Rapid Assessment of Biofuels Development Status in Ethiopia
And
Proceedings of the National Workshop on Environmental Impact Assessment and Biofuels

MELCA Mahiber

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Preface

Why is MELCA worried about agro-fuels, commonly called biofuels? One of the cornerstones of MELCA's work is a growing concept called biocultural diversity. Biocultural diversity denotes the link between biodiversity and cultural diversity. It recognises the role-played by human diversity in biodiversity conservation because biodiversity represents a source of raw material on which the process of evolution depends. The clearing of large tract of land, mainly forest and range lands, to the planting of monoculture (only one type) plants results in the erosion of the culture of local communities and the destruction of biodiversity. People will loose the basis of their livelihood and practices, the foundation to their cultural belief systems and their world views, their language and their knowledge and their institution which they to govern their relationship with their environment.

The environmental discourse in Ethiopia puts local communities at the centre of all destructions on the environment. It does not put policy or political decision as one of the problems. Well we are witnessing now that tens of thousands of hectares of land is being grabbed from local communities for an initiative, which has not proved itself yet. Why the rush when we do not know which areas to allocate for what purpose as we did not do a proper land or natural resources inventory; when the Environmental Impact Assessment process and mechanism of Ethiopia is very weak; when our knowledge about the plants that we want to use as a source of biofuels is not clear; when our knowledge of the companies that come to our country is not thorough and when over 75% of the land that we are going to allocate is either suitable for agriculture or is forest.

It is true that we need to be energy secure. It is also true that we need to vitalize our rural economy. We need also to find a solution for rehabilitating our degraded areas. It is understandable that we jump at every opportunity that addresses the energy, the livelihood, the climate, the environmental degradation, and etc., situation of the country. Agro-fuels/ biofuels promised to be the silver bullet to solve

our energy problems. But research and experience from other countries do not mach our enthusiasm. The indication is that we should be extremely careful. That is why some suggest that we should stop any investment on agrofuels for some time by which time we: will have a robust EIA process in place, will do a thorough inventory of our land and other natural resources, will have a well thought industry regulation systems, will test the plants that we may need to plant and above all have an open and transparent discussion with our local communities as we should do according to our constitution. I personally think that this should be the case. Or else we might witness an environmental, societal, cultural and economic demise that we never have witnessed before.

Happy reading

Million Belay,
Director, MELCA

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Part One

Rapid Assessment of Biofuels Development Status in Ethiopia

By Hilawe Lakew and Yohannes Shiferaw

Executive Summary

This rapid assessment of biofuels development status in Ethiopia was commissioned by MELCA Mahiber, a non-governmental organization which advocates for sustainable development through the protection of environmental and social assets.

Due to limitation of time, this study focused only on five regions in the country namely – Benshangul Gumuz, Amhara, Oromia, Gambela, and Southern Nations and Nationalities and Peoples Regions. Information about biofuels development in the regions was obtained by engaging informants in each region. The information gathered was mainly qualitative collected through field observations, interviews and document reviews.

The energy system in the country is characterized by the predominance of biomass fuels which account nearly 94% of the total national energy consumption. The demand for modern energy sources such as petroleum fuels is increasing with increase in population and economic growth. Even though the share of petroleum fuels is about 7% of the total consumption, the increasing demand for it and the associated price hike have hit the national economy very hard. As a net importer of petroleum, Ethiopia is highly vulnerable to price shocks and supply problems of oil in the world market. It is therefore the Government's priority agenda for alternative fuels to partially substitute imported petroleum. This is the basis for the Government to include large scale commercial production of biofuels as part of the range of other development programs proposed to ensure supply of modern energy services.

However, environmental and social consequences of such large scale production of biofuels have not been fully understood and its sustainability has also been highly debated by civil societies. Practices of other countries that have relatively longer experiences in biofuels development also indicate the difficulty of achieving a genuinely sustainable development of biofuels in the scale required.

The Ethiopian Biofuels Development and Utilization Strategy has tried to provide guidelines for implementation of projects to ensure the achievements of the objectives stated, while at the same time avoiding unintended consequences. The Strategy has addressed some of the concerns that are important elements to ensure social and environmental sustainability. However, there are still some important elements that the strategy failed to mention. At some points it lacks clarifications which open loop-holes that could potentially lead to unintended consequences.

One of the major worries is that the strategy encourages large scale production of biofuels at this early stage without even having a proper land inventory which identifies the land available for various purposes. Development in such large scales, if proper mechanisms are not put in place, could likely leave permanent damages to the environment. Encouraging biofuels only because they are assumed to be of higher value adding could result in a serious competition of resources for growing food and energy. The strategy should also clearly prohibit production of biofuels from food crops and restrict importation and promotion of energy crops without getting proper permits from the relevant organization in the country.

It has been a couple of years now since the first company started growing energy crops for biodiesel production in Ethiopia. Several local and international private and non-private biofuel developers have registered in the country since then. Most of these companies have the intention of going for large-scale commercial development. Currently there are over 50 developers registered for the cultivation of energy crops for biodiesel production of which 14 of them have started operations. For bio-ethanol, however, there are only six projects in the country of which four of them are government owned sugar estates.

So far, over 300,000 ha of land have already been allocated for investors. Over 80% of these developments are happening in arable lands, forest lands and woodlands. This assessment shows that it is only Amhara Development organization that is strictly cultivating

energy crops on degraded lands. Many of these companies are still requesting for more lands for further expansion of biofuel production in and around their current production sites. Several other national and foreign investors have obtained investment licenses for the development of biofuels from the Federal Investment Commission. According to the information obtained from the Investment Commission, the land requirement of these investors adds up to 1.65 million hectares. The requirements for obtaining permits for biofuels production are minimal and it seems to have attracted many international investors lately.

The highlights of the recommendations include that the investment process should not avoid the necessary requirements and safeguards that the process of obtaining permit should pass through. The Investment Authority should make sure that projects get permit from the mandated government organizations before starting operations. Given the uncertainties in the overall benefits and consequences of biofuels development, the proposed large commercial scale development which foresees import substitution and export is very likely to cause irreversible harmful impacts if adequate and reliable monitoring methods are not put in place. Until then, development of biofuels should be limited only to the scale that can be managed and closely monitored.

1. Introduction

This report is prepared as an output to a rapid assessment of biofuel development status in Ethiopia. The Rapid Assessment study was commissioned by MELCA Mahiber, a non-governmental organization which advocates sustainable development through the protection of the environment and consideration of the people. The broader aim of this assessment is to provide a general country overview and the context of biofuels development in Ethiopia and recommend practical strategies for effective engagement of civil society organizations.

The methods employed in this assessment are qualitative data collection through field observations, interviews and document reviews. Due to time constraints the assessment focused only on five regions namely – Benshangul Gumuz, Amhara, Oromia, Gambela and Southern Nations, Nationalities and Peoples (SNNP) Region. Field observation and interviews with local community was conducted in Wolaita Zone in SNNPR in castor bean plantation sites and future operation areas of the companies to assess the realities on the ground and the attitudes of the local communities towards the projects.

1.1. Country Overview

With a surface area of 1.1 million square kilometers, Ethiopia's population was estimated to be over 77 million in 2006. The economy is predominantly agrarian with a real GDP per capita of USD130 (2006). Percentage share of agricultural activities in the GDP is 46% (2006/07) making it the major source of growth and employment. The agriculture sector is also the leading source of foreign exchange for Ethiopia. Coffee distantly followed by hides and skins, oil seeds and recently cut-flowers are the major agricultural export commodities.

The major land cover pattern in Ethiopia closely follows the patterns of rainfall and temperature in the country. Land use for cultivation

which includes arable land and perennial crops accounts for 18.6%, while forest land is about 3.6%. In the highlands, original vegetation has been degraded mainly due to extensive crop cultivation and grazing. Demand for more agricultural land for cultivation is mainly driven by high population growth and loss of soil fertility. The annual rate of increase in cultivation is about 3% which is very close to the annual rural population growth rate. As a result of agricultural land encroachment, the forest land is declining at a rate of 1.7% annually[1]. This has resulted in serious land degradation and also contributed to global climate change. Low productivity of traditional and rain-fed agriculture together with climate changes that cause recurrent drought, flood and water logging have increased vulnerability with chronic and transitory food insecurity in Ethiopia.

The energy system in Ethiopia is characterized by the predominance of biomass fuels (traditional and mostly non-commercial) accounting for 91.5% in the energy balance. Modern energy sources, mainly petroleum and electricity, account for 7.4% and 1.1% respectively[2]. The modern sector is very small but growing fast. The domestic sector relies heavily on biomass fuels while agriculture and rural transport depend on human and animal energy. Modern energy supplies, composed of electric power and petroleum fuels, meet demand from the mainly urban domestic, industrial and transport sectors. The energy supply and consumption pattern have remained more or less the same for decades; now however, the demand for more energy is increasing with the increase of population and economic growth.

Out of the total biomass fuel consumption, the household sector alone accounts for 87%. Dependence on biomass fuel is estimated at 3.2 tons/ household/ year,[3] which is extremely high. In most parts of the country demand for biomass fuels exceeds the amount that can be supplied in a sustainable manner and as a consequence, serious

[1] Woody biomass, 2005
[2] Forthcoming MME-GTZ: Biomass Energy Strategy Development, 2008
[3] Calculated from the Energy Balance for 2006.

economic, social and environmental impacts are exhibited. Access to modern energy sources is improving markedly even though it is limited to urban areas. Even though petroleum fuels account for only 7.4% of the total energy consumption, the increasing demand, and the associated price hikes have hit the Ethiopian economy very hard. As net importer of petroleum, Ethiopia is highly vulnerable to price shocks and supply problems of oil in the world market. It is therefore the government's priority agenda for alternative fuels that partially substitute imported petroleum.

1.2. Issues and Rationale for Biofuels Development in Ethiopia

The initiative for biofuels development in Ethiopia originally came from the private sector, though it did not take too long to get the government to buy-in. Mitigation of climate change is often presented by governments as a key policy goal for biomass fuel developments, but in the case of Ethiopia, the government is explicit about its reasons for promotion of biofuels. The reasons, among others, are energy security through the use of biofuels and to improve the balance of trade by import substitution and new export market development[4].

Following population growth and economic development, the need for more modern fuels has increased significantly over the years. Electric power demand has increased significantly, but as it is derived from hydropower which is a local resource the cost is not greatly affected by world markets. The impact on the local economy has therefore been relatively minimum. When it comes to petroleum, the scenario is very different. Demand for petroleum has increased by over 70% from 1.1million metric tones in the fiscal year 2000/01, to 1.9 million metric tones in the fiscal year 2007/08[5]. Import values however, grew disproportionately higher by over 500% from USD0.27 billion to USD1.6 billion in the same time period. This

[4] Ethiopian Biofuels Development and Utilization Strategy, Ministry of Mines and Energy, 2008.
[5] Calculated based on data obtained from Ethiopian Petroleum Enterprise.

year (2007/08), for the first time, the import price of petroleum fuel exceeded annual export earnings, resulting in a negative balance of trade.

