

The South in the driving seat

—

Sustainable biofuels defined by the global South



Contents

Summary: How the global South sees it	4
Introduction: Sustainable fuels as defined by the South	6
Sustainability criteria: Current situation	8
Criteria development.....	11
Usage and Ownership	11
Food Production	14
Land and water usage.....	16
Climate Benefits	17
Agricultural Development	18
Research, development and training.....	19
.....	19
Participating organizations.....	20

***Mattias Goldmann**, spokesperson of Green Motorists, formerly resident in Kenya, where he mainly worked on developing emission reduction projects in the renewable energy sector. Mattias has helped develop environmental legislation in Latin America, and recently helped define projects to reduce climate change in Haiti. Mattias previously worked at the Swedish parliament and is the author of several books on sustainable motoring, including "Brake pads – how to deal with the opponents to sustainable motoring," and "Challenge 2020 -best practise in sustainable motoring", both published with support from the Swedish Transport Administration.*

This report is partially funded by Sida, the Swedish International Development Cooperation Agency. Sida does not necessarily share the views expressed in this report; the responsibility for the contents lies fully with the author.

Front page photos: Chameleon in Jatropha; Diwani Mkwizu, Diligent, ready to fill up with biodiesel, Jatropha in various processing stages; Zambian biofuel farmer Aaron Mweemba. These and all other photos taken by the author.

Summary: How the global South sees it

Is the glass half empty or half full? The issue is highly topical for biofuel production in the South, where the organizations we met were generally positive to biofuels, but only a few of them have seen any real benefit from biofuel production as yet. The main conclusions the organizations draw so far are:

- ***The global South is not primarily responsible for climate change, but has been hit the hardest***, which should be the starting point for policies on biofuels and climate. ***The poor farmers of the third world were hit hard by high oil prices***, which drive up the price of fertilizers and pesticides, makes transportation to the market and other farming related expenses more costly, while at the same time increases household expenditure for items such as kerosene for lighting. Reduced dependence on oil should be central.
- ***Food production and biofuel can be linked***, for instance when a biofuel crop is grown as fencing to protect other crops.
- ***Biofuels are indirect food*** for biofuels is increasing poor farmers' incomes, it means more and better food on the table.
- ***Biofuels will not replace food***. Hardly any farmer will replace growing food for their own use with planting biofuel crops. Other "cash crop", such as tobacco or coffee, are more likely to be replaced.
- ***Land access is rarely limiting***. Usually there is under-utilized land available, even excluding land that should be set aside for biodiversity protection. This is especially true if revenues from biofuels can be used to make local agriculture practises more efficient, and increase the yield per hectare.
- ***Biofuels are a cash crop among others***. The farmer of the South will not differentiate between different crops grown for sales to external buyers; Jatropha and tobacco will be treated equally and compared directly. Thus, sustainability demands for biofuels that are not reflected in similar demands on other cash crops, is difficult to fathom.
- ***Reduced dependency on oil is important***, especially when it comes to substitution in very simple machines. Producing one's own biodiesel for pumps and generators is more relevant than replacing gasoline with ethanol in cars, since the farmers don't have them.
- ***The domestic market for fuel is small and shaky***, so exports are needed to create volume and stability. Only the global North, especially Europe, will accept a price premium for sustainable production methods.

Specifically regarding the sustainability criteria many organizations call for:

- ***Tough climate requirements***. While environmental organizations relate this to the big climate challenge we face, agricultural organizations focus on that biofuels produced in tropical climates generally have (or can have) a lower carbon footprint than those grown in colder climates.
- ***Balanced land use requirements***. Most of Europe and North America's land has already been converted to agriculture or, and thus lost much of its previous biodiversity, and harsh land claims on the South would thus create an unfair advantage for the North.
- ***Equal treatment***. It is illogical to impose stricter sustainability requirements for biofuel crops than for other crops, as well as more stringent requirements for biofuels than for the

fossil fuels they can replace.

- ***Elaborate requirements for food production.*** Biofuels should only be considered as competing with food production if there is a genuine and direct connection, not if there is a more general co-usage of land, or if there is a general lack of food in the area of the biofuels production.
- ***Openness.*** Preparation and review of the sustainability requirement should be done in open processes, with transparency and ensured equal opportunity of participation for third world partners.
- ***Cheap and easy.*** It is vital that the verification process needed to ensure compliance with the sustainability requirements is not so expensive and/or complicated that it in practise rules out producers of the South, or increase their dependency on the buyers of the North.
- ***Increased information.*** The knowledge of the sustainability criteria for biofuels, from the EU and others, is relatively limited, even in organizations with high level of general environmental knowledge. This needs to be improved, and the North should bear the financial burden for this.

