



## Global Assessment of Biomass and Bioproduct Impacts on Socio-economics and Sustainability

[www.globalbiopact.eu](http://www.globalbiopact.eu)



Global-Bio-Pact consortium at the 3<sup>rd</sup> Progress Meeting and workshop participants in Mali

### Global-Bio-Pact Meeting, Workshop and Study Tour in Mali

Dominik Rutz and Rainer Janssen, WIP – Renewable Energies, Germany

The 3rd Global-Bio-Pact Progress Meeting was organised by Mali Folkecenter (MFC) and WIP Renewable Energies (WIP) on 26-27 September 2011 in Bamako, Mali. This was an internal meeting for participants of the Global-Bio-Pact consortium only.

In conjunction with the meeting, a public workshop on "SUSTAINABILITY OF BIOFUELS IN WESTAFRICA" was held on 28 September 2011. The workshop was organised by MFC and WIP and supported by the Global-Bio-Pact project as well as by the project "Mainstreaming Sustainability in the Biofuel Sector in Mali". It was co-organised by the National Agency for the Development of Biofuels (ANADEB), NL Agency, and FACT Foundation.

Core of the workshop was the National Strategy on Renewable Energy in Mali and the development of

a national sustainability certification scheme for biofuels in Mali. Several ongoing sustainability certification schemes in Mali and other countries were presented. The need for the set-up of a national certification scheme was highlighted by the workshop participants, including about 100 representatives from politics, industry, farmers, research and NGOs.

In a study tour on 29 September 2011, workshop members had the opportunity to visit Mali Biocarburant ([www.malibiocarburant.com](http://www.malibiocarburant.com)) in Koulakoro.

Mali Biocarburant SA is a private company with smallholders as shareholders that produce biofuels in a way that supplements farmers' incomes, contributes to poverty alleviation and respects the environment. Mali Biocarburant SA has created Kouli-

koro Biocarburant SA and Faso Biocarburant that locally produce and sell biofuels. The Jatropha production strategy is carried out by the Fondation Mali Biocarburant and the Fondation Faso Biocarburant.

The tour included a visit to Jatropha fields, which are inter-cropped with cotton and sweet sorghum. The participants visited furthermore the biodiesel plant of Mali Biocarburant, including an oil press, the biodiesel reactor, and a soap manufacture which uses the glycerine from the biodiesel process.

On the occasion of this visit, the biogas plant of Mali Biocarburant SA was inaugurated. In this biogas plant Jatropha press cake and cow manure are digested in order to produce biogas for cooking, electricity or for the operation of a multifunctional platform. The Jatropha press cake is a by-product of oil extraction. The press cake is toxic and cannot be used as an animal feed without detoxification. The digestate can be used by collaborating farmers as fertilizer to improve yields of food crops.



Jatropha – Cotton Intercropping



Biodiesel reactor of Mali Biocarburant SA



Inauguration of the  
Biogas plant running on Jatropha press-cake

---

## Global-Bio-Pact Case Studies Finalized

By the Global-Bio-Pact consortium

A core activity of the Global-Bio-Pact project is the elaboration of Case Studies on socio-economic impacts of different biofuel and bio-product value chains. The following Case Studies were prepared by the Global-Bio-Pact consortium:

- Biodiesel from soy in Argentina
- Palm oil and biodiesel in Indonesia
- Bioethanol from sugarcane in Brazil
- Bioethanol from sugarcane in Costa Rica
- Jatropha oil and biodiesel in Tanzania
- Jatropha oil and biodiesel in Mali
- Lignocellulosic ethanol and pyrolysis refineries in Canada

The Case Study reports are available for download on the Global-Bio-Pact website.

The results of these Case Studies are now used for the identification of socio-economic sustainability indicators which could be potentially integrated in biofuel certification schemes. Furthermore, recommendations are currently being formulated on how to address socio-economic impacts in sustainability schemes, such as it is requested by the European Commission in the Renewable Energy Directive (RED) for biofuels used in transport applications.

*More information: [www.globalbiopact.eu](http://www.globalbiopact.eu)*

---

## Byproduct use of soybean for sustainable biodiesel production in Argentina - a new regional case study

By J.A.Hilbert<sup>1</sup>, S. Galbusera<sup>2</sup>

Instituto de Ingeniería Rural, Centro de Investigaciones Agroindustria INTA, Argentina

In the last few years, several studies have been published focusing on energy balances, greenhouse gas emissions, and global impacts caused by the expansion of feedstock for biofuels. Activities on this issue have been very intense, with different initiatives from governments as well as from national and international institutes and organizations. Among them are the initiatives of the European Commission, the Government of the United States, the Global Bioenergy Partnership (GBEP) and the Roundtable on Sustainable Biofuels (RSB).

