# Impacts of Biofuel Policies on Welfare and Food Security: Assessing the Socioeconomic and Environmental Trade-offs in Sub-Saharan Africa

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**Abstract-** The global interest in biofuels production is agued to have substantial impacts on food security. A slew of studies have identified a nexus between biofuel production intensification and food price hikes in the international market. Regardless of the results of these studies, global biofuels production keeps increasing and it is projected to escalate even further within the next decade. A major concern is that some sub-Saharan African countries with food security worries have policies to enhance the production and use of first generation biofuels. In view of that, this paper examines the potential consequences of diverting food and agricultural lands for biofuels production with a focus on sub-Saharan Africa. It reviews the current and projected trends in the production of biofuels and trade of feedstocks, analyses the potential of “food gap”, land use change and associated carbon emissions and the effects on biodiversity and water resources within the region. In conclusion, the study accentuates the doubt on the potential of first generation biofuels as a realistic source of energy particularly in sub-Saharan Africa as it could have substantial effects on the regions’ food security as well as on its natural resource. It also suggests ways to enhance the sustainability of the region’s biofuel policies to maximize welfare gains and enhance food security.

**Keywords** Biofuels, food security, land use change, policies, sub-Saharan Africa.

## 1. Introduction

The imminent energy crisis due to the upsurging demand for fossil energy [1] and the impacts of climate change associated with the ever increasing exhaust emissions from the combustion of fossil fuels [2,3] have inspired the desire for alternative fuel sources. The main driving factors towards the desire of biofuels are the increasing concerns about the potential of global climate change, declining water and air quality and health concerns due to pollution not forgetting the rampant depletion of fossil fuel resources and employment opportunities in the agricultural sector [4–8]. Although biofuels are rapidly gaining attention [5,9], their use as alternative fuel source can only be determined by their technical feasibility, economic competitiveness, environmental acceptability and they being readily available [10].

The global production of biofuels is comparatively low [11], yet production has increased recently [12] and it is anticipated to proliferate in the coming years with an average annual output growth of about 3.5%, from 110 billion liters in 2012 to 135 billion liters in 2018 [13]. This is ensuing from the aspirations of many nations to replace a portion of their fossil fuel use with biofuels [14]. The EU for instance intent to obtain 10% of all its transport energy from biofuels by the year 2020 [13,15]. Similarly, the United States seek to reduce its dependence on fossil fuels by increasing the supply of biofuels annually to a minimum of 36 billion gallon by 2022 [16]. As of late 2014, about 64 countries had policies to promote the production or consumption of biofuels for transport [13,17,18].

While these major policies are from developed countries, some sub-Saharan African countries with food security concerns also have biofuel mandates and blending policies. To add to that, the potential demand for biofuels and allied export opportunities for sub-Saharan African countries are vastly controlled by these objectives that developed countries pursue. This assertion is based on the fact that sub-Saharan Africa has a large biomass production potential attributable to favorable climatic conditions, relatively low labor costs and availability of cheap agro-ecologically land suitable for the cultivation of biofuel feedstocks [19–21]. With this hypothesis, international trade in biofuels and/or feedstocks from sub-Saharan Africa and other developing countries to developed countries is anticipated to escalate [22]. Furthermore, with global energy demand projected to grow by 37% by 2040 [23], biofuels production will be vital in meeting this projected energy demand.

The correlation between biofuel production intensification and food security has been a long-lasting contentious subject matter in literature with a slew of researchers expressing varying opinions. Koh and Ghazoul [24] enunciated how elevated food and feed prices associated with increased biofuel production would spur the agricultural sector to increase production and thus translating into increased rates and wages for rural farmers in developing countries, nonetheless admitting that landless poor consumers may ultimately suffer. Escobar *et al*. [19] also express that as oil prices escalates, biofuels from agricultural products may become more profitable leading to increased raw material prices beyond the scope of food industries. In a different study, Ajanovic [4] also indicated that biofuels production will perceptibly consequent to feedstock price hikes mainly due to increases in demands and corresponding higher marginal costs but indicated that the capriciousness of feedstocks prices within 2000 to 2009 principally resulted from other impact parameters such as oil price and speculation and not necessarily continuously increasing biofuels production. Shaik and Kumar [25] however enunciated how castor program for biofuel production improved food security in Ethiopia and consequently suggested that such programs can contribute to alleviate seasonal food availability for rural farmers where liquidity restraints are detrimental to food security.

