Biomass market opportunities

Ghana

1. General Country Information
2. Economic Indicators
3. Biomass Availability
4. Energy Profile
5. Energy & Biomass Policies
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7. Business Climate
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Colophon

Date: April 14, 2014
Status: Final

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This document

This document is part of a series of 16, providing information on biomass markets in:

<table>
<thead>
<tr>
<th>Region</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>Germany, France, United Kingdom, Spain and Finland</td>
</tr>
<tr>
<td>EU/Asia</td>
<td>Russia and Latvia</td>
</tr>
<tr>
<td>Asia</td>
<td>China, India and Thailand</td>
</tr>
<tr>
<td>North- and South-America</td>
<td>United States of America, Canada and Brazil</td>
</tr>
<tr>
<td>Africa</td>
<td>South-Africa and Ghana</td>
</tr>
<tr>
<td>Australia</td>
<td>Australia</td>
</tr>
</tbody>
</table>

The selection of countries is done in close cooperation with NL Enterprise Agency. The objectives of the country documents are:
- To provide companies a first impression of doing businesses in a country;
- To provide sources and contacts for more detailed information;
- To sketch opportunities how companies can be further supported when doing business in a country.
Doing business with Ghana from The Netherlands is not too difficult because of good flight connections and long-time existing trade relations between the countries. Ghana, with its fast growing economy, is an upcoming market in Africa and can serve as a hub for the region. Important export products are cacao (and other agricultural products), gold and in the near future potentially oil. Ghana has a lot of forestry and agricultural residues available that are currently not being used. There seems to be a good market for medium sized biogas and waste to energy systems. The government of Ghana has recently put in place a feed-in tariff for renewables.

1. GENERAL COUNTRY INFORMATION

- Africa country portal [http://countryportal.ascleideo.nl/](http://countryportal.ascleideo.nl/)
- Im- and export figures can be found at the International Trade Centre Databank: [http://www.rvo.nl/onderwerpen/internationaal-ondernemen/landenoverzicht/marktvergelijkingen/trademap](http://www.rvo.nl/onderwerpen/internationaal-ondernemen/landenoverzicht/marktvergelijkingen/trademap)

2. ECONOMIC INDICATORS

<table>
<thead>
<tr>
<th>Ghana</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP (current billion US$)</td>
<td>25.977</td>
<td>32.174</td>
<td>39.564</td>
<td>40.710</td>
</tr>
<tr>
<td>GDP growth (annual %)</td>
<td>4</td>
<td>8</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>GDP per capita (current US$)</td>
<td>1,097</td>
<td>1,326</td>
<td>1,594</td>
<td>1,605</td>
</tr>
<tr>
<td>Population (Total, million)</td>
<td>23.692</td>
<td>24.263</td>
<td>24.821</td>
<td>25.366</td>
</tr>
</tbody>
</table>


AON Risk Rating 2013

Aon’s risk rating combines market, political and security risks, allowing you to make informed decisions regarding your operations and investments. Used risk Ratings are: VH= Very High, H=High, MH=Medium High, M=Medium, ML=Medium Low, L=Low and NR=Not Rated.

<table>
<thead>
<tr>
<th>Risk type</th>
<th>Rating</th>
<th>Risk type</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange transfer</td>
<td>M</td>
<td>Political violence</td>
<td>M</td>
</tr>
<tr>
<td>Sovereign non-payment</td>
<td>M</td>
<td>Risk of doing business</td>
<td>H</td>
</tr>
<tr>
<td>Political interference</td>
<td>MH</td>
<td>Banking sector vulnerability</td>
<td>ML</td>
</tr>
<tr>
<td>Supply chain disruption</td>
<td>ML</td>
<td>Inability of government to provide stimulus</td>
<td>M</td>
</tr>
<tr>
<td>Legal &amp; regulatory risks</td>
<td>M</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Overall risk rating**

M

Source: AON political Risk Map, Q3 2013, [http://www.riskmap.aon.co.uk/Political_Risk_Map.aspx](http://www.riskmap.aon.co.uk/Political_Risk_Map.aspx)
3. BIOMASS AVAILABILITY

Ghana is ranked 30th in the world for agricultural production with almost 29 million ton in 2012 (FAOStat). The annual amount of timber extracted from forests is estimated at 1 million m3. Following tables present the amounts of available agricultural residues. 

Source: Moses Hensley Duku; A comprehensive review of biomass resources and biofuels potential in Ghana; Renewable and Sustainable Energy Reviews 15 (2011) 404–415

The Netherlands is one of the most important export countries for Ghana for agricultural products, with 10% of the total value of exported agricultural products going to the Netherlands. 95% of this value is cacao and cocoa preparations.