On the other hand, a reliable modern energy supply is crucial for the realization of accelerated and sustained development that the country has planned to achieve in the five-year development period (2004/05 to 2009/10). To this effect the government of Ethiopia has developed wide range of development programs to ensure supply of modern energy services, of which development of biofuels is one.

There are, however, several issues that need to be considered before large scale commercial biofuel development is encouraged in the country. Sustainable biofuels development can only be achieved through careful consideration of the social, cultural, economic and environmental impacts of them. Contentious issues such as the competition for resources for food and energy, the threat of biofuels production to natural ecosystem and society (particularly in relation to access to land), and impacts on local and global economies need to be very well analyzed in the context of the country situation. It should also be noted that it will be very difficult for the Government to achieve genuinely sustainable biofuels on the scale required.

In this regard, the government of Ethiopia has formulated a biofuels development and utilization strategy. The strategy is meant to facilitate biofuels development and utilization in the country with proper consideration of remedies to avoid any unintended social, economic and environmental consequences.

2. Biofuels Development and Utilization Strategy of Ethiopia

A Biofuels Development and Utilization Strategy has been formulated by the Ministry of Mines and Energy in August 2007. The overall objective of the strategy is to facilitate adequate production of biofuels from indigenous resources so as to substitute imported petroleum and export excess products.

The strategy is formulated based on principles that development of biofuels should not have unintended consequences on food security, land access, the environment, cultural values and the economy. It has also outlined that biofuels development should participate farmers and pastoralists so that they can be beneficiaries of the development. The biofuels strategy document identified some energy crops such as sugarcane, jatropha, castor and palm trees as potential feedstock for biofuels production. Molasses, the byproduct from sugar production, is the preferred feedstock for ethanol production while jatropha, castor and oil palm are crop types suggested for production of bio-diesel.

Generally, the biofuels strategy has tried to provide an implementation guideline in order to ensure the achievements of the objectives stated, while at the same time avoiding unintended consequences. The Ethiopian Biofuels Development and Utilization Strategy has addressed many of the concerns that are important elements for a sustainable development of biofuels. However, there are still some important elements that the strategy failed to mention. These are discussed below.

- The strategy paper stated that any biofuels development program (project) should take environmental and social issues into consideration but failed to put Environmental Impact Assessment as a mandatory process for new and expanding biofuels projects,

- One of the objectives of the strategy is to create opportunities where already cultivated arable lands could be used for more productive and economically viable purposes (Art. 4). This objective could open a loophole for increased effect on land access (land holding security) where land from local users could be dislocated and reallocated to biofuels investors based on the assumption that biofuels crop cultivation is more economically viable than the current forms of land use. In such cases, this objective may seem to contradict the development

and utilization strategy (Art. 7.2.2.2) which seems to emphasize biofuels development [only] on marginal or degraded lands,

- The strategy recommended certain types of energy crops for biofuels production but did not disallow use of food crops. Use of food crops for biofuels production may lead to food insecurity particularly if the value added is higher when used for biofuels,

- The strategy document should strictly disallow importation and promotion of energy crops without getting proper permissions from the concerned government organizations. This is mainly to protect potentially invasive crops from entering the country.

- Use of vegetable oil as it is without any need of converting to biodiesel should also be promoted for household cooking, lighting and driving engines,

- The strategy document stated that less fertile, or marginal or degraded lands should be used for cultivation of energy crops that are particularly used for production of biodiesel (Art. 7.2.2.2). It was also stated that carefully selected and properly managed cultivation of perennial energy crops such as jatropha could help reclaim degraded lands. However, an important consideration here should be that the ecosystem of already degraded or "marginal" land is highly fragile. Over-utilization of such type of land can easily result in long-term or permanent ecological damage such as salination or severe erosion[6]. It is not clear also what is marginal. Marginal lands could be grazing lands and lands on which the community, including women, depends on for various livelihood activities.

- Oil Palm is identified in the strategy paper as a potential crop for biodiesel production. However, crops such as oil palm

[6] Lorenzo Cotula, et al, 2008 (Fueling exclusion? The biofuels boom and poor people's access to land, FAO, 2008).

require high rainfall areas which in Ethiopia are prim farm lands or preserved forest areas. Cultivation of land for palm crop could therefore have severe environmental consequences,

- On the strategy paper, the figures for available land for development of biofuels were obtained from the respective Regional bureaus. However, the method for estimation of available land for such purposes is not clear. In some regions, the amounts of land claimed to be available for biofuels development, were disproportionately large compared to the size of the regions. For instance, the stated available land for cultivation of biofuels crops in Gambela and Benshangul Gumuz were given as about 88% and 60% of the total size of the regions respectively. These bureaus are perhaps the same bodies that are responsible for allocation of land for investors. In such cases, there is the likelihood of allocating fertile lands or preserved forest areas for cultivation of energy crops,

- Since the strategy paper did not put any target in terms of achieving a certain penetration level nor time frame, there is no ground to monitor the progresses and evaluate the strategy. Because of so many uncertainties in the social, environmental and economical impacts of biofuels development, any one of such projects should be closely monitored before the required scale of development is to be encouraged. Setting a target that is manageable for close monitoring would help to test and revise the strategy while at the same time avoiding irreversible damages that can potentially occur due to large scale cultivation of lands for biofuels development.

- The strategy paper itself, as a public instrument, should undergo through an Environmental Impact Assessment process. Its effectiveness should be monitored and evaluated so as to make the necessary revision.

Given that Ethiopia is a novice in the field of biofuels development and uses; learning lessons from practices of other countries not only avoids social and environmental losses but also helps to lead development in the proper direction right from the beginning.

3. Other Countries Experiences on the Promotion and Use of Biofuels

The European Union Biofuels Directive:

The European Union Directive on the promotion of the use of biofuels has been undergoing several reviews and changes since it was first released in 2003 until it was published in December 2008. Even though the socioeconomic and environmental setting of the EU is very much different from us, the process that the EU biofuels Directive has undergone and the reactions of the member countries towards its implementation can still be a useful source of experience where we can learn lessons from.

The EU Directive for biofuels was initially prepared in 2003 based on the proposal for a Council of Directive on the promotion of the use of biofuels for transport purposes in 2001. The proposal, which was a strategy for the security of energy supply, introduces the objective of a 20% substitution of gasoline and diesel in the road transport by alternative fuels by the year 2020 with a dual purpose of improving security of fuel supply and reducing green house gas emissions. Out of the 20% alternative fuels substitution, the contribution from biofuels was targeted to be up to 8%[7].

However, based on the realities observed on the ground during the implementation of the Directive and due to a growing recognition that the biofules targets are likely to cause serious environmental and social concerns, the EU has agreed on December 2008 to reduce the initially proposed 20% target to 10%. This includes other renewable

[7] Directive 2003/30/EC of The European Parliament and the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport.

energy sources. The split among the European Parliament and member countries over the set target and the term "stricter sustainability criteria of biofuels" is an indication that the matter is very much complicated with so many uncertainties of the anticipated benefits and impacts of biofuels.

The main concerns for the member countries towards meeting the set targets are economic, legislation, technology limitations, biomass supply shortage and sustainability issues of biofuels. Many of the member countries found that production of biofuels were more expensive than gasoline and diesel. Lack of proper legislation to the making of biofuels economically competitive to their conventional counterparts and the regulation of the fuel qualities were reported to have been major concerns. Most importantly, supply shortage of feedstock as a result of limited amount of arable land was reported by some countries as they preferred to use the available land for food production. Environmental sustainability of biofuels was also challenged by many countries. Some of the challenges were on current implementation of biofuels as they are feared to have several negative environmental and social implications. Cultivation of energy crops as feedstock for liquid biofuels was argued by some countries to have increased emissions to water, air and soil and has negative effects on biodiversity due to high use of fertilizers and pesticides. Fear for deforestation because of increased demand for agricultural land made several countries to question the environmental sustainability of biofuels.

These same problems could become our problems in our effort to promote biofuels development and utilization unless they are properly dealt with before the commencement of the program.

The South African Biofuels Industry Strategy[8]

The South African Biofuels Industry Strategy (BIS) adopted a five year short term target to achieve a 2% penetration level of biofuels in the national liquid fuel requirement. The initially proposed target in the draft strategy document was 4.5% but revised down to 2% after public consultation. The proposed energy crops for the production of biofuels in the country are sugarcane and sugar beet for bioethanol production, and sunflower, canola and Soya beans for biodiesel. Maize, Jatropha and other plants are excluded for the concern raised regarding food security and environment. The BIS has put the doubts in jatropha plant that it could be invasive and the crop will have to be monitored before any further promotion.

The total arable land in South Africa is 14% of the total land area of the country. BIS has further analyzed that 1.4% of this land will be required to achieve the proposed target. It was also noted that out of the totally available arable lands in South Africa about 14% is under utilized. The proposed land requirement targets this under utilized arable lands in the country. BIS has also been seriously argued against and criticized by several civil societies but the points of arguments are important lessons to consider

Even though both the EU biofuels Directive and the South African BIS that we draw as examples are not blameless, the critiques raised against them and the changes made through their evolution have so much information and lessons for us to learn not to repeat the same mistakes again.

4. Current biofuels development status in Ethiopia

Biofuels development as a primary product was first initiated by the private sector when Sun Biofuels Ethiopia (National Biodiesel Corporation), a subsidiary of a UK based private limited company,

[8] Biofuels Industrial Strategy of the Republic of South Africa, Department of Minerals and Energy, December 2007.

was allocated the first land for cultivation of jatropha for production of biodiesel in Benshangul Gumuz regional state in 2006. The coming of Sun biofuels awakened other players in the sector, including the government, the private sector, NGOs and civil society organizations. As the first project in the country, there were several drawbacks in the legal process of business formation and actual implementation of the project in the field. Since then several private companies have come to the scene. Fincha Sugar Factory, however, has been producing bioethanol as a by-product.

Several local and international private and non-private biofuels developers have registered in the country since then. Most of these companies have the intention of going for large-scale commercial development. Currently there are over 50 developers registered for the cultivation of energy crops for biodiesel production. For bioethanol, however, there are only six developers in the country of which four of them are government owned sugar estates. At present only one of the sugar estates, Fincha, is producing ethanol. The rest are at the pre-implementation stage either retrofitting existing factories for ethanol development, or at the very early stage of land cultivation for plantation of sugarcane. All of them are intending to produce ethanol as a product of sugar production.