Apropos this dilemma on food security vis-à-vis biofuels production, the aim of this paper is to explore the potential risks in welfare and food security in sub-Saharan Africa as biofuels production increases. A review of the current and projected trends in production of biofuels and trade of feedstock, analysis on the potential of "food gap", land use change and associated carbon emissions, the effect on biodiversity and water resources are discussed.

## 2. Global Trends in Production and Trade of Biofuels

### *2.1 Recent trends*

The growth of biofuels has been asymmetrical in recent years, but their production and use keeps increasing. Biofuel production rose by 7.7 billion liters reaching about 116.5 billion liters in 2013 as shown in Fig. 1, providing about 3.5% of the world's transport fuel demand [13]. Annual ethanol production escalated from 28.5 billion liters in 2004 to 87.2 billion liters at the end of 2013 (forming 75% of the total biofuel production). In a much similar fashion, annual biodiesel production also increased to 26.3 billion liters at the end of 2013 resulting in 11% increment from the previous year and contributing 22.6% of the total biofuel production in 2013. Hydrogenated Vegetable Oils (HVO) also rose by 16% to 3 million liters at the end of 2013 forming 2.4% of the total biofuels produced [18].

United States and Brazil currently dominate in ethanol production accounting for 87% of the global total in 2013. U.S. produced around 50 billion liters of ethanol in 2013 quite reminiscent of the 2012 production and practically, all of this was produced from maize feedstock. The EU remained the largest regional producer of biodiesel and produced about 10.5 billion liters of fatty acid methyl ester (FAME) production in 2013. In addition to that, the EU also produced 1.8 billion liters of HVO. Howbeit, its portion of the global total of about 42%, has remained practically constant in recent years [18].

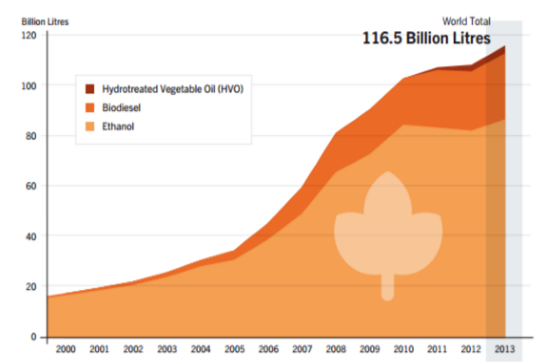


**Fig. 1**. Ethanol, Biodiesel, and HVO global production, 2000 – 2013 (Source: REN21 [18]).

### *2.2 Projected trends in biofuel production*

According to United States Department of Agriculture (USDA) [26] global biofuel production is expected to continue expanding during the next decade. Similarly, the Organization for Economic Co-operation and Development (OECD) and the Food and Agriculture Organization (FAO) [27], indicates that global biofuels production will reach 158 billion liters by 2023, see Fig. 2. United States, Brazil and the European Union are expected to remain as the top three major producers and consumers of ethanol. About 35% of United States maize production is projected to go into ethanol production within the next decade [26]. For the United States and the European Union, production and use are essentially compelled by the policies Renewable Fuel Standard (RFS) [28] and the Fuel Quality Directive (FQD) [15] respectively whereas for Brazil, the growing use of ethanol is concomitant to the development of the flex-fuel industry, the import demand of the United States in addition to meeting its own mandate of increasing blending to 25% [27]. In developing countries, ethanol production is projected to escalate to 71 billion liters in 2023. Brazil is expected to produce a vast majority of this supply increment. China's growth in ethanol production should come from cassava and sorghum since maize ethanol production is no longer permitted to increase [29]. Global biodiesel production is also projected to reach 40 billion liters in 2023 [29]. The EU is expected to be the major producer and user of biodiesel. Countries like the United States, Brazil and Argentina as well as Thailand and Indonesia are expected to be noteworthy. Consumption in almost all countries will be dictated by the on-going policies.