### Land Use Parameters

<table>
<thead>
<tr>
<th>2011 (km²)</th>
<th>Land area</th>
<th>Agricultural area</th>
<th>Arable land</th>
<th>Permanent crops</th>
<th>Permanent grassland</th>
<th>Forestry area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>227,540</td>
<td>159,050</td>
<td>48,011</td>
<td>27,987</td>
<td>48,238</td>
<td>227,540</td>
</tr>
<tr>
<td>Per 1000 capita</td>
<td>0.009</td>
<td>0.006</td>
<td>0.002</td>
<td>0.001</td>
<td>0.002</td>
<td>0.009</td>
</tr>
</tbody>
</table>

Source: http://data.worldbank.org/indicator/AG.LND.TOTL.K2

### Agricultural & Forest Production

<table>
<thead>
<tr>
<th>Country</th>
<th>Forest production (m3) 2012</th>
<th>Agricultural production (1000 kg) 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>488,245,525</td>
<td>933,996,721</td>
</tr>
</tbody>
</table>

Source: FAOstat 2012

<table>
<thead>
<tr>
<th>Crop¹</th>
<th>Production (&lt;10⁶ tonnes)</th>
<th>Residue type</th>
<th>Residue to product ratio (RPR)²</th>
<th>Moisture content (%)</th>
<th>Residue (wet tonnes)</th>
<th>Residue (dry, 10⁶ tonnes)</th>
<th>Lower heating value (MJ/kg)</th>
<th>Residues energy potential (TJ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorghum</td>
<td>350</td>
<td>Stalk</td>
<td>2.62</td>
<td>15</td>
<td>917.00</td>
<td>779.45</td>
<td>17.00</td>
<td>15.59</td>
</tr>
<tr>
<td>Millet</td>
<td>160</td>
<td>Stalk</td>
<td>3</td>
<td>15</td>
<td>480.00</td>
<td>408.00</td>
<td>15.51</td>
<td>7.44</td>
</tr>
<tr>
<td>Rice</td>
<td>262</td>
<td>Straw</td>
<td>1.5</td>
<td>15</td>
<td>363.00</td>
<td>308.55</td>
<td>15.56</td>
<td>5.65</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>145</td>
<td>Bagasse</td>
<td>0.3</td>
<td>75</td>
<td>43.50</td>
<td>10.875</td>
<td>13.38</td>
<td>0.58</td>
</tr>
<tr>
<td>Coconut</td>
<td>316</td>
<td>Shell</td>
<td>0.6</td>
<td>10</td>
<td>198.6</td>
<td>170.64</td>
<td>10.61</td>
<td>2.01</td>
</tr>
<tr>
<td>Oil palm fruits</td>
<td>1,500</td>
<td>Eff</td>
<td>0.25</td>
<td>60</td>
<td>475.00</td>
<td>190.00</td>
<td>15.51</td>
<td>7.37</td>
</tr>
<tr>
<td>Coffee</td>
<td>165</td>
<td>Husk</td>
<td>2.1</td>
<td>15</td>
<td>346.50</td>
<td>294.525</td>
<td>12.56</td>
<td>0.04</td>
</tr>
<tr>
<td>Cocoa</td>
<td>700</td>
<td>pods, husk</td>
<td>1</td>
<td>15</td>
<td>700.00</td>
<td>595.00</td>
<td>15.48</td>
<td>10.84</td>
</tr>
<tr>
<td>Maize</td>
<td>1,100</td>
<td>stalk</td>
<td>1.5</td>
<td>15</td>
<td>1650.00</td>
<td>1402.50</td>
<td>15.48</td>
<td>25.76</td>
</tr>
<tr>
<td>Total</td>
<td>4821.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. ENERGY PROFILE


National Energy Profile 2011

- Total Primary Energy Supply: 386.9 PJ - Of which renewables: 295.0 PJ (76.2 %)
- Energy self-sufficiency: 76.3%
- Fuel imports: 1.1 billion USD (14 % of total imports)
- Electricity generation: 9.0 TWh - Of which renewables: 6.9 TWh (76.8 %)
- Electricity use per capita: 265 kW h
- Electrical capacity: 2,111 MW - Of which renewables: 1,280 MW (60.6 %)
- Electricity access rate: 60.5%
- Share of population using solid fuels (fire wood): 86%

Total primary Energy Supply in 2000 and 2009 in Ghana (excluding electricity trade)

More detailed energy statistics and information can be found at http://energycom.gov.gh (Ghana Energy Commission).