In this context, Argentina has become a relevant party for the world biofuel market, exceeding over 1.3 million tons of biodiesel with exports for over 1,300 million dollars in 2011 becoming the first exporter and third world producer of biodiesel. The Argentine case is very particular since a byproduct of soybean industrialization is used rather than the cultivation and promotion of a certain "energy crop". This oil by-product is converted into biodiesel. Due to the large volume of soybean production, future projections are directed towards export markets and thus, it is very important to address environmental

issues of the production. This is necessary to show that required goals and regulations are fulfilled, which have been created both in Europe and the United States.

These are the reasons why INTA, within its National Bioenergy Program, is currently carrying out specific studies on biofuel sustainability with special emphasis on biodiesel, given its strategic importance as a manufactured product for exports.

The objective of the new study was to develop a tool for the calculation and evaluation of improvements in the different stages of biodiesel production using real field and verifiable data. This was done with data from an integrated plant placed in Frias in the Province of Santiago del Estero. For the calculations, the following references and methodologies were used: (1) 2006 IPCC Directive for national GHG inventories, (2) Renewable Energy Directive (RED; 2009/28/CE) of the European Union, (3) EB 50 – Executive MDL board "Guidelines on apportioning emissions from production processes between main product and co- and by-products" and

(4) ACM0017 Methodology "Approved consolidated baseline and monitoring methodology Production of biodiesel for use as fuel". The calculations included the production of crops, transports to the crushing facilities, industrial conversion stages and the final transport to harbors for export.



Integrated biodiesel plant  
in Frias, Province of Santiago del Estero

The data entered in the program came from the company's SAP system so that calculated results can be verified and audited. Data about feedstock production were provided mainly by own farms placed in the Provinces of Salta, Tucuman and Santiago del Estero.

The analysis and presentation of the results were divided into the different stages included in the overall process (farm production, freights of raw material, production of biodiesel and co-products and final freight). The final results were presented in three different ways according to how the final allocation of emissions is considered: energy content, mass balance and price of the different products and co-products. The differences in numbers between the three alternatives reached a maximum of 20%.

Although there are still several uncertainties in the methodologies, there is strong work in progress in order to improve the estimation factors of the agricultural phase of production, mainly looking at nitrogen oxide emissions and organic matter balances.

The overall emission reduction of the integrated process in comparison to fossil fuels reached a value of 73% in CO<sub>2eq</sub>/Mj well above the default value included in the European Union Directive. If the whole soybean biodiesel chain of Viluco is con-

sidered, the total emissions reach 88,860 tons of CO<sub>2eq</sub> per year (including the industrial stage). Of the total emissions 69% belong to the industrial phase, 14% to the production in own farms, 13% from soybean purchased from other farmers and 4% to transport and freights.



Integrated biodiesel plant  
in Frias, Province of Santiago del Estero

The final numbers are very important in relation to regulations and policies of the international market. The development of these tools is also very important in order to better understand the impacts of each step in the different processes in order to improve biofuel value chains.



Integrated biodiesel plant  
in Frias, Province of Santiago del Estero

Contact: [hilbert@cnia.inta.gov.ar](mailto:hilbert@cnia.inta.gov.ar)

# Reporting on biofuels under the Renewable Energy Directive

By Dr Rocio A Diaz-Chavez

Centre for Environmental Policy, Imperial College London, UK

In April 2009, the Renewable Energy Directive [2009/28/EC] was adopted setting a 10% target for renewable energy in transport in 2020 (EC, 2009). The directive sets several requirements to the sustainability of biofuels, therefore the Commission is required to report to the European Parliament on a regular basis on a range of sustainability impacts resulting from the use of biofuels in the EU. The reporting and monitoring obligations for the European Commission are set out in Articles 17.7, 23.1, 23.3, 23.4, 23.5 and 23.6 of the Renewable Energy Directive (Table 1).

As the Commission requires reporting to the European Parliament on a regular basis, it commissioned a report (Hamelink et al, 2011) that draws the baseline of information for regular monitoring on the impacts of the Directive. These follow the above sustainability issues resulting from the use of biofuels in the EU. The full report commissioned to a consortium can be found in [http://ec.europa.eu/energy/renewables/studies/renewables\\_en.htm](http://ec.europa.eu/energy/renewables/studies/renewables_en.htm).