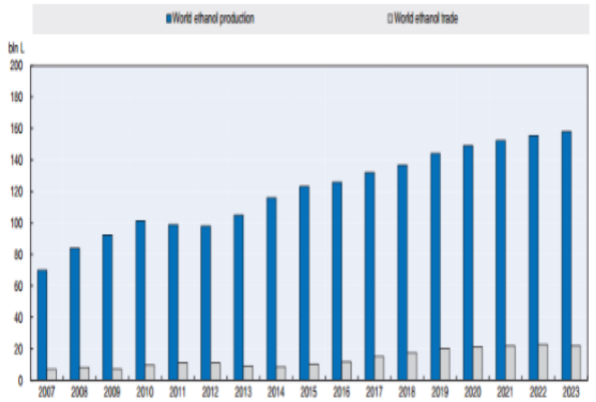


**Fig. 2.** Development of the world ethanol market (Source: OECD/FAO [26]).

### 2.3 *Market prices of feedstock*

Increasing biofuel production is raising a lot of concern in the global commodity market [30–33] since the principal feedstocks used for biofuel production directly or indirectly vies with food and feed production. According to USDA [26] global demand and trade in agricultural products will continue rising from 2014-2023. In a study to determine the percentage increase in the market prices of feedstock, Dimaranan and Laborde [34] modelled the international market price of feedstocks under three different scenarios. The results of the study indicates that marginal price increments can be anticipated for all feedstock globally in 2020. Also in a meta-analysis, Condon *et al*. [13] normalized the results of 29 divergent studies on the impact of RFS mandate on maize prices and after taking the weighted average of the studies across all scenarios, it was observed that every billion gallon upsurge in maize ethanol increases maize prices by 2.9% and every 10% growth in maize ethanol production augments maize prices by an average of 2.4%. Based on these studies, market prices of biofuel feedstocks is expected to increase within the next decade.

## 3. Impacts on Sub-Saharan Africa

Sub-Saharan Africa is at the foreground in the world's interest in agriculture and land investments for food and energy crops production and yet, it is the region which can hypothetically experience most, the associated risks and benefits in view of its concurrent challenges with energy, extensive poverty, climate change vulnerability, and food insecurity. The region has over 800 million people and about 233 million of these are currently undernourished [35]. The region also has the lowest crop yield in the globe with cereal yield of 1.5 ton/ha [36]. Estimates show that besides high staple food imports, sub-Saharan Africa will require about 360% boost in its 2006 food production to feed its populace by 2050 [36].

Although some studies have highlighted some potential consequences of biofuels expansion in some individual sub-Saharan African countries [37–41] the impacts on the region as a whole has not been fully assessed. Meanwhile, several sub-Saharan African countries have created policies to encourage large-scale land use for biofuel production even though only a few countries have yet completed the process [42,43]. Fig. 3 displays the status of the biofuel policies in the region with notable mandates highlighted in Table 1.

A critical understanding of the potential socioeconomic and environmental tradeoffs associated with large scale biofuel production is therefore required in assessing the sustainability of biofuel policies and ensuring the welfare of the people. The potential impacts of biofuel policies on sub-Saharan Africa are therefore discussed in section 3.1 – 3.4.

