



# The Status of Biofuels Projects in Mozambique

**Author: Boris Atanassov**

## Introduction

Since 2004 the Mozambican government has promoted the development of the national biofuels industry. Within the 2004 electoral campaign, the government encouraged farmers to cultivate jatropha on marginal and unused lands. This was seen as an initiative for poverty reduction in rural areas country-wide. This support for the industry soon attracted a multitude of local and foreign investors with interests to develop large tracts of land under biofuels feedstock. Mozambique was viewed as a land abundant country, with stable and supportive political conditions, as well as climatically favourable for agricultural investments.

By 2009, the government of Mozambique had received requests for 12 million hectares of state-owned land for biofuels feedstock production. From these, only 2 million were considered as credible by the state. As of December 2010, there were 48 registered biofuels project in Mozambique, 23 of which had land under cultivation (Atanassov et al, 2011).

Mozambique is recognized as having the most progressive biofuels legislation amongst its neighbouring African countries. In 2009, the government launched its biofuels policy and strategy to guide sector development. Furthermore, in 2012, the country finalized its own biofuels sustainability criteria, which is currently submitted for final approval at ministerial level. Such policies have largely arisen due to increasing concerns about possible negative impacts of the industry. Issue such as land grabbing, poor people's access to land, and the food versus food debate have often been stated as possible dangers of the biofuels industry.

The surge for biofuels investment has slowed down in the past couple of years. Many of the initially proposed projects have abandoned activities due to a series of setbacks. On an international front, the financial crises experienced since 2010 has resulted in a drastic reduction of funds for the proposed investments. On a national level, various projects have been delayed due to political backlogs such as bureaucratic red tape in issuing licenses and approving activities on the ground.

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## Methodology and Approach

This analysis of the biofuels industry in Mozambique was completed during the month of January 2013. The methodology used includes interviews with key informants from government, civil society and selected biofuels projects.

The data obtained for this analysis comes from the following sources:

1. Government institutions
  - I. The Centre for Agricultural Promotion (CEPAGRI)
  - II. The National Directorate for New and Renewable Energies (DNER)
  - III. The Ministry for coordination of Environmental Affairs (MICOA)
2. Civil Society Organizations
  - I. WWF
  - II. Justica Ambiental
3. Private Sector (Biofuel projects)
  - I. Grown Energy Zambeze
  - II. Massingir Agro Industrial
  - III. Mocamgulf and Gulp Buzi
  - IV. NIQUEL
  - V. Cleanstar Mozambique
4. Past research and notes from conferences and seminars on biofuels

The information collected has been checked for reliability by comparing similar data from various sources. The most updated information has been collected from representatives of the biofuels projects. It was unfortunately not possible to inquire a larger number of project representatives due to time constraints and unavailability of some respondents to answer.

Much of the Information of the biofuels industry is scattered and at times out-dated. Databases obtained from government institutions need to be updated as many of the projects have modified activities and made changes to initial presumptions. A detailed baseline study was last done by the ministry of energy in 2010. It is expected that the ministry will repeat this effort during the course of 2013. Information gaps which exist include recent estimates of biofuels feedstock output as well as planned biofuels output. In cases where data is unavailable, an estimate has been made by considering the proposed land to be used for cultivation multiplied by the standard value of yields per hectare (in Mozambique) for each feedstock.

In the case of some projects, updated information on currently planted area is missing. Data from 2011 has been used in those cases where representatives from the biofuels projects have not been contacted. It has also been noted that various biofuels projects have shifted the dates for expected full feedstock planting due to project delays. These need to be verified in the case of projects which were not directly contacted in this analysis.

## Status of Biofuels Projects

The following tables summarises key finding from all biofuels projects. The table is divided amongst ethanol and biodiesel results.

	Ethanol	Biodiesel	Total
Number of projects authorised	6	12	18
Number of projects implemented	3	10	13
Total area authorised (ha)	97530 ha	111797 ha	209327 ha
Current area under cultivation (ha)	2080 ha	4030 ha	6110 ha
Planned area for cultivation (ha)	98000 ha	127732 ha	225732 ha
Current output of biofuel ( <i>specify tonnes/litres</i> )	3500 tonnes/year	152 tonnes/year	3652 tonnes/year
Planned output of biofuel ( <i>specify tonnes/litres</i> )	422000 tonnes/year	89412 tonnes/year	511412 tonnes/year

Below is a series of detailed tables highlighting the status of all ethanol and biodiesel projects in the country:

### Ethanol Projects

Project 1		
Parameter	Data	Source of Information
Location	<b>Gaza Province, Massingir District</b>	MAI 2013
Company	<i>Massingir AgroIndustrial SA (MAI)</i>	MAI 2013
Status (of company)	<i>Private-Foreign Owned</i>	MAI 2013
Size of concession	<i>37 500 ha</i>	MAI 2013
Date of investment authorisation	<i>October 2012</i>	MAI 2013
Date of first planting	<i>Not Yet</i>	MAI 2013
Planted area	<i>None</i>	MAI 2013
Planned total area	<i>37 500 ha</i>	MAI 2013
Expected year of full planting	<i>First Phase: 2016 - Second Phase: 2022</i>	MAI 2013
Crop/feedstock	<i>Sugar Cane</i>	MAI 2013
Biofuel produced	<i>Ethanol</i>	MAI 2013
Business model	<i>Stand-Alone Plantation</i>	MAI 2013
Number of outgrowers contracted	currently none	MAI 2013
Number of employees		7000 MAI 2013
- permanent	<i>Forecasted: 4600</i>	MAI 2013
- seasonal	<i>Forecasted: 2400</i>	MAI 2013

Planned output of feedstock (tonnes)	<i>500 000 Tonnes / year</i>	MAI 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>38 Million Litres/year</i>	MAI 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>None</i>	MAI 2013
Planned destination of output	<i>Europé and National</i>	MAI 2013
Additional Information	<i>Project has taken over previous biofuels concession belonging to Procana. The land license was revoked from procana, and attributed to MAI through a bid system</i>	MAI 2013
<b>Project 2</b>		
Parameter	Data	Source of Information
Location	<i>Sofala Province, Chibabava district</i>	Gulp Buzi 2012
Company	<b><i>Gulp Buzi</i></b>	Gulp Buzi 2012
Status (of company)		Gulp Buzi 2012
Size of concession	<i>6500 Ha</i>	Gulp Buzi 2012
Date of investment authorisation	<i>September 2010</i>	Gulp Buzi 2012
Date of first planting		<i>2011</i> Gulp Buzi 2012
Planted area	<i>400 ha</i>	Gulp Buzi 2012
Planned total area	<i>6500 ha</i>	Gulp Buzi 2012
Expected year of full planting		<i>2014</i> Gulp Buzi 2012
Crop/feedstock	<i>Sugar Cane</i>	Gulp Buzi 2012
Biofuel produced	<i>Ethanol</i>	Gulp Buzi 2012
Business model	<i>Stand Alone farm mixed with Outgrower</i>	Gulp Buzi 2012
Number of outgrowers contracted	Currently none	Gulp Buzi 2012
Number of employees		Gulp Buzi 2012
- permanent		<i>50</i> Gulp Buzi 2012
- seasonal		<i>110</i> Gulp Buzi 2012
Planned output of feedstock (tonnes)	<i>Uncertain</i>	Gulp Buzi 2012
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>Uncertain</i>	Gulp Buzi 2012

Current output of biodiesel/ethanol (specify tonnes/litres)	<i>None</i>	Gulp Buzi 2012
Planned destination of output	<i>EU and National</i>	Gulp Buzi 2012
Additional Information	<i>Waiting on Environmental impact assessment and Land use liscence</i>	Gulp Buzi 2012
<b>Project 3</b>		
Parameter	Data	Source of Information
Location	<b><i>Zambezia Province, Chemba District</i></b>	GEZ 2012/ WWF 2013
Company	<i>Grown Energy Zambeze (GEZ)</i>	GEZ 2012/ WWF 2013
Status (of company)	<i>Private-Foreign</i>	GEZ 2012/ WWF 2013
Size of concession	<i>15 000ha</i>	GEZ 2012/ WWF 2013
Date of investment authorisation	<i>2008</i>	GEZ 2012/ WWF 2013
Date of first planting	<i>2008</i>	GEZ 2012/ WWF 2013
Planted area	<i>550 ha</i>	WWF 2013
Planned total area	<i>15 000 Ha</i>	GEZ 2012/ WWF 2013
Expected year of full planting	<i>Initially it was 2011, now it is 2014</i>	WWF 2013
Crop/feedstock	<i>Sugar Cane and Sorghum</i>	GEZ 2012/ WWF 2013
Biofuel produced	<i>Ethanol</i>	GEZ 2012/ WWF 2013
Business model	<i>Stand alone farm mixed with outgrower</i>	GEZ 2012/ WWF 2013
Number of outgrowers contracted	<i>None yet - planned for 200 outgrowers with 3 ha each</i>	GEZ 2012/ WWF 2013
Number of employees	<i>Currently 244, planned: 2000</i>	WWF 2013
- permanent	<i>244</i>	WWF 2013
- seasonal	<i>N/A</i>	GEZ 2012/ WWF 2013
Planned output of feedstock (tonnes)	<i>N/A</i>	GEZ 2012/ WWF 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>N/A</i>	GEZ 2012/ WWF 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>None yet</i>	GEZ 2012/ WWF 2013
Planned destination of output	<i>UK and Local</i>	GEZ 2012/ WWF 2013
Additional Information	<i>Project financed in large by TATA chemicals</i>	GEZ 2012/ WWF 2013
<b>Project 4</b>		