Table1 : Regional distribution of biofuels developers in the country

Region	Number of Developers	
	Biodiesel	**Ethanol**
Benshangul Gumuz	4 (3)	
Amhara	7 (5)	1
Oromia	16 (3)	4(1)
SNNP	21(3)	
Gambela	4	
Afar		1
Total	52	6

Numbers in () indicate projects that have started operations

Detail description of each developer is found in the Annex.

4.1. Status of Operational Biofuels Development Projects

Due to limitation of time only five regions were identified to conduct a brief assessment about the current development of biofuels in Ethiopia. These regions are identified based on the current trend of biofuels development expansion in the country. Local experts were assigned to gather primary and secondary information about the biofuels projects in the regions.

Information about the number of organizations involved in biofuels development was searched from government offices at regional level, the Ethiopian Investment Commission, and other sources. In a few cases, the team managed to contact the developers. However, the full list of developers that have started operations could not be obtained from offices at regional level as some developers directly contacted Zone and Woreda offices for allocation of land without the need for getting permits from bureaus at regional level. The full list of companies including those that have not yet obtained land is put in the annex. This section gives an overview of developers that have actually received land but may not have started operations. The findings are presented as reported by the informants as follows:

4.1.1. Benshangul Gumuz Regional State

In Benshangul Gumuz region, information is obtained only for three private developers that received land for biofuels development.

i. Sun Biofuels Ethiopia/ National Biodiesel Corporation

Sun Biofuels PLC is a UK based company that owns 80% of the shares in the National Biodiesel Corporation PLC (NBC). With 365 million Birr investment capital NBC aims to become the largest producer and seller of biofuels in Ethiopia.

Description of Location

NBC has obtained 80,000 ha of land leased for 50 years in Metekel Zone in Dandure Woreda at a lease price of ETB 25 per hectare for

jatropha plantation. The area of land allocated covers four Kebeles namely Jantaya, Gublak, Dabata, Dilkanbikokil and Jarduban.

Land Use and Environmental Aspects

The land cover is mostly forest, woodland and range land with very little agricultural activities. There are various types of plant and animal species in the area[9]. The project stopped operations after clearing 60 hectares of land for trial plantation. One of the reasons for stopping the operation was that the land was not suitable for growing jatropha. The productivity of the land was very low, so the company would hardly make any profit from the investment. Had the project continued at the proposed scale severe environmental damages could have happened. Loss of biodiversity and wildlife would be the immediate impact which could be followed by soil chemical composition changes due to change in land use, increased soil erosion and land degradation due to increased runoff, and a severe impact in the watershed. An environmental impact assessment was not conducted in the area.

Socioeconomic Aspects

The community uses the area as a source of firewood, food and feed for their cattle, and medicine. They collect fruits, seeds and roots from the forest. It is a place for hunting and honey collection. The rangeland is used for farming and grazing place for their cattle.

ii. Ambasel Jatropha Project

Ambasel Jatropha Project is a local private limited company involved in biofuels development in Amhara regional state.

Description of Location

The project obtained 20,000 ha of land with a possibility of expanding to 80,000ha for jatropha plantation in Qoto (or Koto)

[9] Tree species growing in the area includes cordial African, palm tree, acacia species, bosiwelia, ficus syemones, albiziza gumifera euphrabias, syzygum guneese, rosa abysinica, ysiinenid Americana, kara butugi, etc. Wild animals include hyna, leopard, wild cat, warthog, baboon, monkey, bread-duck, bush-buck, fox, etc.

kebele in Metekel Zone Beles Woreda. The project plans to install oil expelling machines and has a target of reaching up to one million metric tonnes of oil per year. The product is mainly for the domestic market, with the possibility of exporting the excess.

Land Use and Environmental Aspects

The existing land cover is a natural forest. The project has to clear the forest for cultivation of jatropha trees, which will result in severe environmental consequences including loss of biodiversity, wild life and their habitats. Soil erosion and land degradation are possible long term impacts due to the project intervention. The project has not conducted any form of environmental impact assessment so far.

Socioeconomic Aspects

The forest used to provide a free grazing area and a source of firewood for the local community. There might be new short-tem job opportunities for the local community. In the short term, the project needs about 10,000 labour force, which sounds overly optimistic, for the preparation of land which will be mainly clearing of the forest. However, once the forest is cleared and the plantation in place, there will be relatively few jobs, and the community will have lost their forest resource forever.

iii. Jatropha Biofuels Agro Industry

Jatropha Biofuels Agro Industry is a national private limited company with 123 million Birr investment capital. The company obtained land leased for 50 years at a price of ETB 25 per hectare for large scale commercial plantation of biofuels using jatropha plant. The Project is located in Metekel Zone, Dangur Woreda in Bengaz Kebele. They received 100,000 hectare of land but have not started operations yet.

iv. I.D.C Investment

IDC Investment is a Danish private limited company that started investment in biofuels development in Ethiopia. It has received 15,000 ha of land in Benshangul Gumuz in Assosa Zone, Oda Woreda. The company started cultivation of land for jatropha

plantation in November 2007. It has a plan for setting up a processing plant.

4.1.2. Amhara Regional State

Several developers have applied for allocation of land for development of biofuels in various Woredas in the region. However, information has only been obtained for five developers that have actually started operation. For some developers, one of the main reasons for not starting operations, as reported by the developers, is that the amount of land they are offered is too small compared to the land they have asked for. Current status of biofuels development in the region based on information obtained so far is presented below:

i. Organization for Rehabilitation and Development of Amhara (ORDA)

ORDA is a non-private organization established by the regional government with the intention of assisting rehabilitation and development activities in the region. ORDA has several development projects in various Woredas in the region which are related to land rehabilitation by plantation of trees and building erosion protection structures. ORDA believes that plantation of jatropha in degraded lands would bring dual benefits. In some of the areas that ORDA is working, the jatropha plant already grows wild. Some of the project sites that ORDA is promoting jatropha are Gaint, Ibnat, Wadla, Lasta, Bugna, Sekota, Kobo, Habru, bati and Metema.

Description of Location

ORDA is now involved in biofuels development in Metema Woreda. With a capital of one million Birr the project obtained 884 ha of land free of charge for jatropha plantation. The site is located in Metema Woreda in North Gondor Zone.

Land Use and Environmental Aspects

ORDA has several sites where it uses the jatropha plant for flooding and erosion protection. The biggest project is in Metema. So far about 2.3 million jatropha trees have been planted. The organization has a plan to install peeling machines, an oil expeller and perhaps a

biodiesel processing plant near the cultivation area in the future. The land use type prior to the development of the project was barren or degraded land with little or no economic benefit to the nearby communities. In certain seasons of the year the area has been used as grazing land for cattle. The area is commonly known as "aygebire" which literally means non-productive. The project has not conducted any Environmental Impact Assessment. Preparation of land for jatropha plantation may bring some disturbance of the flora and fauna but this is assumed not to be worse than that caused by flood and erosion otherwise.

Socioeconomic Aspects

The project creates job opportunity in the area in the short term as they prepare the land for the cultivation of jatropha plantation. Since the communities around the area own the project, any future benefit from the cultivation of jatropha, however small it might be on a degraded land, will bring additional income.

ii. Jemal Ibrahim

Jemal Ibrahim is a private investor with a project capital of ETB 2,551,896. He has been provided with 7.8 ha of land for cultivation of castor oil for biodiesl production in Habru Woreda. Detailed information has not been obtained regarding previous land use of the location but the satellite image seems to indicate a wide area of cultivated land.

iii. BDFC Ethiopia Industry P.L.C

BDFC is a subsidiary of the US based B&D Food Corporation. With 300 million Birr capital it has received 18,000 ha of land from the Awi Zone to grow sugarcane with the intention of producing sugar and ethanol. It has also a plan for an additional sugarcane supply from out growers, which is expected to reach up to 30,000 ha. This project was previously planned for development by the then Tana Beles Project based mainly on the Beles River. The Company has

already received land and has a plan to produce 70,000 tonnes of sugarcane and 30,000 tonne of ethanol per year[10].

iv. A Belgium Company (Name not identified)

Three Belgian investors have received 2.5 ha of land in Genete Kebele in Armachiho Woreda in Semen Gondor Zone. The investors have started plantation of jatropha and castor seed which they imported from Togo and Brazil. It was also reported that the investors have applied for an additional 5,000 ha for cultivation[11].

4.1.3. Oromia Regional State

Information from the Federal Investment Authority and other sources indicate that there are over sixteen developers that have received investment licenses for development of biofuels in Oromia region. However, many of them have not yet received land. Information is found only for three companies that have started operations in the region.

i. Flora Eco Power Ethiopia Plc.

Flora Eco Power Ethiopia is a subsidiary of the German based Flora Eco Power private company. The company required 200,000 ha of land to plant castor seed for biodiesel production.

Description of Location

Flora Ecopower has so far developed about 15,000ha of land in several Woredas in East and West Hareghe Zones. Babile, Fedis, Midega Tola, Lebu and Hawi Gudina are the Woredas that the company is operating in at present. Out of the total land area cultivated by the company for castor bean plantation, about 10,000 ha is from clearing virgin forest land and the remaining hectares are with the out-growers scheme. The Company plans to expand castor bean plantation to a total of 50,000 to 70,000 ha of land in eight Woredas in East and West Haraghe Zones.

[10] Fortune Vol. 9, No – 432, August 10, 2008
[11] Bekur, Vol 14, No. 37, Nehasie 19, 2000.

Figure 1: Flora Eco Power –

"Luxuriously growing castor bean plants on nutrient rich virgin land cleared from its acacia forest/woodland vegetation at Midega Tola Woreda " (Source: EFP EIA document, 2008)

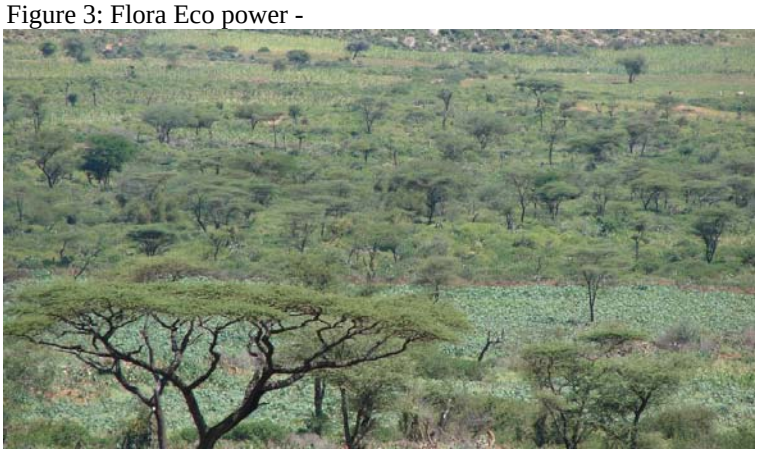
Figure 2: Flora Eco Power –

Commercial large scale plantation – clearing forest and bush land for castor bean plantation at Erer Valley of Babile District

Land Use and Environmental Aspects

The land use type in Babile and surrounding Woredas is grazing land, cultivated land, forest and bush land. Cultivated land in this area accounts about a fifth of the total area, forest area covers between 10 to 20% of the total land area. There is extensive communal grazing land encroaching a large part of the Babile Elephant Sanctuary[12]. The land that is being used for castor bean plantation is obtained either by clearing of forest areas or taking cultivated land in agreement with the local farmers.