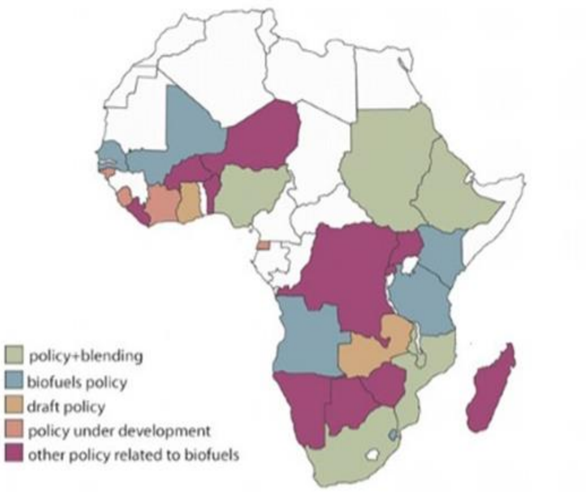


**Fig. 3**. Status of national biofuels policies in sub-Saharan Africa (Source: PANGEA [44]).

### 3.1 *Assessing the potential of food deficit*

To assess the influence of the ongoing biofuel policies on food security in sub-Saharan Africa, two cases were considered. First, the impacts of biofuel mandates in developed countries particularly the RFS of the US was scrutinized followed by the second case which looked at impact of mandates in sub-Saharan African countries. The depth of food deficit (an indication of the amount calories required to raise the undernourished from their state) and the cereal import dependency ratio (an expression of the importance of import as part of food availability) were the indicators used. Sub-Saharan Africa depends on imports of one-quarter of its cereals and two-thirds of its vegetable oil consumption [36]. In 2011, the region produced 127 million tons of cereals and imported about 32.6 million tons (20% of its consumption) [45]. For maize, the most dominant bioenergy crop in the US, about 1.8 million ton was imported in 2011 [45] and 2.4 million tons between February 2014 to February 2015 [46]. As depicted in Fig. 4, even though the depth of food deficit has reduced considerably from 1995 until 2012-2014 where it remained fairly constant, sub-Saharan Africa's cereal import dependency ratio keeps increasing. With 35% of the United States maize projected to go to ethanol production in the next decade [26], the market price of maize is will  increase by 8.4% in the next decade considering the scenario indicated by Condon *et al*. [12] that every 10% expansion in maize ethanol consequent to 2.4% increase in maize prices. This estimated increase in maize price in the next decade though relative small will affect the poor in sub-Saharan Africa. A study by Wodon and Zaman [47] revealed that 50% increase in commodity prices results in increase in poverty rate in sub-Saharan Africa by 30 million persons. Thus, 8.4% increase in maize prices will accrue to about 5 million person falling into poverty in the region. The overall effect on food security is that, the depth of food deficit in sub-Saharan Africa will rise in the next decade unless cereal production is increased in the region to meet its own needs.

**Table 1**. Biofuel policies and blending mandates in selected sub-Saharan African countries.

| Country | Biofuel Policies | Main Feedstock used |
|---|---|---|
| Angola | E10 ethanol blending mandate | Sugarcane |
| Ethiopia | E5 ethanol blending mandate | Sugarcane |
| Kenya | E10 ethanol blending mandate *(in K*isumu city) | Sugarcane |
| Malawi | E10 ethanol blending mandate | Sugarcane |
| Mozambique | E10 ethanol blending mandate | Sugarcane |
| Nigeria | E10 ethanol target but no mandate in place yet | Cassava |
| South Africa | E2 ethanol and B5 biodiesel blending mandate schedule for October 2015 | Sugarcane, sugar beets, sunflower, soya bean, canola |
| Sudan | E5 ethanol blending mandate | Sugarcane |
| Zambia | E10 ethanol blending but no mandate in place yet | Sugarcane, sorghum |
| Zimbabwe | E10 ethanol blending mandate | Sugarcane |