Introduction: Sustainable fuels as defined by the South

Today, the fossil, oil-based fuels petrol and diesel represent around 95 per cent of the global vehicle fleet fuel consumption. Roughly the same proportion applies to the EU and Sweden. Such a powerful and unilateral dependence is negative from several aspects:

- The high climatic impact of fossil fuels
- The dependency on a few producing countries, with its high vulnerability
- The cost rises as the gap between supply and demand increases, and “peak oil” approaches
- The extraction of fossil fuels causes major damage to nature
- The burning of fossil fuels provides significant threats to health and environment

There is now a clear ambition to reduce use of fossil fuels in the transport sector, which needs to be done in three ways:

- Renewable fuels, including electricity
- More efficient vehicles
- Changes in travel behavior with more public transports, cycling and walking, and telecommuting

All these approaches are needed, and while progress has been made in the two first areas, not much has been achieved in the third, perhaps because this challenges both the fuel and the automotive industries.

From a development perspective, the transition to renewable fuels is the most interesting. EU's “20-20-20”-goal demands that all member states by the year 2020 has reached 20 % renewable energy out of which 10 % biofuels in the transport sector, and that the energy efficiency is increased by 20 % to the same date. The biofuels mandate can probably only be achieved with a significant increase of imports from developing countries, hereinafter referred to as the South. In parallel with these requirements, the EU has adopted sustainability requirements for renewable fuels, in the Renewable Energy Directive (RED), which during 2011 is introduced in all member states national legislation. In the spring of 2011, the European Commission presented its White Paper on the subject, with much more far-reaching and long-term climate goals, indicating that the mandate of today is only a beginning.

There are obviously enormous differences between an oil producing country in the South, such as Indonesia, an economic giant and major biofuel producer such as Brazil, and an LDC country that imports all of its oil such as Mali. To generalize is always difficult, but necessary in order to move forward on the policy discussion. Our focus is on the forgotten groups of the South, such as small-scale farmers, often not very well represented by their governments and the major news agencies, whose representation in the South will be in the major capitals where they will be more influenced by the voice of the urban slum than that of the rural farmer, even though the farmers (and would-be farmers) far outnumber the urban dwellers.



Local production of Jatropha oil for simple engines, northern Tanzania

The biofuels sustainability requirements provide *an opportunity* for the South to produce raw materials in a way that benefits the world's poor, but also *the risk* of continued and even worsened poverty - historically the extraction of commodities from the South has normally led to the impoverishment of developing countries. How the substitution of petrol and diesel for biofuels will in fact affect the South is determined in the coming years, largely based on the sustainability criteria imposed on biofuels and how they are enforced.

In addition, Sweden's, the EU's and the UN's largest commitment to the South, The Millennium Development Goals, is to be achieved by 2015. At the moment the goals look difficult to reach, but the correct use of biofuels can facilitate the work of halving world poverty and hunger, ensuring environmental sustainability and improve cooperation between aid, trade and debt relief.

How well we meet these objectives is greatly influenced by the future development of the energy sector, and if the sustainability requirements are designed as de facto trade barriers; if they on the other hand become so weak that the rural impoverished are not helped by them, or if they are really designed to help the poor of the global South.

Automotive and fuel industry representatives have neither the mandate, interest or knowledge to raise the perspective of the global South, while the governments of the South seldom have the economic opportunity, the technical skills or even a formal invitation to participate in the talks about the sustainability criteria. Furthermore, governments of the South may not always be very representative of the rural poor communities, and Swedish and other Northern international aid organizations may have funded organizations in the South to ensure that they give the story that the funder wants broadcasted¹.

¹ See, eg discussion of UNCTAD (2008): Making certification work for sustainable development: the case of biofuels. http://www.unctad.org/en/docs/ditcted20081_en.pdf.

Sustainability criteria: Current situation

EU Renewable Energy Directive

The EU Renewable Energy Directive with sustainability standards for biofuels was to be incorporated in all Member States' legislation by 5 December 2010, and for instance the Swedish national taxation exemption for biofuels now demands that these fuels fulfill the EU sustainability criteria. Only biofuels that meet the sustainability criteria are to be included in the countries' and EU's environmental objectives, only they can be included in quota requirements, and only they count when the oil companies claim reduced emissions in line with the fuel quality directive, which demands that they reduce their climate impact by 6 % to 2020. Companies that produce, import or handle biofuels have to report how their biofuels comply with the EU requirements, with the Energy Agency as inspecting agency in Sweden, and its counterparts in other member states.

The main components of the sustainability criteria are²:

- At least 35% reduced carbon footprint compared to the reference fossil fuel, raised to 50 % in January 2017, with a 60% requirements for new plants from December 2018.
- Raw material may not be produced on land which in January 1, 2008 were natural forests, grasslands with high biodiversity or designated protected areas with rare, threatened or endangered ecosystems or species.
- Raw material may not be produced on land which in January 1, 2008 consisted of wetlands, continuously forested areas or areas of land covering more than one hectare with trees higher than 5 m with a canopy cover between 10-30%, if this is no longer maintained when the commodity is harvested or felled.
- Raw material may not be produced on land which in January 1, 2008 constituted of peatland, unless the peat can be shown to be growing, and that harvesting of the raw material does not cause the drainage of previously undrained soil.
- The continued food production must be secured.
- Traceability is achieved by mass balance; biofuel with differing sustainability characteristics can be mixed, but the sum must meet all sustainability requirements

Biofuels that do not meet these requirements may not be included in the member countries' goal attainment. EU's sustainability criteria are to be further developed, as illustrated by the fact that the Swedish government in May, 2011, proposed new changes to the Swedish legislation. In the future, the EU will further specify grasslands of high biodiversity value, decide which private certifications to accept (as of October 2011, eight schemes have been accepted), continue to deal with the issue of indirect land impacts of biofuels (ILUC) and begin to develop on criteria for solid biofuels.