Parameter	Data	Source of Information
Location	<i>Sofala Province, Dondo and Savane District</i>	CSM 2013
Company	<b><i>Cleanstar Mozambique (CSM)</i></b>	CSM 2013
Status (of company)	<i>Private- Foreign owned</i>	CSM 2013
Size of concession	<i>currently 4 ha for Ethanol factory and 125 for demo plots. By end of 2013 an additional 1400 ha company farm shall be established</i>	CSM 2013
Date of investment authorisation	<i>July 2012</i>	CSM 2013
Date of first planting	<i>nov-11</i>	CSM 2013
Planted area	<i>1000 ha</i>	CSM 2013
Planned total area	<i>4000 ha outgrower based and 1000 ha company farm</i>	CSM 2013
Expected year of full planting	<i>2014</i>	CSM 2013
Crop/feedstock	<i>Cassava</i>	CSM 2013
Biofuel produced	<i>Ethanol</i>	CSM 2013
Business model	<i>Company farm mixed with majority outgrower</i>	CSM 2013
Number of outgrowers contracted	<i>900 Currently and 5000 by 2014</i>	CSM 2013
Number of employees		CSM 2013
- permanent	<i>183</i>	CSM 2013
- seasonal	<i>100</i>	CSM 2013
Planned output of feedstock (tonnes)	<i>12000 tonnes wet cassava (4000 t dry cassava)</i>	CSM 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>2.5 million Litres/year</i>	CSM 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>206 000 Litres/month</i>	CSM 2013
Planned destination of output	<i>Local (Maputo cooking fuel sales)</i>	CSM 2013
Additional Information	<i>The project produces ethanol for sale as clean cooking fuel as a replacement for charcoal in urban centres of Mozambique.</i>	CSM 2013
<b>Project 5</b>		
Parameter	Data	Source of Information

Location	<i>Provincia Manica, Sussundenga district</i>	CEPAGRI 2013
Company	<b>Mozambique Principle Energy</b>	CEPAGRI 2013
Status (of company)	<i>Foreign-owned</i>	CEPAGRI 2013
Size of concession	<i>20 000 ha</i>	CEPAGRI 2013
Date of investment authorisation	<i>2008</i>	CEPAGRI 2013
Date of first planting	<i>2009</i>	DNER 2012
Planted area	<i>130 ha</i>	DNER 2012
Planned total area	<i>18000 ha</i>	DNER 2012
Expected year of full planting	<i>2015</i>	DNER 2012
Crop/feedstock	<i>Sugar-cane</i>	DNER 2012
Biofuel produced	<i>Ethanol</i>	DNER 2012
Business model	<i>Stand alone farms</i>	DNER 2012
Number of outgrowers contracted	<i>None</i>	DNER 2012
Number of employees	<i>Forecasted: 2650</i>	DNER 2012
- permanent	<i>72</i>	DNER 2012
- seasonal		
Planned output of feedstock (tonnes)	<i>N/A</i>	
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>20 Million litres/year</i>	DNER 2012
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>None</i>	
Planned destination of output	<i>EU and Local</i>	CEPAGRI 2013
Additional Information	<i>The project has currently stopped, with no activity. No information on when the project will initiate again.</i>	DNER 2012
<b>Project 6</b>		
Parameter	Data	Source of Information
Location	<i>Sofala Province, Caia district</i>	CEPAGRI/DNER 2013
Company	<b>ENVALOR</b>	CEPAGRI/DNER 2013
Status (of company)	<i>Private - Foreign and local capital</i>	CEPAGRI/DNER 2013
Size of concession	<i>17000 ha</i>	CEPAGRI/DNER 2013
Date of investment authorisation	<i>2012</i>	CEPAGRI/DNER 2013
Date of first planting	<i>None yet</i>	CEPAGRI/DNER 2013
Planted area	<i>None yet</i>	CEPAGRI/DNER 2013

Planned total area	<i>16000 ha</i>	CEPAGRI/DNER 2013
Expected year of full planting	<i>2016</i>	CEPAGRI/DNER 2013
Crop/feedstock	<i>Sugar-cane and Sorghum</i>	CEPAGRI/DNER 2013
Biofuel produced	<i>Ethanol</i>	CEPAGRI/DNER 2013
Business model	<i>Stand alone farm</i>	CEPAGRI/DNER 2013
Number of outgrowers contracted	<i>None</i>	CEPAGRI/DNER 2013
Number of employees	<i>N/A</i>	CEPAGRI/DNER 2013
- permanent		CEPAGRI/DNER 2013
- seasonal		CEPAGRI/DNER 2013
Planned output of feedstock (tonnes)	<i>N/A</i>	CEPAGRI/DNER 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>20 million Litres/Year</i>	CEPAGRI/DNER 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>None yet</i>	CEPAGRI/DNER 2013
Planned destination of output	<i>EU and Local market</i>	CEPAGRI/DNER 2013
Additional Information	<i>Project currently awaits final approval</i>	CEPAGRI/DNER 2013