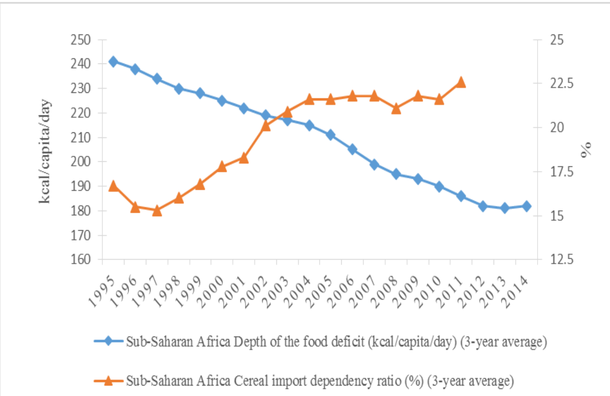


**Fig. 4**. Cereal import dependency ratio and depth of food deficit in sub-Saharan Africa (Source: [46]).

To add to that, biofuel mandates in developed countries can boost export of feedstocks from sub-Saharan Africa. As demonstrated by Rosegrant *et al*. [48], sub-Saharan African countries could double export levels of maize and cassava in the year 2020 whiles importing less wheat, soybean, and oilseeds. According to the authors, the overall impact of this on food security is that calorie availability will decline by more than 8% and almost 1.5 million to 3.3 million preschool children will be malnourished depending on the extent of biofuel expansion.

The second case considers the impact of biofuels production within sub-Saharan Africa. The potential impact of biofuel mandates and blending policies within sub-Saharan Africa on food security will principally result from the loss of agricultural lands of rural communities. Documented cases in some countries highlight instances of poorly executed biofuel projects which led to the displacement of local farmers from their farmlands. A typical case occurred in the Northern region of Ghana, where farmers were displaced from their farms because a multinational firm acquired their lands for plantation of *Jatropha curcus* [49]. Another example is the Sun Biofuels Project at Kisarawe in Tanzania where over 8211 hectares of farmland was diverted for plantation of *Jatropha curcus* [39]. Such situations will result in a decline of food production. Considering a scenario where 10,000 hectare of farmlands for cereal cultivation are diverted for biofuels production, cereal production in the region will reduce by 0.012% using 2011 production as baseline and an average cereal yield of 1.5 ton/ha. This decline in production will cause calorie availability to reduce by about 5.2 x $10^7$ kcal. Based on the average daily per capita calorie intake of 2098 kcal/capita/day estimated by van Wesenbeeck *et al*. [50], about 25,000 sub-Saharan Africans will go hungry and this will be to the detriment of rural communities mostly. Sub-Saharan Africa recorded a number of large land deals for biofuels within the past decade. Table 2 shows estimates of the potential calories traded-off in those deals and the number of people who will require those calories.

**Table 2**. Large biofuel land deals in selected sub-Saharan African countries and the potential calories traded-off in those deals.

| Country | Land Size (hax$10^6$)[a] | Potential cereals yield (tons x $10^6$) | Calories traded-off (kcal x $10^{10}$) | People requiring estimated calories in a day x $10^6$ | People requiring estimated calories in a year x $10^3$ |
|---|---|---|---|---|---|
| Madagascar | 1.30 | 1.95 | 0.67 | 3.200 | 8.750 |
| Sudan | 3.00 | 45.00 | 15.48 | 73.800 | 202.150 |
| Zambia | 2.02 | 3.02 | 1.04 | 5.000 | 13.581 |
| Tanzania | 0.09 | 0.14 | 0.05 | 0.024 | 0.653 |

Source: [a] obtained from Chinweze [51].

*3.2 Land use change and carbon emissions*

Pragmatically, first-generation biofuels technologies can barely supersede a diminutive proportion of global fossil fuel use due to the interdependence between biofuels and food on land [52]. However, the situation for many sub-Saharan African countries seem very different. Even first-generation biofuels have the potential to meet full fuel self-sufficiency from very limited land areas [53]. Estimates of land required to meet biofuel mandates in some sub-Saharan African countries are indicated in Table 3. Land availability however varies across the region and most of these lands are forested. The total land size of sub-Saharan Africa is about 2153 million ha [45]. Estimate of potential availability of uncultivated land roughly amounts to 202 million ha [54]. With this potential in land availability, foreign and local investors have acquired huge tracts of land in the region for agricultural and biofuel production.