Most of the actors in the South included in this report are familiar with the outline of the EU's sustainability criteria and are generally positive to them, but believe that they have mainly been developed to meet the EU's own interests and needs, and that the South should be given an improved access to, and influence over the process. In general, they ask for tougher emissions targets, greater opportunities for national decision on the protection of biological diversity, greater clarity on the food-related restrictions and the indirect soil effects, and lower costs for certification and authentication (even if the cost is currently unknown, requirements are expected to become expensive and complicated). Especially for smaller producers, simplified processes are asked for.

² European Commission (2010): Biofuels: Sustainability Criteria
http://ec.europa.eu/energy/renewables/biofuels/sustainability_criteria_en.htm

Roundtable on Sustainable Biofuels

The RSB is specific to biofuels but works for all of them, has concrete durability requirements including the social and economic aspects, will become global, is about to be formally recognized by the EU and has a practical standard with extensive help available for the ones who need it. Since March 2011, it is a qualified certification system³. The RSB is headquartered in Switzerland and has over 100 members from over 40 countries, but the number of organizations from the South is limited.

Mozambique's biofuel producer Sun Biofuels believes that RSB is the best standard for the production of biofuels from Jatropha, after examining the 44 available sustainability standards including the Roundtable on Sustainable Soil and the Roundtable on Sustainable Palm Oil. Sun combines RSB with United Kingdom Renewable Transport Fuel Obligation for CO2 calculations.

Sun Biofuels believes that the RSB-criteria relating to soil, air, climate change and social responsibility are easy to reach with a well-executed project, and early and extensive field training with growers, while the requirements for documentation are much more difficult for small African producers. The RSB requirements sometimes lead to such a cost increase that the sustainable fuels can only be sold on the "rich" markets ready to pay a price premium for sustainability.

The Nordic Swan

For biofuels, the Nordic Swan label has so far been limited in scope. The criteria that apply until the revision, at the end of October 2012, include:

- At least 33% must come from renewable materials
- CO₂e/MJ fuel can not exceed 50 g, in a fuel life cycle assessment
- Restrictions on total energy use in the manufacturing process
- Traceability of agricultural land and certified sustainable farming
- Limited health effects
- No fuel produced from grain³

Although only one Swedish fuel producer (CNG provider FordonsGas AB) currently uses the Swan label, the criteria are currently available in English and Norwegian, and expected to gain wider usage after the revision⁴.

The label has been questioned on the basis that it excludes certain types of crops, which consulted organizations in the developing world see as a dubious way to define how biofuel is produced. Kenyan Casda argues that poor smallscale farmers in Africa would hardly be better off if they were not allowed to sell the leftover corn from poor quality to biofuel producers. The Swan label makes much the same requirements as the EU's sustainability directives - but not exactly the same, providing an extensive duplication of work for those who want to get certified.

The Environmental Management Council

The Environmental Management Council (Miljöstyvningsrådet, MSR) has developed proposed requirements for municipalities and others who procure fossil and renewable fuels⁵. MSR sets a limit to accepted climate impact, impacts on biodiversity, social and ethical implications and traceability. They propose three levels of criteria: Basic, High standards and Cutting-edge requirements. Parts of the requirements coincide with the EU's sustainability criteria.

3 <http://www.svanen.se/Nyheter/2008/6/Varldens-forsta-miljomarkning-av-drivmedel/>

4 <http://www.svanen.se/Foretag/Kriterier/kriterie/?productGroupID=142001>

5 <http://www.msr.se/sv/Upphandling/Kriterier/Fordon-och-transporter/Drivmedel/>

MSR's standards were criticized by the Swedish Green Motorists and the Farmer's Union since they are much more far-reaching for renewable fuels than for fossil fuels, creating an unfair advantage for precisely the fuels that we want to leave behind. MSR has made clear that the difference will not be retained in future versions of the requirements, which will also including indirect effects of land and water usage.

Other certification schemes

Other international certification schemes that is reminiscent of RSB are RSPO (Roundtable on Sustainable Palm Oil), RSJ (Roundtable on Sustainable Jatropha), BSI (Better Sugarcane Initiative), and the more comprehensive Rainforest Alliance as well as the strictly forest-related FSC (Forest Stewardship Council).

The label “Verified Sustainable Ethanol” is specific to ethanol for fuel, with a focus on the production in Brazil. The label had a fairly large impact in Sweden around 2007-2008, but has since declined in importance, and suffers from a lack of updated criteria. The label has been praised for having both environmental and social factors, but has been criticized for lack of transparency and lack of participation opportunities for interested parties of the Third World.

There are several guides for players who want to work in accordance with guidelines RSB, including from *GEF (with UNEP, FAO, UNIDO, several developing countries and the IEA) and the Swedish SLU*⁶.