The report established baseline data that serves as a reference for future data, so that improvement or worsening of a sustainability aspect as a result of increasing biofuels or changing (flanking) policies can be measured. The report also evaluated the development of the EU market for biofuels and the supply chain impacts of EU biofuels consumption, including the geographical regions of the EU as well as the main countries of feedstock origin. The country scope was fixed in the early stages of the project to streamline the data collection in third countries.

This paper focuses on the methodological aspects and summarises key findings regarding the current situation in terms of sustainability aspects reported for the timeframe of 2008-2009 as baseline although some data of 2007 and 2009 were included. The Commission has started the new report for the years 2009-2010.

## Use of biofuels in the EU

For the reporting period of 2005-2009, the consumption of biofuels in road transport in the EU27 was investigated. Table 2 shows the total of biofuels consumed in transport in the EU during this period.

As the reporting period focused in 2008, the main findings also centred during the year with information gathered from 2007 and 2009 as well to be able to have a better picture. During this period, 9.5 Mtoe biofuels have been consumed in road transport, this is 3.1% – 3.5% of all petroleum products consumed in road transport (295 Mtoe). Some other findings related to the production, consumption and import of biofuels include:

- About 72% of these biofuels concerned biodiesel, 19% concerned bioethanol and about 9% resided in other biofuels (for example pure plant oil).
- Five Member States (Germany, France, UK, Italy and Spain) represent more than 70% of the European biofuels market, both in production and consumption. Their majority is only slowly decreasing over time;
- About 78 % of all EU consumed biodiesel in 2008 is produced in the EU, about - 22% is imported from third countries, primarily from the US. Indirectly, significant fractions come from Argentina and Indonesia. In 2009, the direct imports from the US decline and shift to direct import from Argentina. With the import of biodiesel, especially the fraction of soybean in EU consumed biodiesel increases. Also the fraction of palm oil slightly increases, while the fraction of rapeseed decreases;
- Rapeseed is by far the most important feedstock for biodiesel produced in Europe, followed by soy oil, palm oil and waste oils. 58% of the feedstock for biodiesel is produced within the EU, and 42% imported from third countries.
- Wheat, maize and sugar beet are the most important feedstock for bioethanol produced in Europe (65% of total bioethanol consumed in EU is also produced in the EU).
- The share of imports in EU consumed bioethanol in 2008 is 35%, most of which comes from Brazil. With this import, a large share of sugar cane is introduced as feedstock for EU bioethanol. 76% of the feedstock for bioethanol originates from the EU, only 24% is imported;

Table 1. Reporting and monitoring obligations under the Renewable Energy Directive Articles (modified from Hamelinck et al., 2011)

Article	Topic	Regional Scope
17.7	Impact on social sustainability of increased demand for biofuel	EU MS and third countries
17.7	Impact of Community biofuel policy on the availability of foodstuffs at affordable prices	Mainly in developing countries
17.7	Wider development issues	
	The respect of land-use rights	
17.7	Ratification and implementation of Conventions of the International Labour Organisation	
17.7	Ratification and implementation of the Cartagena Protocol on Biosafety	
17.7	Ratification and implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora	EU MS and countries that are a significant source of raw material for EU consumed biofuels
23.1	Monitor the origin of biofuels and bioliquids consumed in the EU	Global
23.1	Impact on land use EU and main third countries of supply	
23.1	Commodity price changes and effects on food security	Global
23.4	Greenhouse gas emission saving	Global
23.5a	Relative environmental benefits and costs of different biofuels	
23.5a	Effect of Community's import policies thereon	
23.5a	Security of supply implications and balance between domestic production and imports	
23.5b	Economic and environmental impacts Impacts on biodiversity	EU MS and third countries
23.5d	Impact on biomass using sectors	
23.5e	Availability of biofuels made from waste, residues, non-food cellulosic material and lignocellulosic material	
23.5f	Indirect land use changes in relation to all production pathways	

Table 2. Total biofuel and all fuel consumption in road transport in the EU from 2005 – 2009 (modified from Hamelinck et al., 2011)

Biofuel	2005	2006	2007	2008	2009
Biodiesel (Mtoe)	1.4	2.3	4.2	6.8	9.1
Biogasoline (Mtoe)	0.6	0.8	1.2	1.8	2.3
Other liquid biofuels (Mtoe)	1.2	2.3	1.2	0.9	0.5
Total	3.1	5.5	6.6	9.5	11.9

It was also noticed a trend of decreasing capacity use, between 2005 and 2009 more than half of the biofuels production capacity in Europe was not used. This unused capacity does indicate that there is sufficient conversion capacity available for several years to come.

