

# **Mozambique: an energy-rich country in the dark**

**Boaventura Monjane**

**Presented to the University of Illinois at Urbana-Champaign  
Center for African Studies conference:**

**Power Africa: Promises, Potentials, Pitfalls, and Possible Alternatives  
March 2 - 4, 2015**

## **1. Introduction**

Africa has been given many names, most of which mirror its dire social, political and economic situation. Some names, such as the “Dark Continent”, are telling and reveal our alleged “backwardness” and the need to “catch up” with the North. Despite its abundance in energy and power sources, the greater part of the continent remains without access to electricity, especially in rural areas. Sub-Saharan Africa, excluding South Africa, is the poorest served region in the world, with a very low household access to electricity (30.5 per cent of the population) (IEA 2001). Countries such as Democratic Republic of Congo and Mozambique produce abundant electricity but for export. Their domestic household electricity consumption is very low, and most large users are major mines or smelters which take an inordinate share.

Mozambique has considerable energy resources: natural gas in deep waters totaling around 20 billion barrels<sup>1</sup> an estimated hydropower potential of 12,000 MW and vast coal reserves with the potential of generating between 500 MW and 5,000 MW (EnergyPedia). The Cahora Bassa hydro-dam in Tete Central Province, with 2,075 MW electricity generation capacity, is one of the largest hydropower installations in Africa. The proposed large scale Mpanda Nkuwa dam (with a potential power generation of 2,500 MW) will also increase the country’s electricity generation, though its construction is highly controversial.

Despite its electricity generation potential, the greater part of the country is entirely in darkness and access to electricity is among the lowest in the world. For instance, in rural areas about 1% of the population has access to electricity (EnergyPedia). Even in urban areas, access to and use of electricity is still very limited due to the high costs and erratic supply. The most residents of the capital city, Maputo rely to some extent on wood or charcoal fuel to meet energy needs (Brouwer, F. 2004). Moreover, service delivery is poor. Power cuts are frequent and without notice. Power outages and voltage fluctuations have resulted in costly household appliance damages. The quality of the infrastructure is poor and easily affected by rains, which are frequent in tropical countries cause power cuts, exposing the weakness of the Electricidade de Moçambique (EDM) the country’s electricity supplier. Recently, parts of northern

---

<sup>1</sup> <http://www.macauhub.com.mo/en/2015/01/14/mozambique-has-natural-gas-reserves-of-20-billion-barrels/>

Mozambique such as the Mocuba district in Zambezia province (Esi Africa, 2015), were left without electricity for several weeks after rains destroyed ten pylons of the transmission lines from Cahora Bassa dam to Upper Zambezia, and on to Nampula, Niassa and Cabo Delgado provinces, the most populated provinces in the country.

Such experiences raise questions about the real capacity and interests of centralized and capital-intensive energy projects to provide electricity to the people. Mozambique exports electricity to countries such as South Africa and Zimbabwe. South Africa, the biggest electricity consumer in the Southern Africa requires the energy to attract investors into energy-intensive megaprojects such as smelting plants and refineries (Hankins 2009). It is therefore fair to question the effectiveness of such large-scale power production for a country where more than 70 per cent of the population has no access to electricity and relies on firewood to meet their energy needs.

Access to electricity is particularly crucial to human development as it is indispensable for certain basic activities, such as lighting, refrigeration and the running of household appliances, and cannot easily be replaced by other forms of energy (IEA). The low access to electricity therefore limits the attainment of some of the human development goals and is thus a denial of human dignity. As argued by Brickway and Salhotra (2011), without electricity, subsistence farming is less viable, students cannot study at night, and hospitals cannot store vaccines.

The Mozambique government is very eager to exploit oil and the vast gas resources found in its backyard, partly through the Power Africa Initiative launched by the US President Barack Obama. The Initiative seeks to support economic growth and development by increasing access to reliable, affordable and sustainable power in some African countries. Despite the good intentions of the Initiative, we are yet to see how this approach would be different and tackle the real problems of access, cost and quality of energy and put the people first instead of corporations.

In this paper, we discuss and question the efficacy and sustainability of large-scale energy production in Mozambique and its potential impact on the environment. We will thus review the challenges of the current model of electricity production and supply to understand Mozambique's electricity system.

## **2. Who controls Mozambique energy resources?**

### *Electricity*

The Government of Mozambique is the key player in the electricity sector through various agencies. The Ministry of Energy is the policy maker and overall supervision of the sector; the National Regulatory Board and the National Energy Fund (FUNAE) are responsible for off-grid electrification; and Electricidade de Moçambique (EDM) generates, transports and distributes electricity throughout the country. The Hidroeléctrica de Cahora Bassa (HCB) is the biggest hydro dam in Mozambique built by Portuguese colonial government. It is only transferred to the Mozambique

government (92.5% ownership) along with Portugal's Redes Energéticas Nacionais (REN). The Mozambique transmission Company (MOTRACO) – owned by EDM, South Africa's Eskom and Swaziland Electricity Board (SEB) with 33.33% each – has the responsibility to supply electricity to the Mozal aluminum smelter in South Mozambique. Mozal produces aluminum exclusively for export.

The government plans to build a new giant dam, Mphanda Nkuwa, which will “contribute to the social and economic development of Mozambique and help supplying the energy deficit that the Southern African Development Community (SADC) region is facing” (Mphanda Nkuwa website). But there is a big opposition to this project, which will cause huge damage to the Zambezi River. Mozambique NGO Justiça Ambiental argues that Mphanda Nkuwa is not expected to change the current scenario. “While new, energy-intensive and polluting companies are attracted to the region, the poor of Mozambique will continue to sit in the dark”<sup>2</sup> 80% of the energy to be produced by this dam is earmarked for export.