Fuel companies' requirements

Several fuel companies set their own sustainability requirements when they procure biofuels. Below we present two examples, referring to the Swedish Green Motorists oil companies review for more information.

Statoil, which signed the UN Global Compact, has a number of requirements:

- Not to use raw materials from rainforests or other areas with high carbon stocks
- Prevent damage to biodiversity, ecosystems or valuable potential conservation areas
- Help develop new technologies for sustainable production of biofuels
- Must comply with ILO conventions on labor standards, etc.

In order to meet the EU criteria, Statoil demands a Sustainability Compliance Declaration per delivery before the ship leaves port. This demand covers issues of raw material, country of origin, the fuel used in the process, GHG, land use prior to January 2008, if the facility was in operation before 23 January 2008, if there are valid sustainability certificates from another EU country or national authority, and demand that independent auditors verify the compliance.

In the spring of 2011, Statoil only bought ethanol from Europe, mainly Swedish, Dutch and British. No Brazilian ethanol has been purchased in years. The ethanol they sell has a proven benefit to the climate of at least 50%, ie well above the EU minimum requirement of 35%.

Preem has introduced the Sustainable Systems, where production of biofuels must not deplete water supplies and/or threaten biodiversity - when Preem eight years ago looked at a “famous Swedish” project in Tanzania, they estimated that the water was not sufficient and therefore did not consider it interesting for them. Palm oil is never approved for biofuels by Preem.

6 GEF: Global Assessment and Guidelines for Sustainable Liquid Biofuels Production in Developing Countries

In general, it is of course positive when large purchasers sets sustainability standards, but many of the requirements are difficult to measure, the report is flawed and transparency is poor. It would be better if the companies joined the existing, externally verified certifications.

Criteria development

Below, we review the most commonly occurring fairly concrete positions of organizations in the South, with the sustainability criteria that they seem reasonable to ask of from producers of biofuels or raw materials for the same.

Usage and Ownership

Kenya's draft biofuel policy includes priorities on how biofuels should be used:

1. Local biodiesel production for use in generators in parts of the country where the lack of electricity, such as for lighting and pumps.
2. Low blends of ethanol in gasoline (E10) and then biodiesel in diesel (B1).
3. E85, combined with tax incentives for flex-fuel cars.
4. Exports; only when the local needs are fully met.

Ethiopia, Malawi, Swaziland and many other states in the South have similar formulations, and most organizations we have consulted indicate a similar order of priority. GAF compare this to the Delmonte pineapple plantations, where everything is exported instead of reducing hunger locally. Ffe is critical to the fact that a previously promised low blending of locally produced ethanol in all gasoline and biodiesel in all diesel has not been implemented, not least because it would help to reduce local health emissions (locally available petrol have very high sulfur levels).

"In my country we grow coffee, but we do not drink it. If we can not export coffee, we get no income and have no joy of the crop. It would be great to switch to crops that we can use ourselves, like biofuels.", says Augustin Njomche of Pacja, the Pan-African Climate Justice Alliance.

George Odhiambo from Kenfap has a different picture: "All coffee is exported, and we have no problem with it. Likewise, all biofuels are for export, only the revenue stays with us. "

Lorna Omuodo from VJDF states that "Europe must mix biofuels in their petrol. They come running to Africa since it grows better here."⁸ It is a development that VJDF basically does not mind: the richer countries are expected to push for sustainability criteria - and it is only richer countries that can pay extra for compliance with these requirements. In Haiti, the only way to launch a biofuel production of any significance is considered to be to export at least part of the production, initially to nearby, more prosperous countries like the Dominican Republic.

Several organizations consider that the introduction of biofuels in the South will take longer than in the north and that a focus on the local market is not optimal⁷:

- Vehicles are not exchanged as often, so it takes longer to introduce flex-fuel cars
- The majority of car sales is made up of imported, second-hand cars
- The willingness/ability to pay a premium for biofuels is almost non-existent
- The total fuel market is small, the demand for low blending is thus miniscule
- Many countries in the South don't have any refinery capacity and may thus have problems mixing biofuels in petrol and diesel

7 See eg Observers article about the slow transformation in Swaziland; www.observer.org.sz/index.php?news=22371

- A focus on the local market misses the opportunity to bring in hard currency that the South needs for other investments

GAF encourages foreign investment, as it is needed to quickly reach a critical mass and sufficient volume. They suggest informal agreements on how much of the biofuels should be used locally, which they have seen carried out with a Japanese producer. In the Ghana and the Ivory Coast, this has been done with other crops, in a joint venture form. They also stress the importance of adding more value to the crops, which is also why Kenya's Energy Regulatory Board intends to introduce export taxes on unprocessed crops, so that it is worthwhile to extract and refine oil locally. The UN agency UNIDO supports this development by providing or co-financing the oil pressing machinery to small scale East African farmer cooperatives.

Zimbabwe, Kenya, Egypt, Zaire, Zambia, Sudan, Swaziland and Mauritius are facing the possibility of becoming important African ethanol producers, which could reduce the continent's oil imports and also provide export opportunities. However, it is unlikely that the local markets in the short term can provide the stimulus needed for such development.