Estimates indicates that more than 31 million ha of land in the region were sold between 2000 and 2011 [33] and 40% of such lands were acquired for biofuel production [20]. In addition to that, foreign investors have expressed interest in about 29 million ha more [55]. Whiles these investments can potentially increase income, reduce unemployment and enhance the regions competitiveness in international trade, land access and livelihood of locals can be threatened. Moreover, the environmental impacts in terms of emissions from both direct and indirect land use change is raising a lot of skepticism in the region as GHG emissions from Africa's agriculture and associated land use change grows annually at a rate of 2% and contribute about 15% of the global agricultural GHG emissions [35].

*3.3 Effects on biodiversity*

Increased biofuel production in sub-Saharan Africa can impair on the region's rich and abundant biological diversity. There are over 1100 national parks and reserves in the region of which 36 are denoted as World Heritage Sites [56]. Moreover, there are five internationally accepted areas of endemism in the region namely the Guinea Forest in Western Africa, the Eastern Arc Mountain Forests of Eastern Africa, the Western Indian Ocean islands (Madagascar), the Cape Floristic Kingdom in Southern Africa and the Succulent Karoo also in Southern Africa [56]. Africa's total forest area is estimated at 675 million ha (about 23% of land area) [55]. Forests in DR Congo, Mozambique, Angola, Zambia and Sudan make up about half of this forested area. Aside forests, wooded landscape comprises about 13% of the total land size. Deforestation remains a serious concern in sub-Saharan Africa due to the increasing clearing of wooded lands for agriculture emanating from many factors of which rapid population growth is principal. Average forest loss in Africa from 2000 – 2010 is estimated at about 3 million ha/y [57].

With increased biofuel production, forest degradation will escalate even further unless policies restricting the diversion of forest lands for bioenergy crops are put in place. Evidence elsewhere indicates that between 1990 and 2005, oil palm expansion for biofuel production in Malaysia and Indonesia resulted in over 50% loss in forests and biodiversity in both countries [58].

**Table 3**. Estimates on land needed to meet biofuel targets of selected sub-Saharan African countries.

| | **Botswana** | **Namibia** | **Tanzania** | **S. Africa** | **Mozambique** | **Zambia** |
|---|---|---|---|---|---|---|
| **Percentage of total land needed to meet transport fuel needs** | 0.9 | 0.9 | 1.2 | 14.6 | 0.8 | 0.8 |
| **Land needed to meet biofuel targets in ha** | 26078 | 38917 | 53855 | 307375 | 30631 | 56286 |
| **Estimates of jobs created to meet biofuel targets** | 12251 | 18608 | 26399 | 142919 | 15036 | 27046 |
| **Estimates of jobs created to meet biofuel targets** | 245028 | 372160 | 527980 | n/a | 300712 | 270458 |

Source: von Maltitz *et al*. [53].

### *3.4 Competition on water resources*

Water is a basic necessity of life. Freshwater is finite but contributes critically to agriculture and other socioeconomic activities hence should be used in a sustainable manner. As highlighted by some studies, energy crops cultivation for biofuels could have considerable impacts on water demand particularly if those crops are cultivated under irrigation schemes. For instance, Pate *et al*. [30] showed that irrigation driven biomass cultivation for biofuels can effectively consequent to the consumption of about 3785 liters of water per liter of biofuel produced. Furthermore, de Fraiture *et al*. [59] also indicated that successful implementation of all national biofuel policies, will require about 180 km$^3$ of supplementary irrigation water withdrawals. In another study, de Fraiture & Berndes [60] estimated that annually, first generation biofuels accounts for an extra 30.6 km$^3$ of irrigation water. While this additional irrigation water requirement may seem relatively small on the global scale, some individual nations can undergo serious water stress which could have significant impacts on food availability.