Figure 3: Flora Eco power -



"Acacia woodland native vegetation on the valley bottoms of the Erer River Basin, Babile District partly cleared for castor been cultivation" (Source: EIA Document, Flora Ecopower)

The Company proposes four different options for obtaining land for large scale commercial plantation and the out-growers scheme. In all cases the damage to the environment and the consequence in terms of food insecurity will be high. The area is a sanctuary for various types of wild animals including elephants, lions, leopards, etc. The clearing of the forest and bush land will cause severe environmental damage which will result in loss of biodiversity, and land degradation due to inevitable soil erosion with increased runoff. The company has recently conducted an Environmental Impact

[12] Environmental Impact Assessment document, Flora Eco Power, March 2008.

Assessment in the area and outlined the possible impacts on tree species, wildlife, soil degradation, watershed problem, etc.

Some of the mitigation measures proposed for the anticipated negative impacts include retaining of an acceptable density of trees (i.e. 10 trees per hectare), afforestation and/or deforestation programs in the nearby degraded lands, farm boundaries, grazing and rangelands. Crop residue management on farm land, rain-water harvesting structure, terracing, minimum tillage and adaptation of agro-forestry are also recommended as mitigation measures for likely soil erosion that will be caused due to the project's intervention.

It seems that the proposed mitigation measures are put there only for making the document complete. Some of the proposed measures do not genuinely mitigate the damage. For instance, the recommendation to leave an acceptable density of trees (10 trees per hectare) in an area which initially is covered by a natural forest does not give the impression that the suggested mitigation measures are genuine.

Socioeconomic Aspects

The project outlined positive social impacts that benefit the community. The farmers could benefit from value added to their land through the production of a relatively high price farm produce. Other benefits proposed by the project include building infrastructure such as roads, schools, clinics and introduction of new techniques for rehabilitation of degraded lands.

ii. PetroPalm Corporation – Ethiopia Plc

PetroPalm Corporation is an international company investing in biofuels development in Bale Zone, Rayitu Woreda. The company received 50,000 ha of land for the cultivation of oil seeds for biofuels production for export market. The company has a plan to set up a processing plant. The highlands of Bale Zone are known for their natural forest covers and food crop growing farm lands. Much of the low lands are woodlands. Information is not obtained about the exact location of the land allocated for the company.

iii. VATIC International Business Plc

VATIC International Business is a local and foreign joint venture company. It has received 20,000 ha of land in Borena Zone in Teletle Woreda. The Company has the intention of setting up a biodiesel processing plant in the future.

4.1.4. SNNP Regional State

Southern Nations and Nationalities and Peoples (SNNP) region has a long list of investors that applied for land for development of biofuels particularly for biodiesel development. According to information obtained from various bureaus in the region, there are over 20 national and international private companies involved in biofuels development in the region. Most of them are at pre-implementation stages of the project. Only three of them have actually started operations. Description of projects that have started operations are as follows:

i. Global Energy Ethiopia

Global Energy Ethiopia is an international private limited company. It started operation in Wolaita Zone with a total capital of 222 million Birr. It obtained 2,700 ha of land at a lease price of ETB 49 per hectare for production of castor seed. All products are intended for export purpose. The Company has already started exporting the seeds. But, in the future, it plans to install peeling and oil expelling machines.

Description of Location

In addition to the 2,700ha of land the company is cultivating for biofuels production, an additional 7,500 ha of land has already been agreed with over 25,000 out-growers. The farmers have agreed to use one percent of their farm land for castor plantations to supply the seeds to the company at an agreed price. Currently about 5,000 ha of land is planted by farmers. In the initial stage, the company expects to obtain about 9,000 tones of castor seeds from farmers, with a target of increasing this to 150,000 tonnes of seed, which can yield up to 70,000 tones of oil.

Figure 4: Castor bean out-growers scheme

Figure 5: Castor bean seed

Land use and Environmental Aspects

The land from the out-growers is currently being used for farming. There is no data regarding the existing land use of the land directly allocated to the company. No impact assessment has been conducted.

Socioeconomic Aspects

The project involves participation of local communities for benefit sharing. It was learned from the local officials that there has been a dispute between the out-growers and the developer on the agreed price for the supply of castor seeds. The farmers complained that they would get better values for their lands had they grown corn. Later, further price adjustment was made by the developer with the mediation of local officials. The real interest of farmers whether to continue or stop the contract of supplying castor seeds with the agreed price will remain to be seen in the next growing season.

ii. Omo Sheleko Agro Industry

Omo Sheleko Agro Industry is a local private industry involved in cotton, banana and palm farming and processing. in Binale Kebele in Bena Tsemay Woreda. The company has 30 million birr investment capital. It plans to cultivate palm oil as energy fuel for the export market.

Description of Location
The location of the project site is in Binale Kebele in Bena Tsemay Woreda. The Company obtained 5,490 ha of land on lease at a price of ETB49 per hectare for the plantation of palm trees.

Land Use and Environmental Aspects
No Environmental Impact Assessment has been conducted.

iii. Sun Biofuels Ethiopia/ National Biodiesel Corporation
Sun Biofuels Ethiopia is a private limited company with an investment capital of 365 million Birr for development of biofuels from jatropha for export purposes. It also has a plan to set up a processing plant. The company obtained 5,000 ha of land at a lease price of ETB47 per hectare in Wolaita Zone Offa Woreda in Mencha Gogara Kebele. It has already started plantation on 150 ha of land.

4.1.5. Gambela Regional State

Most parts of Gambela region are characterized by very dense high biodiversity indigenous forests. The communities living in the forests have a very long history of managing the forest in a sustainable manner. For them, the forests are vital sources of food and shelter.

Two companies so far have submitted their proposals for biofuels development to the concerned regional bureau. Each of these companies has requested about 50,000 ha of land which can only be obtained by felling down the virgin forests in the Region. However, the concerned regional bureau, after consultation with the local communities, declined to provide the requested land to the companies. So far, no land has been allocated for biofuels development in the Region.

4.2. Summary and Analysis of the Current Practices of Biofuels Development

As has been seen from the current practices of biofuels development, almost all lands cultivated for bioenergy crops in all regions are

mostly farm lands or forest lands. The intention of businesses is obvious and natural. They need to secure the return of their investments and maximize their income. Productivity in marginal or degraded land is low and business can hardly be sustained in such situations. The main reason for Sun Biofuels to leave the plantation site in Metekel is that the land is not suitable for jatropha, in other words productivity of the land is low. The place they have moved to, as all the other companies involved in biofuels development do, is to farm land which gets biannual rainfall.

For organizations like ORDA, business profit is not their primary motive for their involvement in the development of biofuels. Biofuels are rather the means to their goal which is rehabilitation of degraded lands. Any benefit that comes in the process is a good incentive to engage the community in the land rehabilitation activity in a sustainable manner. In fact, this assessment demonstrates that ORDA is the only organization strictly cultivating energy crops on degraded lands.

The biofuels development and utilization strategy was prepared and released only after several companies had already started operations. Some of them have already started exporting the first fruits. Developers that requested land even after the strategy was released to regional offices are still getting prime agricultural lands. It can be argued that such things may be happening on the ground because of lack of proper communication among government organizations in terms of properly implementing the strategy, or the strategy itself may not be clear enough as to what types of land should be allocated for such purposes, or both. On the other hand, it is certain that businesses cannot be profitable in degraded or marginal lands. Perhaps, use of cultivated or forest lands for biofuels development might not totally be wrong. In fact, preparation of clear guidelines as to what proportion of such non-marginal or productive lands can be allocated for such purposes would rather be facing the reality instead of a total denial of the fact. Otherwise our strategies could just remain as paper tigers which do not help bring the anticipated

biofuels development in the intended way but negative consequences that would outbalance the benefits.

Another point of concern is that, with one recent exception, none of the biofuels projects implemented so far have conducted an EIA. EIA as a pre-implementation requirement for investments has been stipulated by the EIA proclamation. The amended investment proclamation recognizes also that an investor shall respect this. However, only one company has lately prepared an EIA document out of 14 developers that obtained land in various regions in the country.

Table 2: land allocated for biofuels investment in various regions of the country

No.	Company Name	Region	Land Acquired (ha)	Out-growers Land (ha)	Crop Type
1	Sun Biofuels Eth/NBC	Benshangul	80,000		Jatropha
2	Amabasel Jatroph Project	Benshangul	20,000		Jatropha
3	Jatropha Biofuels Agro Industry	Benshangul	100,000		Jatropha
4	IDC Investment	Benshangul	15,000		Jatropha
5	ORDA	Amahara	884		Jatropha
6	Jemal Ibrahim	Amahara	7.8		Castor bean
7	BDFC Ethiopia Industry	Amahara	18,000	30,000	Sugarcane/sugar beat
8	A Belgium Company	Amahara	2.5		Castor bean
9	Flora Eco Power Ethiopia	Oromia	10,000	5,000	Castor bean
10	Petro Palm Corporation Ethiopia	Oromia	50,000		Castor/Jatropha
11	VATIC International Business	Oromia	20,000		NA
12	Global Energy Ethiopia	SNNPR	2,700	7,500	Castor bean
13	Omo Sheleko Agro Industry	SNNPR	5,500		Palm
14	Sun Biofuels Eth/NBC	SNNPR	5,000		Jatropha
		Total	**327,094**	**42,500**	

So far, over 300,000 ha of land has already been allocated for investors. Over 80% of these developments are happening in arable land, forest land and woodlands. Many of these companies are still requesting for more lands for further expansion of biofuels production, in and around their current production sites. Several other national and foreign investors have obtained investment licenses for the development of biofuels from the Federal Investment Commission. According to the information obtained from the Investment Commission, the land requirement of these investors adds up to 1.65 million hectares.

5. Relevant Government Policies and Proclamations, and Roles of Major Government Institutions

This section of the assessment traces the development of Government policies and proclamations on energy, environment and sustainable development, which gave impetus for biofuels development and facilitate investments in the country. It also identifies and suggests roles that major government institutions could do to set stricter sustainability criteria to reduce potential social and environmental harms that could occur due to biofuels production. The constitution of the Federal Democratic Republic of Ethiopia is the basis for the formulation of all sectoral policies and laws in the country. It contains the provisions for sustainable development and environmental rights. Article 43, 44 and 92 of the constitution clearly stipulate the rights and responsibilities of citizens to improved livelihood and development, and the right to live in a clean and healthy environment. It also recognizes the rights of citizens for full consultation and expression of their views with respect to policies and projects that affect their environment. It is under this foundation that other policies and proclamations of the country should base their principles.