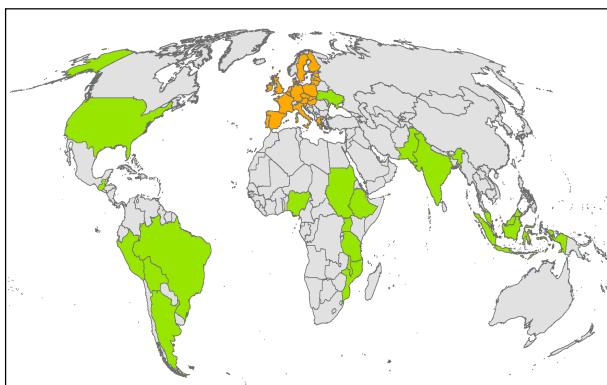
Initiatives for advanced biofuels production in Europe are located in a limited number of Member States and focus on a broad range of conversion technologies. The amount of advanced biofuels produced in 2008 was negligible.

The legal basis for biofuel policies in the EU Member States in 2008 was the previous Biofuels Directive [2003/30/EC], which aimed at 5.75% biofuels in 2010. Germany, Austria, Sweden and Slovakia had already met this target in 2008. Most other Member States were far from achieving the target.

### Data collection methodology

Regarding the biofuels imported from out of the EU, data collection on these biofuels and the feedstocks was gathered in 19 countries in three different regions (Fig 1) as follows:

- Africa: Ethiopia, Malawi, Mozambique, Nigeria, Sudan and Tanzania
- SE Asia, Sub-Continent and Eurasia: Malaysia, India, Indonesia, Pakistan, Ukraine and Indonesia
- The Americas: Brazil, Argentina, Peru, Bolivia, Guatemala and the United States



Selected countries for data collection (Source: Winrock 2011)

Six subject areas for data collection were identified. The information collected was national level data in order to identify what was available within each country, rather than from international data sets. The publicly-available, in-country information provided by the data collectors primarily was obtained from government sources, such as

environmental, agricultural, and energy ministries, and national statistics departments. The topics selected for the data collection included:

- General data
- Legislation related to biofuels
  - Data on up to 5 main feedstocks used or with potential for Biofuels (Production volumes, planted areas, harvested areas, yield – National average, producer prices)
  - Data on up to 3 main biofuels (production volume; quantity exported, price)
  - Data on up to 5 main staple food crops (production volume, consumption volume, quantity imported, quantity exported, consumer price)
- Data on Land use: Land area under specific classes; Biofuels and land cover
- Biodiversity
- Socio-economic (labour and gender issues; small farmers and land rights; social conditions for sustainability and monitoring)
- Sustainability (International certification schemes applied in the country; programmes related to sustainable biofuels production; other environmental data (water, air, and environmental quality data sets; water governance; soil carbon models)

### Main findings on sustainability of the data collection

The Renewable Energy Directive requires that all biofuels supplied to the EU market comply with the sustainability criteria. This compliance has to be ensured by the economic operators selling fuel on the market. The information gathered by the data collectors was analysed and some of the main findings are as follows:

- Third country analysis reveals areas requiring further attention in the assessment of compliance with EU sustainability criteria. Especially, the national legislation in third countries does not always provide sufficient sustainability guarantees for conservation of land with high carbon stock value (wetlands, grasslands, peatlands);
- Several third countries providing biofuels or feedstocks for the EU market seem to have insufficient requirements for Environmental Impact Assessments, which means that new biofuel projects may not sufficiently address sustainability concerns;
- For biofuels originating in third countries voluntary schemes may be used as a proof of

compliance with the EU sustainability criteria. The European Commission has so far (July 2011) recognised 7 voluntary schemes: International Sustainability and Carbon Certification (ISCC), Bonsucro EU, Round Table on Responsible Soy (RTRS EU RED), Roundtable of Sustainable Biofuels (RSB EU RED), Biomass Biofuels voluntary scheme (2BSvs), Abengoa RED Bioenergy Sustainability Assurance (RSBA), Greenergy Brazilian Bioethanol verification programme.