### Biodiesel Projects

<b>Project 1</b>		
Parameter	Data	Source of Information
Location	<i>Zambezia Province, Lugela District</i>	Mocamgulp 2013
Company	<b><i>Mocamgulp</i></b>	Mocamgulp 2013
Status (of company)	<i>Private Foreign and National Investment</i>	WWF 2013
Size of concession	<i>6000 ha</i>	Mocamgulp 2013
Date of investment authorisation	<i>December 2010</i>	Mocamgulp 2013
Date of first planting	<i>December 2011</i>	Mocamgulp 2013
Planted area	<i>320 ha</i>	Mocamgulp 2013
Planned total area	<i>6000 ha</i>	Mocamgulp 2013
Expected year of full planting	<i>2013</i>	Mocamgulp 2013
Crop/feedstock	<i>Jatropha Curcus</i>	Mocamgulp 2013
Biofuel produced	<i>Biodiesel</i>	Mocamgulp 2013
Business model	<i>Stand Alone mixed with outgrower</i>	Mocamgulp 2013



Number of outgrowers contracted	None	Mocamgulp 2013
Number of employees		Mocamgulp 2013
- permanent	60	WWF 2013
- seasonal	150	WWF 2013
Planned output of feedstock (tonnes)	<i>Uncertain</i>	Mocamgulp 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>Uncertain</i>	Mocamgulp 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>None</i>	Mocamgulp 2013
Planned destination of output	<i>EU and Local</i>	Mocamgulp 2013
Additional Information	<i>Project is still waiting to receive Land Use Licence.</i>	Mocamgulp 2013
<b>Project 2</b>		
Parameter	Data	Source of Information
Location	<i>Sofala Province, Cheringoma District</i>	CEPAGRI 2013
Company	<b><i>Enerterra</i></b>	CEPAGRI 2013
Status (of company)	<i>Mixed local and foreign private capital</i>	CEPAGRI 2013
Size of concession	<i>18508 ha</i>	CEPAGRI 2013
Date of investment authorisation	<i>2008</i>	CEPAGRI 2013
Date of first planting	<i>2008</i>	CEPAGRI 2013
Planted area	<i>30 ha</i>	CEPAGRI 2013
Planned total area	<i>18 000 ha</i>	CEPAGRI 2013
Expected year of full planting	<i>Uncertain</i>	CEPAGRI 2013
Crop/feedstock	<i>Jatropha</i>	CEPAGRI 2013
Biofuel produced	<i>Biodiesel</i>	CEPAGRI 2013
Business model	<i>Stand alone farm with possible outgrower model</i>	CEPAGRI 2013
Number of outgrowers contracted	None	CEPAGRI 2013
Number of employees	Forecast: 2045	DNER 2013
- permanent		CEPAGRI 2013
- seasonal		CEPAGRI 2013
Planned output of feedstock (tonnes)	<i>N/A</i>	CEPAGRI 2013

Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>N/A</i>	CEPAGRI 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>None</i>	CEPAGRI 2013
Planned destination of output	<i>EU and Local</i>	CEPAGRI 2013
Additional Information	<i>Project has currently terminated activities. The project aims to shift activities from jatropha to other feedstock.</i>	CEPAGRI 2013
<b>Project 3</b>		
Parameter	Data	Source of Information
Location	<i>Sofala Province, Dondo district</i>	DNER 2013
Company	<b>Zamcorp-Indico</b>	DNER 2013
Status (of company)	<i>Private-Foreign</i>	DNER 2013
Size of concession	<i>21000 ha</i>	DNER 2013
Date of investment authorisation	<i>2008</i>	DNER 2013
Date of first planting	<i>2009</i>	DNER 2013
Planted area	<i>30 ha</i>	DNER 2013
Planned total area	<i>20 000 ha</i>	DNER 2013
Expected year of full planting	<i>N/A</i>	DNER 2013
Crop/feedstock	<i>Jatropha</i>	DNER 2013
Biofuel produced	<i>Biodiesel</i>	DNER 2013
Business model	<i>Stand alone farm</i>	DNER 2013
Number of outgrowers contracted	<i>None</i>	DNER 2013
Number of employees	<i>Forecast: 600</i>	DNER 2013
- permanent		DNER 2013
- seasonal		DNER 2013
Planned output of feedstock (tonnes)	<i>N/A</i>	DNER 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>N/A</i>	DNER 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>None</i>	DNER 2013
Planned destination of output	<i>Local and Foreign markets</i>	DNER 2013