5. ENERGY & BIOMASS POLICIES

National Policy


- Improve access to Modern Energy for Cooking – Liquefied Petroleum Gas (LPG)
- Improve access to Modern Energy for Cooking – Improved Cook Stoves (ICS)
- Establish 5000 small-scale oil palm processing plants in palm oil producing
- Establish institutional biogas systems for 200 boarding schools, hospitals and prisons

Renewable Energy Targets:

- 10% of electricity generation from renewables by 2020
- Stimulation of using LPG as cooking fuel, replacing wood fuel and charcoal
- Stimulation of using improved cookstoves
- Electricity prices: The average tariff for residential customers is currently about 10 US cents per kWh.

### Policies in Place to Promote Renewable Energy Since the Rio Conference of 1992

![Policies in Place to Promote Renewable Energy Since the Rio Conference of 1992]

### 6. Funding Opportunities

**Business Support / Funding Sources in The Netherlands**

Subsidies and support from the Netherlands Enterprise Agency (RVO – Rijksdienst voor Ondernemend Nederland), [http://english.rvo.nl/subsidies-programmes](http://english.rvo.nl/subsidies-programmes)

Specific interesting facilities:

### 7. Business Climate

**Overall Rating**

World Bank Ease of Doing Business index 2013 (Ranking out of 189 countries). In comparison, the Netherlands is ranked 28 (2014) and 30 (2013). On this website information about necessary permits, administration time, costs, specific laws et cetera is present.

#### TOPIC

<table>
<thead>
<tr>
<th>Topic</th>
<th>Doing Business 2014 Rank</th>
<th>Doing Business 2013 Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Rating</td>
<td>67</td>
<td>62</td>
</tr>
<tr>
<td>Starting a Business</td>
<td>128</td>
<td>111</td>
</tr>
<tr>
<td>Dealing with Construction Permits</td>
<td>159</td>
<td>158</td>
</tr>
<tr>
<td>Getting Electricity</td>
<td>85</td>
<td>88</td>
</tr>
<tr>
<td>Registering Property</td>
<td>49</td>
<td>45</td>
</tr>
<tr>
<td>Getting Credit</td>
<td>28</td>
<td>24</td>
</tr>
<tr>
<td>Protecting Investors</td>
<td>34</td>
<td>32</td>
</tr>
<tr>
<td>Paying Taxes</td>
<td>68</td>
<td>92</td>
</tr>
<tr>
<td>Trading Across Borders</td>
<td>109</td>
<td>106</td>
</tr>
<tr>
<td>Enforcing Contracts</td>
<td>43</td>
<td>43</td>
</tr>
<tr>
<td>Resolving Insolvency</td>
<td>116</td>
<td>116</td>
</tr>
</tbody>
</table>

Source: IFC / World Bank, [http://www.doingbusiness.org](http://www.doingbusiness.org)

**Logistics**

Based on a worldwide survey of operators on the ground - such as global freight forwarders and express carriers - the Logistics Performance Index (LPI) measures the logistics "friendliness" of 155 countries.

#### Country

<table>
<thead>
<tr>
<th>Country</th>
<th>Rank</th>
<th>Score (out of 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>108</td>
<td>2.51</td>
</tr>
</tbody>
</table>
Education
The UNDP Human Development Index (HDI) is a composite statistic of life expectancy, education, and income indices, used to rank countries into four tiers of human development: very high, high, medium and low. According to HDI, Ghana belongs to the group of “Medium human Development” and is ranked 135 out of 186.

<table>
<thead>
<tr>
<th>Topic</th>
<th>HDI rank 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total rating</strong></td>
<td>135</td>
</tr>
<tr>
<td>Mean years of schooling adults</td>
<td>7</td>
</tr>
<tr>
<td>Expected years of schooling children</td>
<td>11.4</td>
</tr>
</tbody>
</table>


8. IMPORTANT CONTACTS

Embassies and consulates

Chamber of Commerce

Government Organisations

Universities
- University of Ghana, Institute of Statistical, Social and Economic Research (ISSER), [isser.edu.gh](isser.edu.gh)
- Kwame Nkrumah University of Science and Technology, [www.knust.edu.gh](www.knust.edu.gh)

9. OTHER INFORMATION

Agreements / Relations
Relations between Netherlands and Ghana: [http://www.rijksoverheid.nl/onderwerpen/betrekkingen-met-nederland/ghan](http://www.rijksoverheid.nl/onderwerpen/betrekkingen-met-nederland/ghan)

(Co)Funded Projects

Relations between Netherlands and Ghana: [http://www.rijksoverheid.nl/onderwerpen/betrekkingen-met-nederland/ghan](http://www.rijksoverheid.nl/onderwerpen/betrekkingen-met-nederland/ghan)
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