- There are several national voluntary certification schemes in Central and South America, the United States, and Europe. There are few sustainability reporting and control mechanisms active in Africa, but there is also much less biofuel activity in that region compared with the other regions;
- The Americas have both voluntary and mandatory standards developed at national levels. Voluntary standards include: Aapresid in Argentina, CSBP and SBA in the United States, and a number of schemes in Brazil. Mandatory standards include: the RFS of the United States and the biofuels sustainability regulations of the Low Carbon Fuel Standard in California;
- Land use analysis in key biofuel producing regions indicate that land use for biofuel crops does not automatically imply expansion of cropland in the country where the biofuels are being cultivated. In the period 2001-2008, the EU, Argentina and Brazil experienced a net gain of cropland. Indonesia, Malaysia and USA have seen a net decrease of cropland;
- Total supply chain green house gas (GHG) savings related to the EU biofuel in 2008 counts for 53% compared to the situation where only fossil fuel would be used, this figure does not include direct or indirect land use change
- Estimates for employment resulting from biofuels production vary widely. In the EU, over 100,000 people may have a job relating to biofuels. The global employment related to biofuels may be over 1.5 million, half of which in Brazilian cane and related ethanol production.

In addition to main findings included in the report (Hamelinck et al., 2011), the data collectors completed a questionnaire regarding the accessibility of data in each country. They reported that **socio-economic and sustainability data were found the most challenging to complete with what was considered accurate information**.

The main barriers encountered in the data collection were related to access to data, with the number one barrier being that government agencies and private companies are not willing to share their data or make it very difficult to obtain.

Other access barriers were that the data was not available, including not public, not well kept, not accurate, contradictory, not up to date, not compiled in one place.

As per the analysis of the information, as the main objective was to gather data from publicly available sources, the interpretation of enforcement especially for biodiversity and labour issues is difficult. Countries may have signed/ratified an international convention (e.g. Cartagena Protocol on biodiversity; ILO conventions on labour) and although they are requested to comply with them there might still be issues not solved within each country (e.g. child labour).

### Final remarks

The report reviewed different topics to produce a baseline for assessing trends in sustainability performance and market not only in the EU but also in the countries considered to be the major sources of biofuels or feedstocks to produce them in Europe. The yields of most biofuels may not seem competitive on their own as a crude oil replacement, but the combined yields of all biofuels could represent a more sustainable energy alternative than continued dependence on a limited natural resource with inherent negative externalities.

A need for more transparent laws and better enforced/monitored on biodiversity and labour practices (especially as it relates to child labour and forced labour) coupled with incentives to the private domestic sector; biofuel production would gain a stronghold in the case-study countries. Strengthening and increasing transparency of government policies on environmental and social issues (such as forced/child labour) is an essential ingredient in ensuring a sustainable biofuel industry.

Contact: [r.diaz-chavez@imperial.ac.uk](mailto:r.diaz-chavez@imperial.ac.uk)

### References:

- EC, 2003, Directive 2003/30/EC of the European Parliament and the Council on the promotion of the use of biofuels or other renewable fuels for transport. Official Journal of the European Union. Brussels.
- EC, 2009, DIRECTIVE 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.
- Hamelinck C, Koper M, Berndes G, Englund O, Diaz-Chavez R, Kunen E and Walden D. 2011. Biofuels Baseline 2008. Ecofys project number: PECPNL084543 Ecofys, Agra CEAS, Chalmers University, IIASA and Winrock. Pp 553. Accessed January 2012. Url: [http://ec.europa.eu/energy/renewables/studies/renewables\\_en.htm](http://ec.europa.eu/energy/renewables/studies/renewables_en.htm)
- Kunen E and Diaz-Chavez R. 2011. Sustainability Reporting and Control Mechanisms. Winrock Report. Washington DC.

---

## Selected Events on Bioenergy and Bioproducts

### Upcoming: 4<sup>th</sup> Global-Bio-Pact Progress Meeting in London, UK

The next internal Global-Bio-Pact meeting will be organised on **15-17 February 2012** in London, UK. The meeting will be hosted by Imperial College London. This meeting is an internal meeting for the Global-Bio-Pact consortium in order to present the progress of the project.

### Upcoming: 5<sup>th</sup> Global-Bio-Pact Progress Meeting, Workshop, Study Tour in Buenos Aires, Argentina

The 5<sup>th</sup> Global-Bio-Pact meeting will be organised in conjunction with a public workshop on biofuels and a study tour to biodiesel facilities in Buenos Aires, Argentina in **September 2012**. The exact date and venue will be published in March 2012.