Brazil's world-leading ethanol industry is based on sugar cane with proven high climate benefits, has always had a clear export component, and now stands on its own feet without government support to either agriculture or industry. The state now sees ethanol as a strategic resource and demands that manufacturers supply the domestic market with sufficient quantities of ethanol before exporting. As this example shows, it is only when the domestic market has grown strong enough that it is appropriate to restrict exports.

”Jatropha is a good crop for national use, but if it is commercially grown for export it may grow out of control”, states Mithika Mwenda from Pacja. Similar arguments are heard from many organizations who want to avoid large-scale, intensive cash crop-farming, which may lead to the sector being dominated by a few large players. Kenfap are concerned about the conflict between large-scale producers and small farmers, where small farmers need more information and help to get reasonable contracts.

In Ethiopia, land is owned by the country, but the farmer has access rights, with an option to lease the land for a couple of years at a time.⁸ If individuals suffer when the district allocates the land, compensation may be awarded - but in reality this rarely happens.⁹ In several East African states, the producer who cultivates the soil cannot own the land, but leases it with long-term contracts and ”use it or lose it” clauses. In theory, this gives the host country good possibilities to control the cultivation, but the participating organizations agree that this needs to be tightened up and systematized in the biofuel policies currently under development in country after country.

The question of how land, products and byproducts are used is high-lightened by many farmers' organizations, with special attention to:

- Press cake that can be used as animal fodder
- Organic fertilizer hat can replace or supplement chemical fertilizer
- Glycerin from biodiesel production that can, for example, be used for cosmetics and soap
- Bagasse from such cane, that can be used for electricity or cellulose-based ethanol

The benefits of these co-products should be part of the assessment of the suitability and sustainability for each crop and each type of biofuel, and optimizing these is as relevant as increasing the production of the biofuel itself. For example, for Jatropha it is important to develop varieties in which the press cake is not toxic but can be used as animal feed.

⁸ See also Forum for Enviroment: Agrofuel Development in Ethiopia: Findings of an Assessment, 2009

⁹ World Bank: Rising Global Interest in Farmland: Can it Yield Sustainable and Equitable Benefits? 2010; FAO & IFAD: Land grab or development opportunity? Agricultural investment and international land deals in Africa, 2011

Food Production

During the surge in food prices in 2008, biofuel production was often blamed for threatening the availability of food and/or pushing up food prices beyond what the poor can pay. In an often repeated statement, the FAO envoy Jean Ziegler called biofuels "a crime against humanity". That the United Nations immediately distanced itself from the comment, and that Ziegler (who normally is a Swiss populist politician) later became known for his support to Ghaddafi and Mubarak changed nothing - the statement continues to influence the discussion on biofuels, including the sustainability criteria development.

Already in 2008, Reuters reported that the perceived link between increased demand for biofuels and food prices was "a mistake", the primary cause of the rising prices being pure speculation on food, reduced availability due to poor harvests in several key markets, and changing eating habits in developing countries like China and India. The link to rising oil prices was, however, real, since most agriculture has a high dependency on inputs such as fertilizer and diesel for the generator, tractor and truck. When oil prices dropped in 2010-2011, both biofuels and food became cheaper.

FAO now states that "Biofuels reduce poverty". A new FAO report based on concrete examples from Africa, Asia and Latin America claims that "To produce food and energy in parallel could be one of the best ways to promote countries' food and energy security, and reduce poverty". "Farming systems that combine food and energy crops provide many benefits for poor rural communities," said Alexander Muller, FAO Assistant Director-General of the Department of Natural Resources.¹⁰



Pruning the Jatropha plant for biodiesel production; biogas from Jatropha residues

Tyson Bruno Chisambo from the Biofuels Association of Zambia, which brings together farmers' organizations, producers and government agencies, identifies a number of characteristics that biofuel crops should fulfill¹¹:

- They should not also be used as food
- The crop should live for several years so it does not need to be grown each year
- It should not need much water

¹⁰ <http://www.mynewsdesk.com/se/pressroom/fao/pressrelease/view/minskad-fattigdom-genom-odling-av-energi-och-mat-582971>. See also the full report FAO: Making Integrated Food-Energy Systems (IFES) Work for People and Climate – An Overview, 2011

¹¹ Hear an interview with Tyson on http://www.agfax.net/audio/agfax_53.m3u

- It should be grown on soils that are unsuitable for food production
- It should be combined with food crops

”Jatropha is not edible and therefore does not compete with food crops. We believe that 90 percent of Zambia's population can benefit from cultivating Jatropha”, says Tyson Bruno Chisambo. Lorna Omuodo from the Jatropha and Vanilla Foundation also sees Jatropha not being edible as an advantage, and Swaziland's and Kenya's biofuel policies express much the same way opinion, eg “Use of non-food crops for biofuel will be encouraged as much as it is practical. Use of staple food crops such as corn will not be allowed”¹²

In the discussion of food versus fuel, Kenfap indicates that “we can not say no to corn, but we clearly need a land use policy that ensures that there is enough corn for food. The policy should treat crops for fuel in the same manner as all other fuels, not with stricter requirements”.