Additional Information	<i>The project has currently stopped, with no activity.</i>	DNER 2013
<b>Project 4</b>		
Parameter	Data	Source of Information
Location	<i>Zambezia Province, Lugela District</i>	CEPAGRI / DNER 2013
Company	<b><i>Mozambique Bio-Fuel Industries</i></b>	CEPAGRI / DNER 2013
Status (of company)	<i>Local and Foreign private capital</i>	CEPAGRI / DNER 2013
Size of concession	<i>10 000 ha</i>	CEPAGRI / DNER 2013
Date of investment authorisation	<i>2008</i>	CEPAGRI / DNER 2013
Date of first planting	<i>2008</i>	CEPAGRI / DNER 2013
Planted area	<i>30 ha (pilot)</i>	CEPAGRI / DNER 2013
Planned total area	<i>10 000 ha</i>	CEPAGRI / DNER 2013
Expected year of full planting	<i>N/A</i>	CEPAGRI / DNER 2013
Crop/feedstock	<i>Jatropha and Cassava</i>	CEPAGRI / DNER 2013
Biofuel produced	<i>Biodiesel and Ethanol</i>	CEPAGRI / DNER 2013
Business model	<i>Nucleus estate-outgrower</i>	CEPAGRI / DNER 2013
Number of outgrowers contracted	<i>None at the moment</i>	CEPAGRI / DNER 2013
Number of employees	<i>Forecasted: 170</i>	CEPAGRI / DNER 2013
- permanent		CEPAGRI / DNER 2013
- seasonal		CEPAGRI / DNER 2013
Planned output of feedstock (tonnes)	<i>N/A</i>	CEPAGRI / DNER 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>N/A</i>	CEPAGRI / DNER 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>None at the moment</i>	CEPAGRI / DNER 2013
Planned destination of output	<i>National</i>	CEPAGRI / DNER 2013
Additional Information	<i>Project is active , and is currently preparing the land for plantation</i>	CEPAGRI / DNER 2013
<b>Project 5</b>		
Parameter	Data	Source of Information
Location	<i>Nampula Province, Nacala Velha District</i>	CEPAGRI/DNER 2013
Company	<b><i>AVIAM</i></b>	CEPAGRI/DNER 2013
Status (of company)	<i>Private-Foreign (Italian)</i>	CEPAGRI/DNER 2013

Size of concession	15 000 ha	CEPAGRI/DNER 2013
Date of investment authorisation	2008	CEPAGRI/DNER 2013
Date of first planting	2008	CEPAGRI/DNER 2013
Planted area	300 ha	CEPAGRI/DNER 2013
Planned total area	15 000 ha	CEPAGRI/DNER 2013
Expected year of full planting	2014	CEPAGRI/DNER 2013
Crop/feedstock	<i>Jatropha</i>	CEPAGRI/DNER 2013
Biofuel produced	<i>Biodiesel</i>	CEPAGRI/DNER 2013
Business model	<i>Stand alone farm with possible outgrower scheme</i>	CEPAGRI/DNER 2013
Number of outgrowers contracted	None	CEPAGRI/DNER 2013
Number of employees	Forecast: 2500	CEPAGRI/DNER 2013
- permanent	160	CEPAGRI/DNER 2013
- seasonal	N/A	CEPAGRI/DNER 2013
Planned output of feedstock (tonnes)	N/A	CEPAGRI/DNER 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	N/A	CEPAGRI/DNER 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	None	CEPAGRI/DNER 2013
Planned destination of output	EU	CEPAGRI/DNER 2013
Additional Information	<i>Project activities under way, however limited due to financial restrictions</i>	CEPAGRI/DNER 2013
<b>Project 6</b>		
Parameter	Data	Source of Information
Location	<i>Maputo province, Moamba District</i>	CEPAGRI/DNER 2013
Company	<b><i>Bioenergia Mozambique</i></b>	CEPAGRI/DNER 2013
Status (of company)	<i>Private - Foreign and local capital</i>	CEPAGRI/DNER 2013
Size of concession	6950 ha	CEPAGRI/DNER 2013
Date of investment authorisation	2008	CEPAGRI/DNER 2013
Date of first planting	2008	CEPAGRI/DNER 2013
Planted area	20 ha	CEPAGRI/DNER 2013
Planned total area	6900 ha	CEPAGRI/DNER 2013
Expected year of full planting	2014	CEPAGRI/DNER 2013
Crop/feedstock	<i>Jatropha</i>	CEPAGRI/DNER 2013

Biofuel produced	<i>Biodiesel</i>	CEPAGRI/DNER 2013
Business model	<i>Nucleus estate-outgrower</i>	CEPAGRI/DNER 2013
Number of outgrowers contracted	none yet	CEPAGRI/DNER 2013
Number of employees		CEPAGRI/DNER 2013
- permanent	29	CEPAGRI/DNER 2013
- seasonal		CEPAGRI/DNER 2013
Planned output of feedstock (tonnes)	<i>3 tonnes of seeds/ha</i>	CEPAGRI/DNER 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>N/A</i>	CEPAGRI/DNER 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>none yet</i>	CEPAGRI/DNER 2013
Planned destination of output	<i>85% for foreign export and 15% for local use</i>	CEPAGRI/DNER 2013
Additional Information	<i>Project is active, however at limited capacity due to financial constraints</i>	CEPAGRI/DNER 2013
<b>Project 7</b>		
Parameter	Data	Source of Information
Location	<i>Sofala Province, Buzi District</i>	CEPAGRI/DNER 2013
Company	<b>NIQEL</b>	CEPAGRI/DNER 2013
Status (of company)	<i>Private - Foreign</i>	CEPAGRI/DNER 2013
Size of concession	<i>7000 ha</i>	CEPAGRI/DNER 2013
Date of investment authorisation	<i>2008</i>	CEPAGRI/DNER 2013
Date of first planting	<i>2009</i>	CEPAGRI/DNER 2013
Planted area	<i>300 ha</i>	CEPAGRI/DNER 2013
Planned total area	<i>6500 ha</i>	CEPAGRI/DNER 2013
Expected year of full planting	2020	CEPAGRI/DNER 2013
Crop/feedstock	<i>Jatropha</i>	CEPAGRI/DNER 2013
Biofuel produced	<i>Biodiesel</i>	CEPAGRI/DNER 2013
Business model	<i>Stand alone farm</i>	CEPAGRI/DNER 2013
Number of outgrowers contracted	None	CEPAGRI/DNER 2013
Number of employees	265	CEPAGRI/DNER 2013
- permanent	165	CEPAGRI/DNER 2013
- seasonal	100	CEPAGRI/DNER 2013
Planned output of feedstock (tonnes)	<i>22000 Tonnes/year</i>	CEPAGRI/DNER 2013