In 2014, the total renewable water resources per capita in sub-Saharan Africa averaged at 13307 m$^3$/y, however this varied extensively from 344 m$^3$/capita/y in Djibouti to 187050 m$^3$/capita/y in Congo, see Fig. 5. Eleven sub-Saharan African countries are currently water stressed (less than 1700 m$^3$/capita/y) and six more are undergoing water scarcity (less than 1000 m$^3$/capita/y). The Agricultural sector uses the largest portion of water resources accounting for 81% of the total water withdrawal. The municipal and industrial sectors accounts for 15% and 4% respectively [61]. Due to the increasing demand from all sectors, it is projected that thirteen sub-Saharan African countries will undergo water stress and ten more will experience water scarcity by 2025 [56].

Beside feedstock agriculture, bio-refineries also consume reasonable amount of water. Particularly, dry ethanol mill plants have consumptive water demand of about 15 liters of water per liter of bioethanol produced [30,63] contrary to petroleum refinery water use of about 6 liters per liter of petrol [30]. In effect, a liter of maize ethanol produced in sub-Saharan Africa will consume about 1129 liters of water on the average.

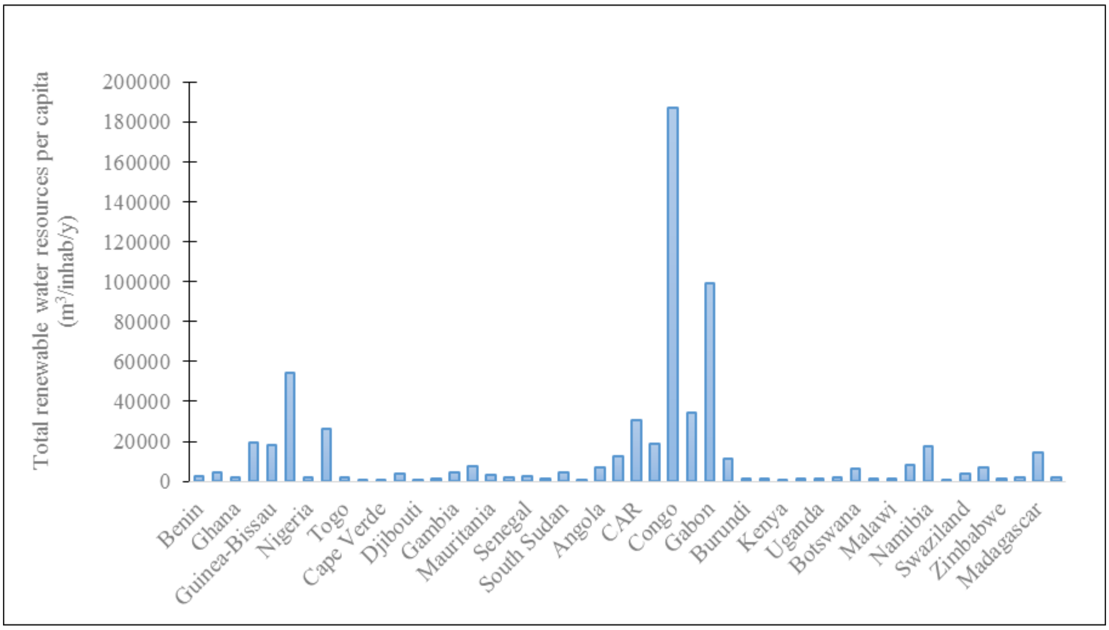


**Fig. 5**. Total renewable water resources per capita shares in sub-Saharan Africa (Source [59]).

**Table 4.** Biofuel feedstocks in sub-Saharan Africa and their total irrigation requirements per hectare per year

| Bioenergy Crop | Irrigation requirement (mm/growth period)[a] | Irrigation requirement ($m^3$/ha/ growth period) | Growth period of crop (y)[b] | Irrigation requirement ($m^3$/ha/y) | Biofuel yield (litre/ha)[c] |
|---|---|---|---|---|---|
| *Cassava* | 100 | 1000 | 2 | 500.0 | 480-1280 |
| *Maize* | 233 | 2330 | < 1 | 2330.0 | 366-3760 |
| *Sugarcane* | 910 | 9100 | 1.3 | 11830.0 | 780-8400 |
| *Jatropha curcus* | 959 | 9590 | 40 | 239.8 | 700-2800 |
| *Sweet sorghum* | 248 | 2480 | < 1 | 2480.0 | 2400 |

Source: [a] Data from Gerbens-Leenes *et al*. [61]; [b] Data from various sources; [c] Data from von Maltitz *et al*. [52].