Farmers in the fields of Zambia and Mozambique, as well as the Pan-African Climate Justice Alliance's Augustin Njomche, estimate that food safety improves if the crops the farmers plant can also be eaten, even if they are primarily for biofuels. If the staple crop grows poorly, the farmer can still feed his or her children with what would otherwise have been sold as for the biofuel market. If the biofuels market turns out to pay less than expected, the crop is eaten or sold as food, instead of just withering in the fields. With this reasoning, it becomes obvious that the last few year's “common wisdom” that inedible biofuel crops such as Jatropha are preferable to edible crops such as sugar cane precisely because the former is toxic and cannot be eaten, is controversial at best. As George Odhiambo from Kenfap puts it: “We want to grow something that is edible, even if the purpose is different, so that in times of crisis, we still have food for ourselves and feed for animals.” Furthermore, the farmer's bargaining position is improved if the crop has multiple uses and therefore can be sold to multiple buyers, compared to if I can only be used for fuel.



The Kenya-based Jatropha and Vanilla Foundation focuses on intercropping between the two crops, where vanilla grows up the trunk of the Jatropha. The Swedish VI Agroforestry (VI Skogen) and the Swedish Cooperative Center (Kooperation Utan Gränser) have worked extensively with intercropping, for instance with Jatropha as “living fence” that keeps out pests and rodents and thus increases the yields of maize, cassava, sweet potatoes and other crops within the fence. As one Maasai farmer noted, “the only animal that is not deterred by the Jatropha is the elephant”.

Kenfap notes that the EU sustainability criteria as they are worded today can cripple East African biofuel ambitions, because biodiversity is high and vulnerable, while there are food shortages in parts of the region.

Waiting for water, Monduli, Tanzania

¹² Kenya Biofuel Policy, draft March 2011, and Swaziland Draft National Biofuels Strategy and Action Plan; none of them published at the time of writing.

Land and water usage

The World Bank, FAO, IFAD, SEI (Stockholm Environment Institute) and several other reputable organizations have all concluded that Africa has very large areas of underutilized land, mainly in southern and eastern Africa. Sudan, Mozambique, Madagascar, Liberia and Ghana all state that they individually have 1-4 million hectares of “available” land, with high figures also for Tanzania, Kenya, South Sudan and Zambia. For Africa as a whole, up to 60 million hectares of land is estimated to be available for biofuel production, with regards both to future food needs and the protection of biodiversity. Up to now, a large portion of the foreign land investments for biofuels and food production has been done by Chinese companies, with important investments also made by India and Japan, and to a lesser extent European, American and Brazilian biofuels companies.

The organizations in Africa that we have consulted share the picture that Africa has much land that can be used for biofuel production, but estimate the potential as much smaller than what the international organizations claim. All organizations of the global South emphasize that land use should be determined by the South itself, not the North, which for so long has reduced its share of land worthy of protection and now has a much lower percentage than what they demand that the South protect, through sustainability criteria and otherwise. Organizations in the South also see it as strange that there are no similar sustainability obligations for the producers of fossil fuels, which also can have significant impacts on biodiversity and land worthy of protection. Furthermore, it is not seen as reasonable to have very different demands on the farmers who produce crops for fuel and those who produce crops for other uses, especially since it can be the very same crop – such as sugarcane for ethanol versus sugarcane for sugar.

Increased biofuel production can lead to deforestation, which would have a negative impact on the climate, and can increase erosion and drought, with an associated loss of biodiversity. Organizations in the South recurrently refer to Brazil, which in recent years has expanded its sugar cane production by two million hectares, mainly on abandoned pasture land and arable land previously used for other crops. No expansion has taken place in the rainforest or other biologically valuable land, which also has a strong legal protection. Such protection is, they argue, urgently needed elsewhere – but it should not be determined by EU criteria.

“We have to define which land is used for what, and it must be remembered that in Africa there are many nomadic people which means that you can misinterpret that the land is laying idle although it is actually being used”, says Mithika Mwenda from Pajca, while his colleague Fathiya Albakry states that “Biofuels can give farmers more money, but the government must control the crops so that there is both food and biofuels. Land that is not used otherwise, should be used”.

It is generally seen as preferable that crops for biofuels are grown in Asal (arid and semi-arid land). The Forum for Environment see biofuels as an opportunity to restore fertility in Ethiopia's impoverished, poor upland soils. Augustin Njomche, Pacja, asks for a combined focus on marginal land, with farmer-training on how to manage these soils, and enhanced efforts to identify and protect green zones where biofuel crops may be grown.

Lucy Mwangi from Kenfap sees the focus on poor soils as problematic, “That there is a lack of food is already clear. It may be better to cultivate the more fertile areas, where farmers can grow both biofuel crops and beans, peas, potatoes or corn.” Kenfap is also skeptical about letting the government decide land use; “Everything that dictate how I should use my soil is very sensitive. We prefer that the farmer decides it for himself.” Kenfap also rejects other organizations' proposals for a moratorium for biofuels, to allow legislation to catch up with the biofuel expansion, and believes that the current high demand for biofuels can be used to rapidly provide sustainability requirements.