Planned output of biodiesel/ethanol (specify tonnes/litres)	N/A	CEPAGRI/DNER 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	150 tonnes of oil up to now	CEPAGRI/DNER 2013
Planned destination of output	5% for internal market and 95% to Holland (other EU)	CEPAGRI/DNER 2013
Additional Information	Project is under way, with activities based on trials and jatropha variety testing. New areas are cleared for further planting	CEPAGRI/DNER 2013
<b>Project 8</b>		
Parameter	Data	Source of Information
Location	Manica Province, Gondola District	CEPAGRI/DNER 2013
Company	<b>Sun Biofuels</b>	CEPAGRI/DNER 2013
Status (of company)	Private-foreign owned	CEPAGRI/DNER 2013
Size of concession	5000 ha	CEPAGRI/DNER 2013
Date of investment authorisation	2008	CEPAGRI/DNER 2013
Date of first planting	2008	CEPAGRI/DNER 2013
Planted area	2000 ha	CEPAGRI/DNER 2013
Planned total area	20 000 ha	CEPAGRI/DNER 2013
Expected year of full planting	2018	CEPAGRI/DNER 2013
Crop/feedstock	Jatropha	CEPAGRI/DNER 2013
Biofuel produced	Biodiesel	CEPAGRI/DNER 2013
Business model	Stand-Alone farm	CEPAGRI/DNER 2013
Number of outgrowers contracted	None	CEPAGRI/DNER 2013
Number of employees	Forecast: 1500	CEPAGRI/DNER 2013
- permanent	None at moment	CEPAGRI/DNER 2013
- seasonal	None at moment	CEPAGRI/DNER 2013
Planned output of feedstock (tonnes)	2 tonnes/ha (seeds)	CEPAGRI/DNER 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	0,87 tonnes of biodiesel/ha	CEPAGRI/DNER 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	2000 Litres of Biodiesel in 2010	CEPAGRI/DNER 2013
Planned destination of output	EU and Local	CEPAGRI/DNER 2013

Additional Information	<i>Project has not been operational since early 2011 due to financial difficulties, and is currently undergoing restructuring.</i>	CEPAGRI/DNER 2013
<b>Project 9</b>		
Parameter	Data	Source of Information
Location	<i>Niassa Province, Majune District</i>	CEPAGRI/DNER 2013
Company	<b><i>Luambala Jatropha</i></b>	CEPAGRI/DNER 2013
Status (of company)	<i>Private - Local and Foreign Capital</i>	CEPAGRI/DNER 2013
Size of concession	<i>8787 ha</i>	CEPAGRI/DNER 2013
Date of investment authorisation	<i>2008</i>	CEPAGRI/DNER 2013
Date of first planting	<i>2009</i>	CEPAGRI/DNER 2013
Planted area	<i>300 ha</i>	CEPAGRI/DNER 2013
Planned total area	<i>10 000 ha</i>	CEPAGRI/DNER 2013
Expected year of full planting	<i>2014</i>	CEPAGRI/DNER 2013
Crop/feedstock	<i>Jatropha, Sunflower, Soja</i>	CEPAGRI/DNER 2013
Biofuel produced	<i>Biodiesel</i>	CEPAGRI/DNER 2013
Business model	<i>Stand Alone Farm</i>	CEPAGRI/DNER 2013
Number of outgrowers contracted		CEPAGRI/DNER 2013
Number of employees		CEPAGRI/DNER 2013
- permanent	<i>36</i>	CEPAGRI/DNER 2013
- seasonal	<i>149</i>	CEPAGRI/DNER 2013
Planned output of feedstock (tonnes)	<i>2 tonnes jatropha seeds/ ha</i>	CEPAGRI/DNER 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>0,8 tonnes oils/ha</i>	CEPAGRI/DNER 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>None</i>	CEPAGRI/DNER 2013
Planned destination of output	<i>Export to EU and Local Market</i>	CEPAGRI/DNER 2013
Additional Information	<i>Project activities are currently more focused on food crop production</i>	CEPAGRI/DNER 2013
<b>Project 10</b>		
Parameter	Data	Source of Information
Location	<i>Inhambane Province, Panda District</i>	CEPAGRI/DNER 2013
Company	<b><i>Sociedade Inveragro</i></b>	CEPAGRI/DNER 2013
Status (of company)	<i>Private - Local</i>	CEPAGRI/DNER 2013

