

Mozambique - Factsheet

Introduction to the country

Mozambique covers an area of 799 380 km², with 786 380 km² of land and the remaining 13 000 km² consisting of water bodies (Figure 1). The population of the country is about 20.2 million inhabitants with 81% in the subsistence agricultural sector. In 2008 the per capita GDP in the country was estimated at U.S. \$956, a significant increase over the mid-1980s level of U.S. \$120. The annual economic (GDP) growth rate was 6.5% in 2008. The industry sector contributes with 41.2% for the GDP, followed by services with 34.6% and agriculture with 24.2%. The Agenda 2025 (Mozambique’s long term vision) and the Five Year Plan are policy documents where development strategies and objectives in the country are defined. One of the main objectives is to reduce the levels of poverty and to promote a fast and sustainable economic growth. The country observes successive years of peace, stability, and economic growth, but remains dependent upon foreign assistance for much of its annual budget, and the majority of the population remains below the poverty line.



Figure1. Map of Mozambique

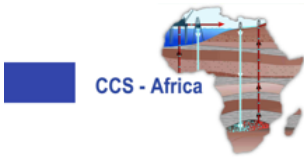
Electricity generation and industrial production

The enormous existing energy potential includes hydropower and hydrocarbons, primarily gas and coal. The hydroelectric potential of Mozambique is estimated at 12500 MW. The largest portion of the hydropower potential is located on the Zambezi River. Here the only potential that has been developed is Cahora Bassa South Bank, commissioned in 1975, with an installed capacity of 2075 MW. Mozambique has large sedimentary basins of natural gas. Accumulations of gas have been discovered in Pande and Temane, Buzi, province of Sofala. Total gas reserves might be as high as 3.5 TCF. Pande gas is now being exported to South Africa through a pipeline linking the locality of Temane, in the Province of Inhambane, and Sekonda, in the Province of Gauteng, in South Africa. In 2005 a ramification of the pipeline from Ressano Gracia, border to South Africa, enabled the supply of natural gas to the industrial park of Maputo. Concerning coal resources, Mozambique has three relatively large known deposits at Moatize-Minjova, Senangoe and Mucanha-Vuzi, all of them in the province of Tete. Total reserves are estimated at about three billion tones. Mining of coal is still to start.

Table 1. Electricity Sources in Mozambique	
	Capacity (MW) in 2008
Hydro	2183.85
Diesel	198.8
Gas	90.5
Fuel oil	6.88
Natural gas	0.660
Total	2480.69

The country’s generating capacity totals some 2480.69 MW (Table 1). The National Utility “Electricidade de Moçambique – EDM” has an installed hydroelectric capacity of 108.85 MW and a thermal capacity of 296.18 MW (198.8 MW for Diesel, 6.88 MW for fuel oil and 90.5 MW for gas). The companies ENMO/ELGAS based in the province of Inhambane have a production capacity of 0.660 MW, based on natural gas. The total energy consumed in Mozambique is of about 400 MW. The rest is exported to South Africa, Zimbabwe and Malawi.

The country’s generating capacity totals some 2480.69 MW (Table 1). The National Utility “Electricidade de Moçambique – EDM” has an installed hydroelectric capacity of 108.85 MW and a thermal capacity of 296.18 MW (198.8 MW for Diesel, 6.88 MW for fuel oil and 90.5 MW for gas). The companies ENMO/ELGAS based in the province of Inhambane have a production capacity of 0.660 MW, based on natural gas. The total energy consumed in Mozambique is of about 400 MW. The rest is exported to South Africa, Zimbabwe and Malawi.



Five large power generation projects are in the development process. They are regional projects by nature, with the aim to meeting the growing power demand in Mozambique and contribute to minimize the impact of the current shortage of power in Southern Africa. The projects are as follows:

- Mphanda Nkuwa Hydropower Plant (1500 MW, phase 1) at a distance of around 100 km from Cahora Bassa South Bank Power Plant;
- Cahora Bassa North Bank Hydropower Plant (1250 MW);
- Moatize Coal Fired Power Plant (1500 MW, phase 1), at the Province of Tete;
- Benga Coal Fired Power Plant (100 MW), at the Province of Tete;
- Moamba Natural Gas Fired Power Plant (750 MW), at the Province of Maputo.

The projects will be implemented in different phases, with Moatize and Benga projects expected to be the first ones to be commissioned. The Brazilian Group, Vale, with concession to explore Moatize coal, expects to start producing electricity in 2012, while the Australian Company, Riversdale Mining, with concession in Benga, will start electricity production in 2013.

CO₂ emissions

The Mozambican First National Communication to the UNFCCC reported direct CO₂ emissions amount of 9,265 kton per annum (with 2004 as the reference year). These emissions were released mainly from land use, land use change and forestry (LULUCF) (approx. 82.9%) and energy (approx. 16.5%) sectors approximately. The remaining trace amounts were released by industrial processes. The total amount of GHG emissions accounted for 15,905 kton of CO₂-eq (excluding NO_x and non-methane volatile organic compounds). From this amount, the larger contribution came from LULUCF (48.7%), agriculture (25.7%) and energy (11.6%) sectors. However, since then, the country has experienced a substantial economic gains as well as a growth in population which have contributed to a rise in GHG emissions. Additionally, there are a number of new projects in the energy sector which will take advantage of the existing potential (under partial exploitation) of natural gas (in the southern Province of Inhambane), as well as the main reservoirs of coal in the NE Province of Tete.

Regarding the Mozambican commitment to global climate agreements, in general, it is to note that the country is a part of the UNFCCC and has ratified the Kyoto Protocol. In this regard, the country has been adopting and implementing different regulations aiming at engaging the global agenda under the Rio World Summit Convention. Indeed, the country has already established a Designated National Authority (DNA) which is due to take care of activities under the Kyoto Protocol's Clean Development Mechanism (CDM) within Mozambique. One CDM project has been proposed and submitted to the CDM's executive board on fuel switch from coal to natural gas in a cement plant in Matola. Some additional project activities are emerging from different sectors. However, as the National Power Grid is arguably based mainly on hydropower, there have been very few opportunities to identify CDM potential activities in the energy sector.

Carbon Capture and Storage

So far there are no carbon capture and storage (CCS) activities in Mozambique. To date, the only initiatives regarding CCS relate to participation of Mozambican stakeholders in seminars on CCS both in Botswana (2007) and in South Africa (2009). Nevertheless, as projects for installation of coal-fired power stations have started, the potential for CCS activities in Mozambique will increase, due to the large amounts of carbon dioxide emitted from such installations. Apart from that, some of the existing industries, like the cement industry, are potential users of this CCS. The geological storage potential for CO₂ in Mozambique has not yet been assessed.