### Upcoming: Final Global-Bio-Pact Conference in Brussels, Belgium

In December 2012, a final conference will be organized in Brussels in order to present project results and recommendations to representatives of

the European Commission and to the European research community. Furthermore, this conference aims to disseminate the project results among stakeholders and provides a networking platform for stakeholders involved in sustainability certification of biofuels.

### Upcoming: 20th European Biomass Conference and Exhibition

The 20th European Biomass Conference and Exhibition (EU BC&E 2012) takes place in Milano, Italy on 18 - 22 June 2012.



The international science and technology Conference of the 20th EU BC&E comprises more than 800 presentations, in plenary, oral and visual sessions. The 20th EU BC&E attracts policy and industry decision makers through several parallel events addressing special topics which are currently in the focus of discussion.

All biomass specialists are invited to contribute and to present innovative developments, progress and scientific results to the global biomass community and to submit their abstracts by 30 January 2012.

More information: <http://www.conference-biomass.com/>

---

## Other News

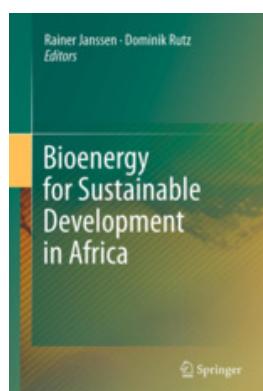
### Book published: “Bioenergy for Sustainable Development in Africa”

This contribution to the current global discussion about the sustainability of bioenergy addresses the fact that this debate often ignores the needs and opinions of developing countries. The book specifically addresses bioenergy development opportunities and associated risks for Africa.

The contributions to the work relate the experiences of selected authors from Africa, Europe and other continents and include material from researchers,

investors, policy makers and other stakeholders, such as representatives of NGOs. Authors include also several Global-Bio-Pact partners. Readers will find a multitude of perspectives on the issue, going well beyond the academic field.

The work builds on the results of the COMPETE Bioenergy Competence Platform for Africa, which



was supported by the European Commission and coordinated by WIP Renewable Energies, Germany. The five sections cover biomass production and use, biomass technologies and markets in Africa, biomass policies, sustainability, and financial and socio-economic issues.

Reference: JANSSEN R., RUTZ D. (eds.) (2012) *Bioenergy for sustainable development in Africa*. – Springer Science+Business Media B.V.; Dordrecht Heidelberg London New York; DOI 10.1007/978-94-007-2181-4; ISBN 978-94-007-2180-7

Available at:  
<http://www.springer.com/environment/sustainable+development/book/978-94-007-2180-7>

## International Year of Sustainable Energy for All

In December 2010, the United Nations General Assembly declared 2012



the International Year of Sustainable Energy for All, recognizing that "... access to modern affordable energy services in developing countries is essential for the achievement of ... the Millennium Development Goals and sustainable development."

The General Assembly's Resolution 65/151 called on the Secretary-General, in consultation with the inter-agency group UN-Energy to organize and coordinate activities to be undertaken during the Year in order to "increase awareness of the importance of addressing energy issues, including modern energy services for all, access to affordable energy, energy efficiency and the sustainability of energy sources and use" at local, national, regional and international levels.

In response, the UN Secretary-General Ban Ki-moon, with support from UN-Energy and the United Nations Foundation, is leading a new global initiative – Sustainable Energy for All. This initiative will engage governments, the private sector, and civil society partners globally with the goal of achieving sustainable energy for all, and to reach three major objectives by 2030:

- ensuring universal access to modern energy services
- doubling the rate of improvement in energy efficiency
- doubling the share of renewable energy in the global energy mix

Over the course of 2012, the designation of the International Year of Sustainable Energy for All will provide a vital platform for raising awareness of the challenge and for securing national commitments toward achieving the three objectives.

More information: [www.sustainableenergyforall.org](http://www.sustainableenergyforall.org)

## FAO Support to Decision-Making for Sustainable Bioenergy

The rapid development of bioenergy, and in particular liquid biofuels, has generated considerable debate regarding their sustainability, and in particular the so-called "food versus fuel" competition. The links between bioenergy and food security are complex. Making bioenergy development sustainable becomes even more challenging when one tries to capture its potential rural development, climate and energy security benefits. A sound and integrated approach is required in order to address these links and promote both "food and fuel", and ensure that bioenergy contributes to sustainable development. In order to promote this sound and integrated approach, over recent years FAO, partly in collaboration with partners, has developed the FAO Support Package for Decision-Making for Sustainable Bioenergy including the following elements:

- The UN-Energy Decision Support Tool for Sustainable Bioenergy (DST), proposes step-wise guidance for both strategy formulation and investment decision-making processes.
- The primary objective of the Bioenergy and Food Security project (BEFS) is to support countries with bioenergy policy development and implementation that would safeguard food security and align with countries' socio-economic policy objectives based on a sound information set.
- The Bioenergy and Food Security Criteria and Indicators project (BEFSCI) has developed a set of criteria, indicators, good practices and policy options on sustainable bioenergy production that foster rural development and food security.
- The Bioenergy Environmental Impact Assessment Framework (BIAS) was developed to give a brief overview of the main environmental issues and to examine methodological options, platforms and databases and their limitations for evaluating environmental impact of bioenergy projects and policies.
- FAO hosts the Secretariat of the Global Bioenergy Partnership (GBEP) and has significantly contributed, to GBEP's work on the sustainability indicators agreed upon in May 2011 by 23 countries and 13 international organizations.

More information: [www.fao.org/bioenergy](http://www.fao.org/bioenergy)

## Biofuels in Mozambique – Recent Developments

Mozambique is an example of a promising Southern African biomass production region. It is a poor country, and the majority of the population (63.5%) lives in rural areas. About 80 % of the population depend on agriculture for their livelihood. However, this sector contributes only 25% of the Gross Domestic Product. This reflects the low agricultural production and the low international trade of agricultural products (agricultural products are 16% of the exports).

In 2009, the National Biofuel Policy and Strategy (Resolution 22/2009), has been approved by the Government of Mozambique, to promote the production of biofuels and the establishment of a national market. The government's objective is to develop a sustainability framework that can be used for the protection of natural resources, maximize the socio-economic benefits, minimize negative impacts, and to facilitate access for biofuels produced in Mozambique to international markets such as the EU.

Draft sustainability criteria are available, but need to be made ready for use. In 2012, NL Agency will continue its support for the Mozambican government to show how sustainability standards such as the international standard of the RSB (Roundtable Sustainable Biofuels) can be made operational and implemented in Mozambique for local use and international trade.

Contact: [kees.kwant@agentschapnl.nl](mailto:kees.kwant@agentschapnl.nl)

## Renewable Energy Cooperation Programme (RECP) of the Africa-EU Energy Partnership (AEEP)

The Africa-EU Energy Partnership (AEEP), launched in December 2007, is a long-term framework for structured political dialogue and cooperation between Africa and the EU on energy issues of strategic importance. The overall objective of the AEEP is improved access to reliable, secure, affordable, cost-effective, climate friendly and sustainable energy services for both continents, with a special focus on achieving the MDGs in Africa.

As an integral part of the AEEP since 2010, the Renewable Energy Cooperation Programme (RECP) seeks to accelerate the use of renewable energy in Africa in order to increase access to modern energy services in Africa by making the continent a prime destination for renewable energy investments. During the programme's Start-up Phase 2010-2012 the objective is to prepare the ground for renewable energy investments by improving the policy framework in Africa and building capacity in the African banking sector. Activities of

RECP for the period up to 2020 will include policy advisory services, private sector cooperation between African and European businesses as well as research and higher education.

In May 2012 an AEEP Forum will be organised in South Africa to actively involve and facilitate dialogue between stakeholders from civil society, research and private sector, as well as policy makers, public officials and financial sector representatives.

*More information:*  
[www.euei-pdf.org/africa-eu-energy-partnership.html](http://www.euei-pdf.org/africa-eu-energy-partnership.html)

## Development of Sustainability Criteria for Bio-fuels in Mali

Within the project Mainstreaming Sustainability in the Biofuel Sector in Mali, coordinated by Mali Folkecenter (MFC) and co-funded by the Global Sustainable Biomass Fund, a set of sustainability criteria for the production and use of biofuels is under development. In September 2011 a study was published by MFC proposing 11 criteria to ensure the sustainability of the biofuels sector in Mali. The production and use of biofuels in Mali needs to:

- Contribute to the reduction of GHG emissions
- Avoid negative impacts on the environment
- Respect State forests and biodiversity reserves
- Avoid negative impacts on food security
- Avoid negative impacts on soil quality
- Support economic development and local employment generation
- Respect the rights of men, women and children
- Appropriately integrate gender aspects
- Respect land and land use rights
- Avoid negative impacts on water, soil and biodiversity
- Conform with national and international laws and regulations

Currently, this set of sustainability criteria is refined with the support of international experts from FACT Foundation and WIP with the aim to establish a biofuel certification scheme suitable for the specific framework conditions in Mali.