5.1. Review of Policies and Proclamations

National Energy Policy

The Ethiopian National Energy Policy was formulated in 1994. It states the development and utilization of indigenous energy resources with the aim of attaining energy self sufficiency as the priority government

objective in the energy sector development. The policy acknowledges delivery of alternative energy supplies for the purpose of increasing the national energy supply mix and also as a means to reduce the burden on the biomass resources. In terms of biomass resource development, even though the policy references only afforestation programs to ensure supply of fuel wood, it acknowledges the importance of renewable energy resources as alternative transport fuels, which could include biofuels as a potential renewable energy resource. The policy stresses that all development and utilization of energy resources should be benign to the environment.

Environmental Policy of Ethiopia

The environmental policy of Ethiopia was adopted in 1997 with the objective of improving and enhancing the quality of life of all citizens. It promotes sustainable social and economic development through the sound management and utilization of natural, cultural and environmental resources of the country. The environmental policy promotes energy development from renewable resources, and the need for rigorous environmental impact assessment for energy and other development activities, to avoid unintended consequences on the environment in general.

The policy stipulates the restriction in free transportation and use of alien and genetically engineered biological materials, to ensure the safeguard of community and national interests, and to protect the environment from self-regenerative invasive species.

Environnemental Impact Assessment (EIA) Proclamation (No. 299/2002)

The Environmental Policy of Ethiopia contains the provision for the enactment of the Environmental Impact Assessment Proclamation. The EIA proclamation was a breakthrough in environmental law in Ethiopia. The proclamation laid the foundation requiring an EIA both at the level of project implementation of activities, as well as for strategic assessments, also known as public instruments. The EIA for strategic assessment is commonly known as Strategic Environmental Assessment (SEA), which refers to the need to investigate the possible

environmental consequences of government programs, strategies and laws.

The EIA Proclamation obliges:

- That no project shall commence implementation without first getting the approval of the relevant government organization for its Environmental Impact Assessment (Article 3),
- Licensing institutions should ensure that a certain project must obtain an approval of the EIA document and a permit for the implementation from the authorized government organization before issuing investment or operation licenses (Article 3),
- Government organs should ensure that their policies, strategies and laws pass through an EIA process before their submission for approval (Article 13).

Legal measures are allowed as stated in Article 18 of the EIA proclamation and the Criminal Code of the FDRE (Art.523/2004) for commencement of projects without obtaining authorization from the relevant environmental agency and making of false statements in the EIA document.

The enactment of this proclamation and the complex nature of environmental problems, and the fact that they are very much linked to various sectors, prompted the establishment of relevant Regional Environmental Agencies and Sectoral Environmental Units under Environmental Protection Organs Establishment Proclamation (No. 295/2002). Following this proclamation, some regions established their own environmental protection organs as a separate entity or a subsidiary under existing relevant organizations. Several government ministries and major government organization have also established Environmental Units to assess environmental impacts that can be resulted from their development activities and programs.

Rural Land Administration and Land Use Proclamation (456/2005)

Access to land is guaranteed by the Rural Land Administration and Land Use Proclamation. The proclamation ensures free access and indefinite time limit for acquisition of land for peasant farmers and pastoralists engaged in agricultural for living with the right to pass it by inheritance to family members.

Access to land for investment, however is governed by Article 4 of the proclamation. Investors, including private, government, non-governmental organizations and social institutions have the right to acquire land for investment for a definite period of time, provided that priority is given to peasant farmers and pastoralists. Land for investment in rural areas can be acquired on lease from individual rural land holders or from the local government for a specific period of time, based on the rural land administration law. According to Article 4(3), the federal and local government can dislocate private land holdings or communal land and reallocate it for investment purposes. In such cases, the holder shall be given compensation proportional to the loss, or shall be given substitute land. The proclamation stipulates that the investor who has leased rural land may present his use right as collateral or shall have the right to transfer his rural land use right through inheritance to members of his family (Art 5). A rural land holder is obliged to use, protect and manage his land including all natural resources therein. When the land gets damaged, due to the holder's negligence the holder of the land shall loose his use right (Art.7).

Regional Rural Land Administration and Land Use Proclamations basically follow a similar approach to securing land use rights (as in Proclamation 456.2005) to farmers, pastoralists and investors. All of them clearly stipulated that the land holder shall be obliged to use, protect and manage his land with all environmental concerns, but none of them stated the allocation and development of land to the requirement of EIA.

Development conservation and utilization of Forest Proclamation 542/2007

The proclamation obliges consultation with, and approval of, the authorized government body prior to undertaking large-scale farming, mining operation, construction of roads, water drilling, irrigation, dam construction and other similar investment activities or giving license for such operations. But it fails to require an Environmental Impact Assessment for investment activities in forests.

Management and Utilization of Wildlife Resources Proclamation (No. 541/2007)

This proclamation encourages investment in certain relevant sectors such as wild-life based tourism. However, it too fails to put EIA as a pre-investment requirement.

Investment Proclamation (No. 280/2002 and No. 375/2003)

The Investment Proclamation and its amendment is the law that regulates investment in the country. An investment license may or may not be required for local investors; however it is mandatory for foreign nationals. Issuance of an investment license requires the filling out and submission of an application form to the investment commissions. The investor is required to provide information with very few details regarding the investment capital, the targeted region of operation, investment activities and the employment opportunities it creates. In order to facilitate the investment process the principle of "one-stop-shopping" was put into practice whereby the investor should also obtain an operational license from the investment authority. The proclamation also states that implementation of the investment should be according to the relevant laws of the country. While the investment proclamation facilitates the investment process, it fails to put EIA requirement as a prerequisite for the issuance of the necessary operational licenses. It simply requires notification of the sectoral government organization by letter, requesting the necessary support and follow-up of the implementation. This is in direct contradiction to the EIA proclamation that obliges any government body to ensure the approval of the authorized government body for implementation permits prior to issuance of operation licenses.

5.2. Summary and Analysis of Policies and Legislations

- The Ethiopian Energy Policy does not explicitly mention development of biofuels but clearly stated the need for developing renewable energy resources and substitution of fossil fuels particularly in the transport sector,
- Environmental laws stress the need for EIA in developments that have the potential to cause significant impact on the environment. However, literally all proclamations fail to put EIA approval as a pre-investment requirement,
- The environmental policy restricts free movement of alien and genetically modified species. However, it has been observed that various biofuels developers are freely transporting and planting energy crops imported from other countries without getting any permits from the relevant government organizations,
- Small scale biofuels production for local consumption could turn out to be helpful instruments in bringing an agricultural renaissance that invigorate land use and livelihoods in rural areas. However, large scale development of biofuels in the scale required for import substitution and export will be very difficult, perhaps impossible, to achieve without harmful impacts.
- In cases where competition for resources exists among local farmers and future biofuels developers, if appropriate conditions are not put in place, the rapid spread of commercial biofuels production may result in poorer groups losing access to the land on which they depend. In these contexts, the spread of commercial biofuels crop cultivation can have major negative effects on local food security and on the social, economic and cultural aspects of land use.

5.3. Suggested Roles of Major Government Institutions

A coordinated effort by concerned government institutions, developers and local communities is crucial to make biofuels development contribute positively to the national development program. Development of biofuels, both from the farming and marketing aspects, is a new phenomenon to Ethiopia. A well guided

and cautious approach with frequent checks and balances of our strategies, laws and practices could lead us on the required development path. On the other hand, it should also be noted that the present rush for biofuels and the anticipated scale of development if uncontrolled can go wild and might lead to a disastrous end.

Ministry of Mines and Energy (MoME), and Regional Energy Bureaus

Energy is an input commodity to development programs in all sectors. MoME is the mandated government organization to provide guiding principles for promotion, development and utilization of energy resources. In this regard, it has developed the biofuels strategy and is now promoting biofuels development in the country. It is up to MoME to assess the implications of the strategies on the local environment, livelihood of the local communities, food security and on other social and cultural aspects. This requires repeated public consultations, a close follow up of activities on the ground through the synergy of relevant regional bureaus and various stakeholders.

Ministry of Agriculture and Rural development, and Regional Agriculture Bureaus

- Identification and zoning of land for biofuels development: This has to be seen from various perspectives as it tries to satisfy various interest groups and conditions such as developers/ investors, farmers/local communities, the environment, food security, energy security, etc.
- Research and development on selection and improving varieties of energy crops suitable for various ago-ecologies for enhanced biofuels yields,
- Approval of energy crops that will be promoted in the country:- from the points of view of avoiding uncontrollable infestation by new and genetically modified species,
- Careful identification of the scale that biofuels should be promoted so that developments do no harm food security,
- Facilitate information exchange and conduct trainings in the possible risks of biofuels production and how to avoid them.

Ministry of trade and Industry, and related Regional Bureaus

- Assist developers in marketing of biofuels produced in the country - including local and international markets,
- Encourage developers for higher value added to their export products: – Provide assistance in terms of providing information, training and introduction of technologies,
- Oblige developers to conduct EIA as prerequisite to issuance of operational license.

Investment commission (at Federal and Regional levels)

- Ensure that permission for biofuels development in Ethiopia is ONLY granted based on proper land inventory,
- Oblige developers to conduct EIA as prerequisite to issuance of operational license.

Environmental Protection Authority

- Quick evaluation process of EIA documents submitted by developers,
- Follow up, monitor and evaluate projects if they are implementing activities as outlined in their EIA documents.

6. Recommendations

The recommendations outlined below consider the current trend of biofuels development in the country and the government's determination to further promote involvement of national and foreign investors in the activity. The recommendations highlight that biofuels development should only be permitted if social and environmental sustainability are ensured.

- The demand for biofuels in the world market and the conducive investment policy in Ethiopia have attracted many international and national companies for investment in biofuels development. Several other factors such as very minimal or literally no investment requirements, and very low lease price of land have increased the biofuels boom in the country. The biofuels strategy of Ethiopia has been distributed to respective regional buraeas as a guiding document. However, proper land inventory has not been conducted by some regions as they have reported the larger portion of their regions available for biofuels development. Complete and proper mapping of land availability for various purposes in all regions need considerable time. Until proper inventory of land is conducted, biofuels development should not be encouraged.

- The strategy, however, at this stage should promote only small scale production of biofuels. This would help to buy time for further investigation of appropriate land, and to clear out the uncertainties in the biofuels development practices. Any possible negative impact that may result from such small scale development can be controlled and managed easily without making any irreversible damages. Furthermore, the sucesses and failers in the initial stage of implementation would be used to evaluate the strategy itself. Important lessons could be drawn from the initial small scale practices which could be used for furthering the development process.