To reduce the overall land use and increase productivity, intercropping must be practiced more. To ensure that the opportunities are actually used, Kenfap suggests that the seeds for the different crops are distributed together. The Forum for Environment believes that Ethiopian farmers are hesitant to intercrop several different crops, and that in the short term, therefore, one must be content that biofuel crops such as *Jatropha* are used as fences around the traditional food crops.

The East African organizations have mostly good things to say about Kenya's draft Climate Change Act, which among other things shall ensure:

- At least 10% forest cover in 2030 (compared to less than 2% in 2010)
- Protecting food security
- Increased reduction of carbon footprint through improved agricultural practices
- Each project should be preceded by a comprehensive Environmental Impact Assessment

The government will also develop an annual plan for energy efficiency.¹³ A special biofuels policy states that investment in large-scale biofuel production should be regulated so that the benefits are maximized and the potential risks to food production and the exclusion of local communities are minimized.

Kenya Biofuels policy - objectives

- Strengthen energy security at domestic, national and regional levels;
- Increase the percentage of renewable energies in the national energy mix without jeopardizing food production or forest, water, biodiversity viability and sustainable land use;
- Facilitate access to clean and safe energy for all Kenyans;
- Promote knowledge for sustainable use of local energy resources;
- Establish equitable access to Kenya's natural energy resources and the economic opportunities they provide;
- Create income generation opportunities, especially in rural areas;
- Support the progressive development of a sustainable market driven bioenergy value chain
- Promote public and private sector research and development in bioenergy
- Support achievement of the Millennium Development Goals (MGDs) in line with Vision 2030

Several organizations warn of water shortages in areas planned for biofuel crops, and demand selected crops that require as little water as possible, eg to make ethanol on sorghum or cassava instead of sugar cane. The Ethiopian FFE estimates that biofuel initiatives can replace existing cash crops with crops that require less water, such as replacing cotton or tobacco in favor of *Jatropha*. They also point out that the issue not only how much water the crop requires, but also how much water it binds. Switching from a one-year cash crop such as tobacco to perennial biofuels crops such as *Jatropha*, will bind much more water in the soil, for the benefit of other crops and for anyone who wants to draw water into the well.

Climate Benefits

The more the photosynthesis, the better the conditions for a low carbon footprint. Hence, growing crops for biofuel production in the South may be more appropriate than doing so in the North. But in practice this is not always the case, since the land use change can render the total effects less positive or even negative.

The University of Yale has developed calculations for biodiesel from *Jatropha*, which with the conservative values of 24% oil content, a yield of three tonnes per hectare and the use of chemical

13 Kenyan government: Climate change bill, 2010

fertilizer gives a 48% CO₂ reduction. With higher yields and only organic fertilizers the climate benefit compared to fossil diesel would be 73%. If the land use change is from tobacco to Jatropha, the benefit to the climate becomes an impressive 380%, if grassy savannas are replaced the benefit is 141%, but if on the other hand primary, high density forests are cut down, it can take over 400 years to even achieve climate neutrality, all using the EU standard values for biofuels.

If biofuels are to effectively contribute to reducing the climate impact, the growing of the crops for biofuels should not release the carbon stock in existing soil and vegetation. This knowledge is now relatively well established, but the discussion has been focused on the change in land use can lead to worsening effects - although it is equally possible that the change of land use can be favorable to the climate. To get such positive effects, it is important that the correct land is used for cultivation, the right fuel is used in plants and machinery, and that by-products are optimized (and included in the calculation)¹⁴.

Brazilian ethanol from sugar cane has an energy balance of about nine; it produces nine units of renewable energy for every unit of fossil fuel used in its production.¹⁵ The input of fossil energy is mainly for tractors and trucks, while the factories including electricity is largely using waste products from sugar cane (bagasse).

Some of the participating organizations primarily focus on the climate and environment, while others focus more on the smallholder situation. However, all agree that far-reaching climate goals are favorable for the producers of the South, whose competitiveness against producers in the North will be enhanced. They also foresee that several products that are questionable for other reasons - such as palm oil based biodiesel - will be eliminated with ambitious climate targets. The organizations all agree on that all climate impacts should be included when different biofuels are evaluated, including the benefits of bi-products.



Agricultural Development

Brazil's ethanol production contributes to the mechanization and modernization of agriculture

In the discussion, it is assumed that a large-scale commercialization of biofuels will automatically lead to a mechanization of agriculture and thus to reduced manpower needs. This is sometimes described as negative, since it may increase unemployment, while others indicate that the mechanization of the agricultural sector caused by investments in biofuel production will lead to a more efficient and dynamic agriculture precisely in the part of the world where it is needed the

¹⁴ Börjesson, Pål: Fin- eller fuletanol – vad avgör? Lunds Tekniska Högskola, Institutionen för teknik och samhälle, 2008

¹⁵ Among others Fores: Ska jag tanka etanol?, 2011

most, and that this will improve conditions for poor small-scale farmers.¹⁶ Biofuel initiatives can also help slow the urbanization process, with the improved opportunities to make money in rural areas that the biofuels may give.

