels to household poverty alleviation and overall rural development.

The agro-ecological settings favor the growing of *Jatropha Curcas*, sugarcane and oil palm which are important bio-fuel feedstocks. Most of the arable land area can be grown with *Jatropha Curcas*, followed by sugarcane and then oil palm. Producing feedstocks from varied geographical regions allows a combination of feedstocks to be allocated to respective ecological niches thereby enabling exploitation of environments that uniquely support a given feedstock. This supports the hypothesis that a combination of

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