- The biofuels startegy should be seen again from the point of view of using "non-marginal lands" but with proper and due consideration of land security, food security and environmental consequences. In reality, biofuels businesses can hardly become sustainable and competative on degraded lands. In such situations it is hardly possible to achieve the anticipated progress in biofuels development in the country. In fact, at present fertile arable lands and virgin forests are being cleared and allocated for biofuels developement without any considereation of the potential impact on the environment and consequences on food security. This has to be stopped. The biofuels development and utilization strategy should be based on these realities.

- Moreover, it should also be noted that chronic and transient food security problems are not always caused by shortage of arable lands for growing food but rather low agricultural productivity due to traditonal farming practices. Strategies to improve agricultural productivity may release several "non-marginal lands" for small scale energy crops production such as out-growers scheme. Therefore, strategies for improvement of agricultural productivity should take priority over promotion of biofuels development.

- The principle of "one-stop-shopping" facilitates the investment process but should not avoid the necessary requirements and safeguards that the process of obtaining permit should pass through. Many of the biofuels developers find their ways into opeation without fulfilling the necessary operational requirements. The requirements may vary depending on the area of investmet. The Investment Authority should make sure that projects get permits from the mandated government organizations before starting operations.

- The strategy should put preparation of environmental impact assessment (EIA) as a prerequist for the commencement of

project activities. Preparation of EIA alone doesn't help, but it has to be evalated by the appropriate body,

- The mandated government organization for the evaluation of EIA has to be well equiped in terms of facilities, equipment and appropriate human skill,

- Regular followup and evaluation of development activities on the ground is crucially important,

- Civil society organization need to work in awareness raising stressing that sustainable development could come only through consideration of people and the environment. Environment concerns are not luxury that we can overlook in the effort against extreme poverty. This has to be communicated at all levels from the highest government officials to local communities,

- Engagement of civil society organizations (increasing awareness and building people's capacity to claim and secure their rights - in the case of power asymmetries), will have a continued role to play in holding government and investors to account regarding their promises on protection of land access, the environment and food security. This is particularly important in the case of power asymmetries where powerful investers try to manipulate legal processes and actions,

- According to the EIA proclamation, the biofuels development and utilization strategy itself and other government laws and strategies should be subject to EIA processes.

- For the sake of food security, the strategy should clearly disallow use of food crops for biofuels production,

- New energy crops which do not have track record for safety (i.e. invasiveness,) including genetically modified trees should

not be imported to and promoted in the country. Permission from the concerned government institution should be set as a requirement for importation and promotion of new energy crops,

- Use of vegetable oil as it is without any need of converting it to biodiesel should also be promoted for household cooking, lighting and driving engines. This should be particularly emphasized in small scale biofuels production for consumption in rural areas,

- Given the uncertainties in the overall benefits and consequences of biofuels development, the proposed large commercial scale development which foresees import substitution and export is very likely to cause irreversible harmful impacts if adequate and reliable monitoring methods are not put in place. Until then, development of biofuels should be limited only to the scale that can be managed and closely monitored.

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List of contacted persons

No.	Name	Region	Organization
1	Amare Engedayehu	Amhara	Rural energy and mines development and promotion Agency
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4	Dr. Zerihun	Amhara	Organization for Rehabilitation and Development in Amhara (ORDA)
5	Ato Ephrem	Amhara	Ambasel Jatropha Project (Tiret)
6	Ato Shiferaw Anteneh	Amhara	Environmental Protection ,Land Use and Administration Authority
7	Ato Mach Koat Rik,	Gambella	Deputy Head of Environmental Protection and Natural Development Sector
8	Ato Kalaye Tesfaye	Gambella	Agriculture and Natural Resource office
9	Ato Mesele Keda	SNNPRG	Mines and Energy agency energy Department Head
10	Ato Mesfine Batiso	SNNPRG	Mines and Energy agency Team leader
11	Ato Yishake Azaze	SNNPRG	Investment Agency department Head
12	Ato Tegegn Hira	SNNPRG Wolaita	Water, Mines and Energy office

No.	Name	Region	Organization
			Alternative energy Resource development Expert
13	Ato Dawite	Wolaita	Sun Biofuels Ethiopia Wolaita Area office representative
14	Mr. Ari Zvik	Wolaita	Global Energy Ethiopia PLC Operation Manager
15	Ato Solomen Kebed	Federal	EPA EIA department head
16	Ato Aklilu	Federal	EIA public relation Head
17	Ato Muradu Mifta	Benishangul Gumuz	EPA expert
18	Ato Abera Selish	Benishangul Gumuz	Investment office Head

Annex 1: List of investment projects (Biofuels Production)

From 1992 - August 30,2008 G.C Investment Capital in Thousand Birr							
No	**Licensing Office**	**Name of Investor**	**Country of Origin**	**Region of Investment**	**Capital**	**Land Size Obtained/required (ha)**	**Investment Status**
1	EIC	Biomassive AB (Ethiopian Branch)	Sweden	Amhara	1564492.1	100,000	Pre-Implementation
2	EIC	Adventure Ethiopia Agricultural Devt.	China/South Africa/Ethiopia	Amhara	50000	50,000	Pre-Implementation
3	Amhara	Organization for Rehabilitation and Development of Amhara (ORDA)	Ethiopia	Amhara			Operational
4	EIC	A Belgium Company (Name not known)	Belgium	Amhara		2.5	Operational
5	Amhara	Jemal Ibrahim	Ethiopia	Amhara		7.8	Operational
6	EIC	BDFC Ethiopia Industry	USA	Amhara		48,000	Operational/Ethanol
7	B.Gumze	Ambasel Trading Organization	Ethiopia	Benshangul	123000	20,000	Operational

8	EIC	National Biodiesel Corp/Sun Biodiesel	USA/Ethiopia	Benshangul		80,000	Stopped operation
9	Bensha.	Jatropha Biofuels Agro-industry	Ethiopian	Benshangul		100,000	Operational
10	EIC	I.D.C Investment	Danmark/Ethiopia	Benshangul		15,000	Operational
11	EIC	Ertale Bio Diesel PLC	Britain/Ethiopia	Multi regional	12000		Pre-Implementation
12	EIC	Qomo Gudda Industrial PLC	Sudan/Ethiopia	Multi regional	1900000		Pre-Implementation
13	EIC	African Climate Exchange PLC	USA/Ethiopia	Multi regional	195000	100,000	Pre-Implementation
14	EIC	Ciosco Petroleum PLC	Israel/Ethiopia	Multi regional	17400	10	Pre-Implementation
15	EIC	Energy seeds Ethiopia PLC	Kenya/Israel	Multi regional	1607.87	2	Implementation
16	EIC	Africa Sustainable Energy Corporation PLC	Netherlands/ USA	Multi regional	9500	20,000	Pre-Implementation
17	EIC	Vatic International Business PLC	India/Ethiopia	Multi regional	20500	20,000	Pre-Implementation
18	EIC	Horizon Plantation PLC	Saudi Arabia/Ethiopia	Multi regional	190000	300,000	Pre-Implementation

19	EIC	A.B.S.A Biofuels PLC	South Africa/China/ Ethiopia	Multi regional	37553.5	30,020	Pre-Implementation
20	EIC	Emami Biotech LTD (Ethiopian Branch)	India	Multi regional	620000	40,000	Pre-Implementation
21	EIC	OBM Ethio Renewable Energies PLC	Italy/Ethiopia	Multi regional	675000	50,000	Pre-Implementation
22	EIC	Fasika Fantabil Mengesha	Britain	Multi regional	1000	600	Pre-Implementation
23	EIC	Agropeace Bio Ethiopa PLC	Israel	Multi regional	15000	80,000	Pre-Implementation
24	EIC	Flora Ecopower (Ethiopia)PLC	Germany/Israel	Oromia	671000	15,000	Operational
25	EIC	Petropalm Corp-Ethiopia PLC	Austria/USA	Oromia	200000	200,000	Operational
26	EIC	Ethiopia Bio Power PLC	Canada/Netherlands/Ethiopia	Oromia			Pre-Implementation
27	EIC	Vatic International Business PLC	India/Ethiopia	Oromia		20,000	Operational
28	Oromia	Sintayehu Mekuriya H/Giyorgies	Ethiopia	Oromia	500		Pre-Implementation
29	EIC	National Energy PLC	USA/Ethiopia	Oromia	50000		Pre-Implementation

30	Oromia	Green Energy plc	Ethiopia	Oromia	120000	50,000	Pre-Implementation
31	Oromia	Soubra Abdallah Khalid	Ethiopia	Oromia	40000	1	Pre-Implementation
32	EIC	Sheger Agro Industrial Park PLC	Ukraine /Ethiopia	Oromia	10000	10	Pre-Implementation
33	EIC	Christian Nuhoho	Ghana	Oromia	5000	100	Pre-Implementation
34	EIC	Paul Morrell	USA	Oromia	10000	1,000	Pre-Implementation
35	EIC	Soubra Abdallah Khalid	Lebanon	Oromia	40000	10,000	Pre-Implementation
36	EIC	The Giving Tree Nursery PLC	Israel/Ethiopia	Oromia	51390	200	Pre-Implementation
37	EIC	J.M.B.O Bio Fuel Production PLC	America/ Ethiopia	Oromia	20000	2,000	Pre-Implementation
38	EIC	Global Agricultural Resources	Liechtenstein/Benin/Switzerland	Oromia	40000	60,000	Pre-Implementation
39	EIC	yehuda Hayun	Israel	Oromia	310252.32	8,000	Pre-Implementation
40	EIC	Africa Ethiopia Biomass Energy PLC	China	SNNPR	2000		Pre-Implementation
41	SNNPR	2H 2S International Business PLC	Ethiopia	SNNPR	100000	100,000	Pre-Implementation

42	SNNPR	Yosef Ayalew	Ethiopia	SNNPR	7470	1,500	Pre-Implementation
43	SNNPR	Getachew Mulugeta	Ethiopia	SNNPR	110000	25,000	Pre-Implementation
44	EIC	Global Energy Ethiopia PLC	Israel	SNNPR	222000	10,000	Operational
45	SNNPR	Omo Sheleko Agro Industry	Ethiopia	SNNPR		5,500	Operational
46	EIC	F.E.P.E.Amaro Bio-Oil PLC	Cyprus/Israel	SNNPR	135000	50,000	Pre-Implementation
47	EIC	National Biodiesel Corp/Sun Biodiesel	USA/Ethiopia	SNNPR		5,000	Operational
48	SNNPR	Etan Biofuels	Ethiopia	SNNPR	121000	5,550	Pre-Implementation
49	SNNPR	2A 2S International Business PLC	Ethiopia	SNNPR	120000	60,000	Pre-Implementation
					Total land area required =	**1,682,503**	
EIC = Ethiopian Investment Commission; SNNPR = Southern Nations and Nationalities and Peoples Region							

(Source Ethiopian Investment Commission and Regional bureaus)

Annex 2: Biofuels General Information/ Check List

I. General Description of the area

a) Location and ownership

1. Region_____ Zone : _____
   Wereda:_____ Kebele : _____
2. Any other relevant Information:
   _____
3. Investor/ Developer Name
   _____
4. Ownership Type _____ (Gov't, NGO, Private, Community, other)
5. Is the owner of the project a national or international organization?
6. What is the amount of the project budget?
7. What is the lease price for the land (ETB/hectare) and for how long is it leased (years)?

b) Project Description

8. Feedstock growing scheme:

a) Large scale commercial farm:

i) Area allocated (ha); ii) Area planted (ha) ;

iii) Production by year;

b) Out growers' scheme:

i) Number of growers; ii) Area planted (ha);

iii) Production by year.