Sun Biofuels and Finnish Joonas International, which already manufactures harvesters for the berry industry, is developing a harvester for *Jatropha*, with Mozambique as a pioneer country. The discussion about whether this mechanization is positive or not is similar to the debate that has prevailed in the Brazilian ethanol industry, where the sugar cane harvesting is now rapidly being mechanized. This eliminates the jobs with the worst working conditions (sometimes erroneously called "slavery" in the press, when the problem is really the opposite, that employment is very temporary). Unions have not been unequivocally positive about this, but buyers in the North have clearly endorsed and driven this process.

Research, development and training

Many stakeholders stress the importance of more research into biofuels, and Kenfap have listed the areas that particularly need to be investigated:

- How plants really behave in the local environment
- Actual need of fertilizer and irrigation
- Sensitivity to local pests and the risk of spreading pests to other crops
- Best crops for intercropping
- Gender: how can women be involved in the best way?
- Economic models that will best help small farmers
- Compensation for land use

FfE emphasizes the importance of comprehensive training for small farmers, based on the producer's perspective – "the farmer is suspicious and will not grow new and unknown crops." Kenfap stresses that the peasant must know more about biofuels, in order to not have unreasonable expectations and then feel letdown. Moreover, those who have no margins need guarantees that the market will not suddenly disappear or prices suddenly collapse.

Many farmers' organizations are critical of the fact that government policies on biofuels are only now being developed and not yet implemented, after the wave of investment has already been in full bloom. Kenfap, however, sees this as natural, because the policy must be based on practical experience. Kenfap also questions the need for a specific biofuels policy, since the crops for this usage should be treated like other agricultural crops. FfE is critical to the Ethiopian government, which has stated that 23 million hectares of land in the country can be used for sustainable planting of biofuel crops, without any specific sustainability criteria and no clear definition of what is meant by marginal lands or where cultivation is expected to occur.

Participating organizations

Organization	Geographical area	Main contact	Targeting
African Women in Agricultural Research and Development (AWARD)	Africa	Karen Homer, Communications Manager	A UN-supported project to enhance African women's participation in policy decisions on agricultural issues
Biodiesel Haiti (Biocarburants d'Haiti)	Haiti	Reynold Roy, MD	Focus on bio-diesel from Jatropha from its own fields, from small-scale farmers and the entrepreneurs who lease the land. Intercropping with beans, melon and vanilla.
Biofuels Association of Zambia	Zambia	Tyson Bruno Chisambo	Umbrella organization for biofuel stakeholders in Zambia; organizations, producers and government agencies. Strong driving force for the national policy now being developed.
Climate Network Africa	Africa	Grace Akumu, Chairman	Umbrella organization for African organizations with climate focus. Work now includes vehicle sector emissions.
Cooperation Arena for Sustainable Development in Africa (CASDA)	Eastern Africa	Yvonne Anyango, Chairman	Nairobi-based organization that coordinates the Swedish Green Motorists work in eastern Africa.
Evangelical Church of Egypt	Egypt	Josephine Kamel, policy advisor	Pan-African Climate Justice Alliance's local organization in Egypt, working with several local environmental organizations.
Fondation Seguin	Haiti	Serge Cantave	Work focused on biofuel production on forest protection, including Jatropha
Forum for Environment (FfE)	Ethiopia	Dr Mulugeta Branu, Dejeneh Menleku (Bahir Dar)	Environmental organization with concrete biofuel projects and broad policy work (in the meetings with FFE other Ethiopian organizations also attended)
GAF (Green Africa Foundation)	Eastern Africa	Isaac Kalua, chairman Emily Awori, Special Programmes Director	Foundation for the development of biofuels and other renewable energy
Haiti Survie	Haiti		Reforestation through biofuel production, especially focusing on women's participation

International Union for Nature Conservation Oceania (IUCN)	Oceania	Anar Mataktiviti, several member organizations in connection with the major climate conference in autumn 2010	A global umbrella for national environmental organizations. The Oceania bureau covers Papua New Guinea, Fiji, etc.
Kenfap (Kenya National Federation of Agricultural Producers)	Kenya	Anita Musabeni (lobby& advocacy), Charles Mbuthia (projects&programs), George Odhiambo (lobby& advocacy), Lucy Mwangi (monitoring &evaluation)	An agriculture organization representing small-and medium-sized growers, with much policy work.
Pan-African Climate Justice Alliance (PACJA)	Africa	Augustin Njomche, Fathiya Albakry, Mithika Mwenda (also represents local organizations including Cameroon)	The Pan-African Network for Climate Action.
SLUF (kopplade till Orda, Farm Africa och SOS Sahel)	Amara and Tigrayregionen, Ethiopia	Debelu Dinka Gida, program manager	Local concrete biofuels work in Ethiopia
Vanilla Jatropha Development Foundation	Africa	Lorna Omuodo	Focus on intercropping Jatropha for biofuels with vanilla, now expanded to other biofuel crops
(Camco)	Eastern Africa	Murefu Barasa, Senior Consultant	Previously organizing biofuels in Africa, now part of the global Camco Network
Viva Rfo (Haiti)	Haiti	Via Sylvia Raulo, Norwegian Church Aid	Brazilian environmental and development organization that develops biogas in Haiti