Size of concession	6332 ha	CEPAGRI/DNER 2013
Date of investment authorisation	N/A	CEPAGRI/DNER 2013
Date of first planting	N/A	CEPAGRI/DNER 2013
Planted area	N/A	CEPAGRI/DNER 2013
Planned total area	N/A	CEPAGRI/DNER 2013
Expected year of full planting	N/A	CEPAGRI/DNER 2013
Crop/feedstock	<i>Jatropha</i>	CEPAGRI/DNER 2013
Biofuel produced	<i>Biodiesel</i>	CEPAGRI/DNER 2013
Business model	N/A	CEPAGRI/DNER 2013
Number of outgrowers contracted	N/A	CEPAGRI/DNER 2013
Number of employees	N/A	CEPAGRI/DNER 2013
- permanent		CEPAGRI/DNER 2013
- seasonal		CEPAGRI/DNER 2013
Planned output of feedstock (tonnes)	N/A	CEPAGRI/DNER 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	N/A	CEPAGRI/DNER 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	N/A	CEPAGRI/DNER 2013
Planned destination of output	N/A	CEPAGRI/DNER 2013
Additional Information	<i>Project in experimental phase</i>	CEPAGRI/DNER 2013
<b>Project 11</b>		
Parameter	Data	Source of Information
Location	<i>Maputo Province, Manhica District</i>	CEPAGRI/DNER 2013
Company	<b><i>Deulco Emvest</i></b>	CEPAGRI/DNER 2013
Status (of company)	<i>Private - Local and foreign capital</i>	CEPAGRI/DNER 2013
Size of concession	1220 ha	CEPAGRI/DNER 2013
Date of investment authorisation	2009	CEPAGRI/DNER 2013
Date of first planting	2009	CEPAGRI/DNER 2013
Planted area	500 ha	CEPAGRI/DNER 2013
Planned total area	3000 ha	CEPAGRI/DNER 2013
Expected year of full planting		2013 CEPAGRI/DNER 2013
Crop/feedstock	<i>Jatropha</i>	CEPAGRI/DNER 2013
Biofuel produced	<i>Biodiesel</i>	CEPAGRI/DNER 2013



Business model	<i>Stand-alone farm</i>	CEPAGRI/DNER 2013
Number of outgrowers contracted	None	CEPAGRI/DNER 2013
Number of employees	250	CEPAGRI/DNER 2013
- permanent	250	CEPAGRI/DNER 2013
- seasonal		CEPAGRI/DNER 2013
Planned output of feedstock (tonnes)	<i>3 tonnes jatropha seeds/ha</i>	CEPAGRI/DNER 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>1200 Litres biodiesel/ha</i>	CEPAGRI/DNER 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>None</i>	CEPAGRI/DNER 2013
Planned destination of output	<i>Local and foreign market</i>	CEPAGRI/DNER 2013
Additional Information	<i>Project is active, with feedstock production still at experimental phase. Most attention is given towards the production of food crops.</i>	CEPAGRI/DNER 2013
<b>Project 12</b>		
Parameter	Data	Source of Information
Location	<i>Inhambane Province, Panda District</i>	CEPAGRI/DNER 2013
Company	<b>SAB Mozambique</b>	CEPAGRI/DNER 2013
Status (of company)	<i>Private - Foreign owned (Italian capital)</i>	CEPAGRI/DNER 2013
Size of concession	<i>6000 ha</i>	CEPAGRI/DNER 2013
Date of investment authorisation	<i>2009</i>	CEPAGRI/DNER 2013
Date of first planting	<i>December 2009</i>	CEPAGRI/DNER 2013
Planted area	<i>200 ha</i>	CEPAGRI/DNER 2013
Planned total area	<i>6000 ha</i>	CEPAGRI/DNER 2013
Expected year of full planting	<i>2014</i>	CEPAGRI/DNER 2013
Crop/feedstock	<i>Jatropha</i>	CEPAGRI/DNER 2013
Biofuel produced	<i>Biodiesel</i>	CEPAGRI/DNER 2013
Business model	<i>Stand-alone farm</i>	CEPAGRI/DNER 2013
Number of outgrowers contracted	none	CEPAGRI/DNER 2013
Number of employees	N/A	CEPAGRI/DNER 2013
- permanent		CEPAGRI/DNER 2013
- seasonal		CEPAGRI/DNER 2013

Planned output of feedstock (tonnes)	<i>1.5 tonnes/ha</i>	CEPAGRI/DNER 2013
Planned output of biodiesel/ethanol (specify tonnes/litres)	<i>0.8 Tonnes/ha</i>	CEPAGRI/DNER 2013
Current output of biodiesel/ethanol (specify tonnes/litres)	<i>None</i>	CEPAGRI/DNER 2013
Planned destination of output	<i>Export to EU and Local</i>	CEPAGRI/DNER 2013
Additional Information	<i>Project land was acquired from previous cotton plantation. Currently the project is still at experimental phase.</i>	CEPAGRI/DNER 2013