(c) Other (Specify scheme):

i) Area allocated (ha); ii) Area planted (ha);

iii) Production by year.

9. Types feedstock grown (castor bean, Jatrofa, etc.)?
10. For non-commercial farm what farm input are provided to the growers (Seeds, Fertilizer)?
11. Is there any bean crushing machine?

    If yes, specify the capacity; if no, is there any future plan for it?

12. Is there any oil expelling machine?

    If yes, specify the capacity; if no, is there any future plan for it?

13. Is the product for local use or export?
14. Is there any plan for production of bio-diesel?

II. Land use, Socioeconomic, Wild Life and Watershed Aspects

1. Land use

a. Specific location of land allocated for biofuels production: Latitude: _____, Longitude: _____.

b. Land use prior to the development of the site for Biofuels production [i.e. Agriculture, grazing land, forest (natural, bush land, commercial plantation, etc.), barren or degraded land, etc.]. If information is available, please write previous vegetation composition of the area with type of plant and wild life species.

c. Impacts on plant species due to the change in land use (list vegetation species affected).

d. Short and long term consequence of the project on:

    i) Land use and Land cover change

ii) Local environmental change or natural resource (on soil and hydrological cycle of the watershed).

iii) Other consequences (specify):

e. What will be the mitigation options to balance the ecosystem structure and functions like trees, bushes/shrubs, grass species and wild animals?

2. Socioeconomic Aspects

a. How did communities in the area previously benefit from the land [i.e. source of energy, food (hunting, honey, fruits, cultivation), grazing for cattle, etc]?

b. How does the project affect the livelihoods of communities living in and around the area? Specify immediate and long term losses and consequences?

c. How does the project benefit the local communities? Immediate and long term benefits and consequences of the project?

d. Are there any incidents of land use conflicts among neighboring communities related to the project intervention?

3. Wildlife

a. List wild animal species previously existed in the site?

b. Impacts on wild life species due to the change in land use (list types of wild animal species affected).

c. What were previous ecological services of the part of habitat (grazing area, water point, breeding ground, etc)?

d. Other impacts (specify).

4. Watershed

a. The part of watershed affected (Down stream, up stream).

b. Will there be any short and/or long term effect on erosion and soil resource degradation?

c. What may be the consequence of the immediate effects of land use change on flora and fauna of the area in relation to the following?

i) Severity of soil erosion by wind before and after the investment.

ii) Severity of soil erosion by water before and after the investment.

Severity of runoff loss of rain water from farmlands which otherwise could have been retained in the soil and used by crops/plants before and after the investment.

iii) Severity of sedimentation and reduction of runoff water reservoirs such as ponds and lakes before and after the investment.

III. Other issues

1. Does the project have an Environmental Impact Assessment (EIA) document?

If the answer for question no. 1 is yes, please answer the following questions.

i. Is the EIA prepared before the beginning of the project or after the project started?

ii. To which government organization was the EIA submitted (Federal and/or Regional)?

iii. Did the EIA included community participation?

iv. What are the major environmental problems stated in the EIA and the proposed mitigation measures (List)?

   v. Are the mitigation measures proposed in the EIA being implemented?

2. Is there any follow up by any regulatory body?
3. Is there any environmental auditing schedule?
4. Are there any sacred sites (ritual or worship place) in the area developed for biofuels plantation?
5. Did the project made any compensation to the community for any lose benefits, displacement or change of life style due to the project intervention in the area?
6. What is the strategy planned to be followed to cope with the impact/damage caused by the activity on natural resources (forest trees and seedlings; bushes and shrubs; grasses, fodder and wild animals; etc. and the possible effects on soil erosion and runoff water loss) at:
   a. Household level:
   b. Community level:
   c. Peasant association level:
   d. District and zonal bureau of agriculture and/or natural resource levels:
   e. Local NGO(s) if any:
7. What do farmers or peasant associations expect from the developers and from concerned regional bureaus, NGOs, the Regional Governments at large or other stakeholders in the process of addressing the impact/problem?

IV. List of Documents Required

1. Environnemental Protection organ Establishment (i.e. EPA) – Proclamation (Regional)
2. EPA Policy
3. EIA proclamation
4. Investment Proclamation (Regional)
5. Forest and Wildlife Conservation and Development Proclamation (Regional)
6. Forest Proclamation
7. Rural Land Administration and Utilization Proclamation (Regional)
8. Proclamation on Access to Genetic Resources and Community Rights
9. Other relevant documents.

Part Two

Proceedings of the National Workshop on

Environmental Impact Assessment of Biofuels Development

By Kirubel Teshome

1. Executive Summary

MELCA Mahiber has organized a National workshop on EIA and Biofuel on September 16, 2008, at Ghion Hotel, Addis Ababa. The workshop was formally opened by Dr.Tewoldebirhan Gebre-Egziabher, General Manager of Environmental Protection Authority. He warned the participants of the dire consequence of biofuels on food security. He also referred to the current financial crisis and took it as an indication of the bad implication of the reliance on foreign capital.

It was attended by the members of the House of People's Representative of Ethiopia, Head of Biofuel Development under the Ministry of Mine and Energy, delegates from Regional Governmental Bureaus, local experts, CSOs, Media and other stakeholders.

The purpose of the workshop was to provide a space for a critical evaluation of agrofuel development in Ethiopia in terms of the proper implementation of EIA, cross-sectoral impacts, impact on agricultural and pastoral livelihood, impact on forest and other biodiversity, benefits and constraints. 3 research papers were presented in addition to the summery of agrofuel development activities of 5 selected Regional states. The main input to the workshop was a rapid assessment commissioned by MELCA to give an overview of the biofuel strategy document of Ethiopia and its implementation in 5 Regions (Amhara, Benshangul, SNNPR, Gambela and Oromia).

The research presentation and the discussion that ensued pointed out that: there is no Environmental Impact Assessment done when land is allocated to investors; the Regional' bureaus do not have clear idea as to which land to allocate as they have not done land or natural resources inventory; there is little study on the kind of biofuel crops that are suited to the country. For example, palm oil is promoted as one of the crops but the plant grows in areas which require a lot of rain and currently only the forested areas of Ethiopia get this much rain. The case of Gambela where an investor requested for 40,000

hectares of forested land was mentioned as an example. It was also revealed that 75% of the land allocated for biofuels is agricultural and forest land. There is no discussion over the issue at the regional level and because of this Regions are not aware of the consequences of this large scale development.

So the participants suggested for the reassessment of the strategy/ implementation and, taking the example of the EU where biofuel development was assessed after two years and where questions of land availability, EIA, productivity, social impact, etc., were considered, a step by step development instead of a rush in to the unknown was suggested. Conducting an in depth research of the biofuel crops like Jatropha, which might have a negative impact on the productivity of the agricultural land, was also an issue to some of the participants. The Example of The Amhara Development program was very encouraging as development mostly happened in degraded mountains. The participants have also emphasized the enormous need for researching the economic impact and profitability of household production. Moreover, most of the participants agreed that the government and other stakeholders should engage themselves in a nation wide debate and discussion to come up with a more clear and integrated strategy which insures the sustainability of our development. The participants requested MELCA to have similar kind of debates at Regional levels.

2. Presentations

2.1. International Trends in Agrofuels Development: Opportunities and Risks.

(By: Gebremedhine Birega)

In his presentation on the international trends of agrofuel development, Captain Gebremedhin, tried to give a glimpse of historical overview of the emergence of biofuels production, geopolitics analysis, driving factors and major actors, the current international concerns, possible scenarios for future engagement and forwarded recommendations.

Captain Gebremedihn Birega

Historical overview

- 1973 Great oil crisis
- 1974 legislative steps by US to promote ethanol made from corn as an alternative fuel.

- 1977 President Jimmy Carter told Americans that balancing energy demands with available domestic resources would be an effort the "moral equivalent of war."
- The gradual phase out of lead in gasoline fuels in the 1970s and 1980s - additional boost to the fledgling ethanol industry;
- Series of tax breaks and subsidies introduced;
- Now, due to generous government subsidies, corn and sugar-based ethanol and bio-diesel have become all the rage in the US;
- We have even started to hear of Second (Next Generation) Biofuels.

Geopolitics of Agro fuels

- Every nation has a foreign policy to ensure that its needs are represented in the global community.
- Multinational companies have become major actors in the foreign policy making process, especially in developed nations.
- What has been seen to date is that ideologies and power-hungry people have used the international scene to impose their national interests, ideologies and agendas, sometimes without any regard to the nations and people they may affect directly or indirectly.
- The rush to introduce large scale agro-fuels has been driven mainly by the desire of MNCs to maximize profits at the expense of livelihoods and loss of biodiversity in poor countries.
- The way agro fuels are going to be developed has already been defined by DCs, and that path is now being followed, by huge MNCs and their political allies.
- The world's major energy consumers are seriously searching for ways to reduce their dependence on fossil fuels and guarantee constant.

- The focus on finding new energy systems is mainly an outgrowth of economic and geopolitical concerns, in that none of the big three consumers, the US, Europe and China, wants to continue to pay spiraling energy costs or be held hostage to foreign producers.

Major Driving Factors: <u>Business-Driven, politically-supported Agenda</u>

- Desire to diversify and security of future energy supply
- Rural development, revenue generation and job creation in least developed countries (LDCs),
- GHG – emissions reduction because of climate change
- Most important to have access to LDCs' remaining natural resources by MNCs to meet the energy desires of home governments and accumulate wealth at the expense of the poor.

Targets for biofuels over the world

COUNTRY	YEAR	Percentage
US	2020	30.0
US	2017	20.0
India	2020	20.0
Asia	2020	10.0
Japan	2030	10.0
SA	2010	10.0
EU	2010	5.75
EU	2020	10.00
Brazil	2010	5.0

- These targets far exceed the agricultural capacities of the industrial North.
- Europe would need to plant 70 percent of its farmland with fuel crops.