## 4. Discussion

This paper has attempted to show how biofuel policies in developed countries can affects sub-Saharan Africa and also highlights on the impacts on mandates within the region itself. Although the promotion of biofuels in the region seem politically attractive due to its potential to attract investments, increase farmers' income, reduce unemployment, enhance the regions trade in the international market and ensure energy security, biofuels are not without tradeoffs. It is evident that the current biofuel policies and blending mandates in the region have influenced a number of socioeconomic and environmental factors. With regard to food security, although the impacts at present is limited, these policies will worsen the situation in the near future since some of them dwell on feedstocks which compete with food production as shown in Table 1. Even though some emerging projects in the region use non-food plants such as *Jathropha curcus*, most of these projects are diverting farmlands that were traditionally used for food production [38, 49]. For a region depending on imports of about 25% cereal, 67% vegetable oil, having the lowest cereal yield in the globe [36] and almost 30% of its current population undernourished [35], such a practise is very unethical. In terms of land use change and carbon emission, deforestation will increase beyond the current rate. This will mainly result from indirect land use change. As rural farmers are displaced from their farms due to biofuel projects, they will end up destroying the forest in search of farmlands which will affect carbon sequestration and also biodiversity. Considering the effect on water resource, bioenergy crop cultivation will have substantial impact on the region most especially nations with low per capita water resources. As articulated by Rajagopal *et al*. [64], biofuel is a land and water demanding technology. Irrespective of these potential impact on welfare and food security, properly managed biofuel programs can enhance food security in sub-Saharan Africa. Studies indicate how policy makers in Ethiopia allocated land with low agricultural potential to biofuel crops and how it subsequently enhanced food security among adopters of those programs [25,65]. To add to that, as indicated in Table 1, the feedstock mainly used in the region for biofuel production is sugarcane. Sugar is not a staple crop but a cash crop. It will therefore not compete directly with food production but will generate more income for farmers. It must be acknowledged that malnutrition occurs when there is lack of access to food rather a global shortage [60]. Policies must however ensure that lands for food production and forests are not diverted for sugar plantation. Also it must be noted that sugarcane requires about 11,830 $m^3$ of irrigation water per hectare per year as indicated in Table 4. It may therefore not be an appropriate feedstock for the water stressed countries. Moreover, the region has the potential to generate biofuels from second generation feedstocks. A study conducted by Nuwamanya *et al*. [66] highlights on the feasibility of using non-food parts of cassava for ethanol extraction in Uganda. Aside from that, the use of macroalgae as a potential biofuel feedstock has also been demonstrated by some studies [67, 68].

In relation to impact on water, some bioenergy crop require very little amount of water. As indicated in Table 4, *Jathropha curcus* requires very little amount of irrigation water per year. Considering rainfall intensity in many countries in the regions, *Jathropha* cultivation may not require any addition irrigation hence will have little impact on water resources. In effect, the sustainability of biofuels in sub-Saharan Africa will depend on the choice of land, choice of feedstock and a clear understanding of the potential consequences associated with improperly executed biofuel program.

## 5. Conclusions

This paper aimed at an extensive assessment of the potential impacts of biofuel policies on sub-Saharan Africa. It highlights on the potential consequences of the current biofuel mandates and blending policies within sub-Saharan Africa. Despite these consequences, biofuel mandates and blending policies can be created in a manner that will maximise welfare gains and improve food security. Suggestions are therefore made on how these policies could be made more sustainable by choosing the right land and feedstock which will lead to enhanced food and energy security within the region. It is also recommended that further studies should be carried out on the economic feasibility of second generation biofuels productions in sub-Saharan Africa.

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