## Discussion of findings

A total of 18 biofuels projects are currently authorised to operate in Mozambique. Six of these are ethanol projects of which one is cassava based. The rest of the ethanol projects shall use either sugar-cane or sorghum as feedstock. The large majority (12) of biofuels projects are biodiesel oriented. *Jatropha Curcus* is the choice crop for these initiatives. Other biofuels projects which were registered since 2006 have either abandoned activities or had their licenses revoked. Such were not included in this analysis. A total of 97530 hectares of land is currently authorised for ethanol feedstock production; and as much as 111797 hectares of land has been authorized for biodiesel feedstock.

The pace of implementation of these projects has been slow. Most have not yet reached their initial targets for plantation and feedstock processing. Of the six ethanol projects, only three have been implemented, while from the 12 authorised biodiesel projects, 10 are operational. Most of the projects currently being implemented are still within their testing phase and have cultivated only small fractions of their land. When considering the planned area for cultivation of ethanol feedstock for all projects; only 2% of this area is currently under cultivation. Similarly, only 3% of the area planned for biodiesel feedstock is currently being cultivated.

With regards to feedstock processing into biofuels, only one project is currently fully operational. Cleanstar Mozambique is an integrated food and energy venture which processes part of its cassava feedstock into ethanol. This ethanol is then marketed as clean cooking fuel in urban centres of Mozambique. The project inaugurated its ethanol plant in May 2012, and has capacity to produce 2.5 million litres of ethanol per year.

With regards to the location of the biofuels projects, it can be said that they are spread country-wide. 6 projects are located in the South of the country (Maputo, Gaza and Inhambane provinces); 13 projects are located in the centre of the country (Sofala, Manica and Zambezia provinces); while 2 are located in the North (Nampula and Niassa Provinces).

The land acquired for these projects has been on a request base form the government. In Mozambique, all land belongs to the state, and users may obtain a land use license for a renewable term. In many cases, the land attributed by government to the biofuels projects has involved the resettlement of communities. In a few cases, biofuels projects have occupied land areas previously used for other feedstock. This has happened in the cases of

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Sun-biofuels which is operating on a former tobacco plantation as well as in the case of SAB Mozambique, which used to be a cotton plantation. In another case, a former biofuels land concession revoked from Procana (former ethanol project) has been attributed to Massingir Agro industrial through a competitive bidding process initiated by the government.

## Factors Affecting the Status of Biofuels Projects

Biofuels development in Mozambique is guided through various policies, strategies and regulations which have been developed specifically for this industry. In 2009, the national biofuels policy and strategy was released. All projects need to comply with the processes and regulations described within the document. The policy gave way to the inter-ministerial commission on biofuels. This is a body responsible for the coordination, supervision, monitoring and evaluating the implementation of the biofuels policy and strategy. Further regulations which have been developed include the biofuels technical regulation; the blending regulation; the regulation on biofuels licensing for production, storage, export, transport and commercialization, and the soon to come biofuels price structure regulation.

Furthermore, the country has developed its own biofuels sustainability criteria which consist of 7 core principles to be upheld by all producers. This is to assure that economic, social and environmental sustainability is maintained within the sector. Some criticise this criteria for being too strict, and possibly affecting those biofuels projects which cannot financially or physically uphold all 7 principles. Failing to do so may lead to project license revocation. It is expected that the criteria be implemented from mid2013 onwards.

Another factor which has largely affected the development of the biofuels industry in Mozambique has been the global financial crises experienced since 2010. Various investors have either pulled out from the projects or failed to comply with financing terms. This has resulted in the paralysation of activities on the ground. It may be one reason why the majority of projects are still in their pilot phase.

It can also be said that certain investors have lost interest in the sector. This is most evident in the *Jatropha* case. Recent studies have shown that *jatropha* is not as economically viable as once thought. This follows various failed projects in countries such as India and Brazil where the crop was once promoted on large scale. Some investors however continue to believe in this crop and finance plantation trials to develop better varieties and improve yields. This is most evident in the case of the NIQEL *jatropha* project in Sofala.

According to representatives from the biofuels projects, one of the greatest factors currently affecting their projects is bureaucratic red tape. In a recent biofuels seminar, various producers highlighted that they have not yet received their definitive land use license (called DUAT in Mozambique). Without this license it is difficult to secure investor interest, as without definitive land use right, the investment is categorised under “risk”. Biofuels producers have also highlighted that the process in obtaining operating licenses and other permissions from the government has often been slow and at times difficult. It may be so that some projects have been abandoned due to this factor.

Other factors which have also posed difficulties to producers include conflicts over land with local communities, unfavourable climate variability, as well as the lack of qualified and competent human resources.

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Overseas Development Institute  
203 Blackfriars Road  
London SE1 8NJ  
Tel +44 (0)20 7922 0300  
Fax +44 (0)20 7922 0399

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