- The entire corn and soya harvest of the US would need to be processed as ethanol and biodiesel.

Converting most arable land to fuel crops would destroy the food systems of the North, so the Organization of Economic Co-operation and Development countries are looking to the South to meet demand.

What concerns are there?

- April 2008 World Bank Report, biofuels have caused world food prices to increase by 75-percent;
- October 2007, the current push to expand the use of biofuels is creating unsustainable tensions that will disrupt markets without generating significant environmental benefits;
- In 2007, biofuels consumed Thirty million tons or one third of America's corn (maize) harvest, which greatly reduces the world's overall supply of grain and has increased global food prices;
- Filling up one large vehicle fuel tank one time with 100% ethanol uses enough corn to feed one person for a year;
- American ethanol subsidies are about $7 billion USD per year (equal to roughly $1.90 USD total for each gallon of ethanol)
- Generally it has been confirmed that ethanol production energy cost is 29% higher than the output,
- the consumption of ethanol to replace current U.S. petroleum use alone would require about 75% of all cultivated land on the face of the Earth, with no ethanol for other countries, or sufficient food for humans and animals;
- Another way to push genetically modified organisms (GMOs),
- Mandatory targets for agro fuels unachievable;
- Land availability for both food and fuel is very questionable,
- Unlikely to deliver a meaningful reduction in GHG-emissions,

- Very low impact on overall energy security,
- Puts energy on an economic collision course with food/feed destabilizing critical markets,
- Risking sustainable agriculture and environment,

Any consensus at international level?

- Not on mechanisms as to who and how should benefit,
- Rich countries and MNCs too anxious to meet their targets at what ever cost
- Poor/developing countries keen to conserve biodiversity & ensure food sovereignty
- Precautionary approach to biofuels /agrofuels at the CBD COP/MOP May-June 2009, Bonn,
- Genetically Engineered trees still controversial,
- Different scenarios being developed.

Possible Scenarios

1. ***Markets First*:**
   - The private sector, with active government support, pursues maximum economic growth as the best path to improve the environment and human well-being;
   - Narrow focus on the Sustainability of markets rather than on the broader human-environment system;
   - Technological fixes to environmental challenges are emphasized at the expense of other policy interventions and some tried-and-tested solutions

2. **Policy First:**
   - Government with active private and civil sector support initiates and implements strong policies to improve the environment and human well-being, while still emphasizing economic development.
   - Introduces some measures aimed at promoting sustainable development, but the tensions between environment and

economic policies are biased towards social and economic considerations;
- The emphasis is on more top-down approaches, due in part to desires to make rapid progress on key targets.

3. ***Security First*:**
- Government and private sector compete for control in efforts to improve, or at least maintain, human well-being for mainly the rich and powerful in society;
- Usually described as *Me First;*
- Has as its focus a minority: rich, national and regional;
- It emphasizes sustainable development only in the context of maximizing access to and use of the environment by the powerful;
- The UN and other regional organizations' roles viewed with suspicion, particularly by some rich and powerful segments of society and even countries.

4. ***Sustainability First*:**
- Government, civil society and the private sector work collaboratively to improve the environment and human well-being, with a strong emphasis on equity.
- Equal weight is given to environmental and socio-economic policies;
- Accountability, transparency and legitimacy are stressed across all actors
- Strong efforts to implement the recommendations and agreements of the Rio Earth Summit, WSSD, and the Millennium Summit;
- Emphasis is placed on developing effective **public-private-community** partnerships not only in the context of projects but also that of governance, ensuring that stakeholders across the spectrum of the environment development discourse provide strategic input to policy making and implementation

- There is an acknowledgement that these processes take time, and that their impacts are likely to be more long term than short-term.

Conclusions

- The world food equation is changing with big disadvantages to the poor, bringing greater malnutrition;
- The observed and ever increasing food price in the world would lead to unexpected crisis, and may eat/destroy all claimed progresses
- Need to give time to think and act in consultation with the rural community and urban consumers before rushing for agrofuel.

Recommendations

- At least five years Moratorium: STOP-THINK-ACT
- Food Sovereignty and Security: the right to food, the basic fuel of living beings, is of a higher order than the need to fuel machines;
- Precautionary Approach
- No GM Trees
- Consuming less energy
- Adopt and implement Sustainability First Scenario
- Look for other renewables like wind, solar, geothermal, etc
- Community, Local, and National Control Criteria: small scale, mixed or inter-cropping of feed stocks and local level processing for local community consumption first

2.2. The Biofuels Development and Utilization of Ethiopia

(By: Melis Teka, Ministry of Mines and Energy)

Pre strategy Biofuels Activity

- Establishing a biofuels taskforce,
- Develop a terms of reference,
- Identification of appropriate locations for plantation of biofuels crops,
- Determine the capacity/potential of bio ethanol production in the country,
- Preparation of the Biofuels Development and Utilization Strategy draft document,

Ato Melis Teka

Goal

The goal of the strategy is to produce adequate biofuel energy from domestic resource for substituting imported petroleum products and to export excess products.

The general objectives are:

- Substituting mineral fuels with locally produced biofuels, in order to save and earn foreign exchange;
- Contributing to rural development through agricultural based growth by creating jobs in feedstock production, biofuel manufacturing, and in transporting and distribution of feed-stocks and products;
- Reduction of environmental pollution by harmful pollutants from vehicles exhausts (GHG emissions).

Principles of the Strategy

- Ensure that it supports food security;
- By looking seriously its negative effects on economic development, environmental and cultural values and by assuring land, water and grazing land being used by farmers and pastoralists;
- By devising means for broad participation of farmers and pastoralists for benefit sharing.
- Ensure that it maintains environmental sustainability. In this regard, emphasis will be given to the conservation and improving of soil fertility, water quality and biodiversity.
- The by-products of biofuels will be utilized for various economic benefits and those which are toxic are to be detoxified for environmental safety.
- Ensure sustainability of the country's economic resource development and secure the benefit on the use of biofuels.
- The biofuels development will conform to the international effort on the mitigation and principles of greenhouse gases.

Strategy for biofuel development and use

- Accelerating biofuel technology transfer, research and development.

- Increasing bio fuel development
  - Ethanol: To produce ethanol from sugar cane.
  - Biodiesel: To produce bio-diesel from *Jatropha curcas*, castor crop and palm tree. To ensure that allocation of land for development of bio-diesel such that; in low and barren areas where rain fall is scarce the livelihood of the pastoralists should not be affected; and by coordinating with other farming activities without jeopardizing the farmers food production needs.
- Increasing biofuel use and export earnings
- Involve Biofuels Actors
- Efficient coordination and leadership for biofuel development
- Increasing finance for biofuel development
- To enhance international cooperation for bio fuel development
- Biofuels development and utilization activity in Ethiopia

Biofuels Development and utilization activity at federal and regional level

- Bioethanol development
  - By 2013 the expected ethanol production will reach 130 million litres..
- Biodiesel Development
  - Identify the potential and Resource of the biofuels plants,
  - Encourage out growers scheme,
  - Donors and NGOs are getting involved in this program.

Activities by institutions at Federal level

- Assigning the coordinator for Biofuels Activities,
- Preparation for Biofuels usage guidelines,
- Standardization of Bio ethanol production,
- Finalize the Biofuels business process re-engineering (BPR) process.

The third presentation is already covered in the first part of this document.

3. Discussions

Several questions were thrown to the presenters which pave the way for a very profound and insightful discussion. Some of these include:

- Does our Biofuels development strategy intended to reduce our overdependence on petroleum and replace our increasing energy demand or is it export oriented?
- Do we have a system that enforces the proper implementation of EIA?
- How many of the investors are interested in accepting marginal lands since their supreme motive is profit oriented?
- How are we protecting critical areas of biodiversity?
- Can we really replace our energy need by producing biofuels? Is it practical?
- Is there any kind of external pressure that forced Ethiopia to start the plantation of biofuels plants?
- Do we study the negative consequences of some plants like Jatropha? Since it is considered as invasive by other countries?
- Do we really have an in-depth study of the profitability of farming biofuels plants at the household level?
- Did the farmers get enough and genuine information before they give their consent to be included in the out growers scheme?
- Do we analyze and study the impacts that it may have on our future generation?
- How do we compensate for the damage on biodiversity?
- How threatening is the issue of using Genetically Modified trees for the production of agrofuel?
- Which one should concern us most; ensuring our food security or minimizing the foreign exchange?
- Do we know the exact amount of land that our biofuels development strategy needs to meet its target?

- What is it that the biofuels development strategy wants to achieve? Is there any definite short term goal?

Moreover, most of the participants got the opportunity to reveal their concerns regarding the benefits and threats of biofuels development strategy. Here are some of their opinions:

- Ethiopia has to search for another alternative in order to resist the sky rocketing petroleum price boom and its tragic effect on poor countries.
- Biofuels production is not a luxury thing. It is a question of survival.
- Biofuels development may be advantageous. However, comparing the huge amount of land it demands, it would be very dangerous to pursue it without a serious and profound study.
- The reality that is on the ground is very devastating as 75% of the land used for biofuels plantation is either from the farmers or by cutting down the dense forests.
- There is extremely poor linkage between EPA and Investment bureaus which creates a loophole in the effective implementation of EIA which might be the best tool in minimizing environmental damages.
- There is a huge concern on the impact of biofuels development on our food security and food sovereignty.
- Which one should concern us most: ensuring our food security or minimizing the foreign exchange?
- Benefit sharing packages of the farmers are not clearly stated.
- What is stated in the strategy contradicts with what is actually happening in the ground
- It is a devastating mess that is happening without EIA
- Weak law enforcement and implementation problem still remains to be our great impediment.
- There is no uniform way of granting land for investment purposes. There are different experiences in different regions.

4. Conclusion/ Recommendation

- Reassessment of the strategy/ implementation. It is wise to learn from other countries mistakes instead of repeating them. Taking the example of the EU where biofuels development has been repeatedly assessed where questions of land availability, environmental consequences, productivity, social impact, etc., were considered. A step by step development instead of a rush in to the unknown was suggested.
- The establishment of an advisory group that includes all stakeholders for the ministry of Mines and Energy in order to revisit the current biofuels development strategy.
- EIA is a very crucial issue that should get due and supreme emphasis to its proper implementation.
- There is a massive need of executing a detailed and proper land inventory
- There is enormous need of researching the economic impact and profitability of household producers/ out growers' scheme.
- An in-depth research of the biofuels crops like Jatropha should be seriously conducted as it might have a negative impact on the productivity of the agricultural land.
- The biofuels development strategy should go in line with the sustainable development platform of the country.
- We should be alert and highly discourage the entrance of genetically modified trees
- We should take the future generation in to account while we made some decisions that might affect them.
- There is a huge importance of awareness creation workshops for regional governments.