Contact: [ousmane.ouattara@malifolkecenter.org](mailto:ousmane.ouattara@malifolkecenter.org)

## Global-Bio-Pact Coordination

### WIP – Renewable Energies

#### Dominik Rutz

Phone: +49 89 720 12 739

E-mail: dominik.rutz@wip-munich.de

#### Rainer Janssen

Phone: +49 89 720 12 743

E-mail: rainer.janssen@wip-munich.de



Sylvensteinstr. 2  
81369 Munich, Germany  
[www.wip-munich.de](http://www.wip-munich.de)

## Global-Bio-Pact Partners

### Imperial College London, United Kingdom

Contact: Rocio Diaz-Chavez

E-mail: [r.diaz-chavez@imperial.ac.uk](mailto:r.diaz-chavez@imperial.ac.uk)

Web: [www.imperial.ac.uk](http://www.imperial.ac.uk)

### Utrecht University, Netherlands

Contact: Andre Faaij

E-mail: [A.P.C.Faaij@uu.nl](mailto:A.P.C.Faaij@uu.nl)

Web: [www.uu.nl](http://www.uu.nl)

### BTG Biomass Technology Group, Netherlands

Contact: Martijn Vis

E-mail: [vis@btgworld.com](mailto:vis@btgworld.com)

Web: [www.btgworld.com](http://www.btgworld.com)

### IFEU Institute, Germany

Contact: Nils Rettenmaier

E-mail: [nils.rettenmaier@ifeu.de](mailto:nils.rettenmaier@ifeu.de)

Web: [www.ifeu.de](http://www.ifeu.de)

### ProForest, United Kingdom

Contact: Isaac Abban-Mensah

E-mail: [isaac@proforest.net](mailto:isaac@proforest.net)

Web: [www.proforest.net](http://www.proforest.net)

### Roundtable on Sustainable Biofuels, Switzerland

Contact: Sébastien Haye

E-mail: [sebastien.haye@epfl.ch](mailto:sebastien.haye@epfl.ch)

Web: [www.rsb.org](http://www.rsb.org)

### UNICAMP - University of Campinas, Brazil

Contact: Arnaldo Walter da Silva

E-mail: [awalter@fem.unicamp.br](mailto:awalter@fem.unicamp.br)

Web: [www.unicamp.br/unicamp/en](http://www.unicamp.br/unicamp/en)

### INTA - National Institute for Agricultural Technology, Argentina

Contact: Jorge Antonio Hilbert

E-mail: [hilbert@cnia.inta.gov.ar](mailto:hilbert@cnia.inta.gov.ar)

Web: [www.inta.gov.ar/info/bioenergia/bio.htm](http://www.inta.gov.ar/info/bioenergia/bio.htm)

### CATIE - Tropical Agricultural Research and Higher Education Center, Costa Rica

Contact: Abigail Fallot

E-mail: [afallot@catie.ac.cr](mailto:afallot@catie.ac.cr)

Web: [www.catie.ac.cr](http://www.catie.ac.cr)

### TATEDO - Tanzania Traditional Energy Development and Environment Organization, Tanzania

Contact: Estomih Sawe

E-mail: [energy@tatedo.org](mailto:energy@tatedo.org)

Web: [www.tatedo.org](http://www.tatedo.org)

### Mali-Folkecenter, Mali

Contact: Ousmane Ouattara

E-mail: [ousmane.ouattara@malifolkecenter.org](mailto:ousmane.ouattara@malifolkecenter.org)

Web: [www.malifolkecenter.org](http://www.malifolkecenter.org)

### Greenlight Biofuels Indonesia, Indonesia

Contact: Agnes Safford

E-mail: [agnes@glbiofuels-sea.com](mailto:agnes@glbiofuels-sea.com)

Web: [www.glbiofuels.com](http://www.glbiofuels.com)



Universiteit Utrecht

Imperial College  
London



ProForest



## Legal Notice

Global-Bio-Pact is co-funded by the European Commission in the 7<sup>th</sup> Framework Programme (Project No. FP7-245085).

The sole responsibility for the content of this publication lies with the authors. It does not represent the opinion of the Community. The European Commission is not responsible for any use that may be made of the information contained therein.

Published and edited by WIP – Renewable Energies, Munich, Germany, 2012