Despite the origin of the raw material, there is clear evidence that the generation of electricity and the accumulation of value happen abroad. In other words, Mozambique does not benefit from its own electricity. South Africa imports most of the electricity and Eskom is extremely desperate now that load-shedding is a near daily problem there. Most of Cahora Bassa's electricity is exported to South Africa (and Zimbabwe). Shockingly, Mozambique buys back its own electricity from South Africa's Eskom at much higher prices. Once Mozambique buys it back, a large part of this electricity is actually used up by the Mozal aluminum smelter that is owned by Australia-based BHP Billiton (47%), the Mitsubishi Corporation of Japan (25%), the Industrial Development Corporation of South Africa (24%) and the Government of Mozambique (4%) (BHP Billiton website). The Ressano Garcia power plant, recently installed on the border with South Africa, is a partnership between EDM (51%) and South Africa's Sasol (49%), and represents Mozambique's first permanent large-scale gas-to-power facility (SASOL website). According to Electricidade de Moçambique, the commissioning of Ressano Garcia plant will eliminate power imports from South Africa, on which EDM spends around \$26 million per year (Macauhub 2014). It will be interesting to see how much of the produced electricity South Africa takes home.

#### *Who owns the energy resources?*

Most of the largest concessions of coal mines and gas reserves are held by giant foreign corporations, with the right to sell stakes to any other company. This gives them total control over the resources. In the coal sector, the Moatize coal basin in Tete province is estimated to produce 6 billion tonnes, with Brazil's Vale, India's Jindal and Rio Tinto being the main coal extractors. Rio Tinto recently sold its entire stock to Indian Cold Ventures Limited (ICVL). Similarly, Vale recently sold a stake in its

---

<sup>2</sup> <http://www.internationalrivers.org/resources/civil-society-responds-to-chinese-funding-for-mozambique-mega%E2%80%93dam-mphanda-nkuwa-3904>

Moatize coal mine to Japanese trader Mitsui for \$763 million, as it looked to shore up its balance sheet during a period of lower commodity prices (Reuters, 2014), allowing a new guest to the banquet. Mitsui will get 15 percent of Vale's 95 percent stake in the Moatize coal mine. Other large coal projects in Tete province include: the Ncondezi project (\$500-\$600 million project); India's Jindal project with a proven reserve of 700 million tonnes; the Revuboe project in which Anglo American bought 58 percent stake (Telegraph, 2012) as well as the Zambeze project owned by Australia's Riversdale Mining. According to Electricidade de Moçambique, most of these projects have a power station at some stage or plan to have one.

### *Gas*

In the gas sector, since 2004 the Temane gas field in Inhambane province is being explored by Sasol of South Africa. Sasol bought the rights from Enron to explore gas in Pande-Temane. The project includes a pipeline which runs from the gas fields in Pande-Temane to its Secunda plant in South Africa (EJ Atlas). Risks related to insecurity of pipelines are known and well documented. For instance in Nigeria, communities have been affected by Shell's oil spills in the Niger Delta (Amnesty International 2014). In a country like Mozambique that has not been capable of managing even simple water pipelines, it is fair to question the safety of the gas pipelines being laid vis-à-vis the high risks of environmental pollution and the health of communities.

In Palma, Cabo Delgado Province, Texas-based Anadarko cleared some parts of an indigenous forest to build a new onshore drilling site. Anadarko plans to set up one of the biggest projects ever attempted by a Western energy company. The Palma project, costing \$1 billion, is among the most extreme efforts to convert such huge gas discoveries into marketable energy (WSJ, 2014), representing fierce competition to South Africa's Sasol.

Human rights violations as well as negative environmental impacts caused by these companies are very well documented by civil society organizations, researchers, and local and international media. Leaders in critical analysis are Justiça Ambiental and Academic Action for Rural Development (ADECURU), which recently published a statement denouncing pollution affecting more than 30,000 people in Moatize District. This is in area where India's Jindal is mining coal, with evidence of health problems (ADECURU, 2015).

Mozambique must rethink alternatives to redistribution of the existing available electricity and a transition to renewables if violations of human rights and environmental pollution are to be avoided.

### **3. Discussing electricity theft**

Under the conditions of weak governance prevailing in Mozambique, the energy system is subject to all manner of manipulations. As one reflection of this, electricity theft happens in different forms: meter tampering, illegal connections, unpaid bills, etc. Smith (2004:1) argues that electricity theft is closely related to governance indicators, with higher levels of theft in countries without effective accountability, political instability, low government effectiveness and high levels of corruption. Electricity theft should thus be seen a social consequence of social injustice and maldistribution of wealth. In this sense, the governments are responsible. Those who steal electricity are likely to be the poorest. They do that as a way of surviving, not necessarily as sabotage. A resident of Mavalane township in Maputo explained his reasons for stealing electricity: “I know that this is dangerous and it is not legal, but we need power at home. My sister studies at night and my parents do not always have money. What I take is very little anyway. It is only for light and the fridge.”<sup>3</sup>

When it comes to power cuts, poor neighbourhoods are also likely to be the most targeted both in Mozambique and South Africa. Charlotte Ngwenya is a citizen from a sprawling settlement, Olivenhout, and recently told a reporter of the Washington Times, “our lights go off for many hours, sometimes all night. People are poor here, and no one cares if we are in the dark.”<sup>4</sup>

It has been reported by media that illegal links to the grid are happening all over Mozambique,<sup>5</sup> just as in South Africa.<sup>6</sup> In Mozambique, many cases of electrocution have been reported by EDM. Electricidade de Moçambique as well as Eskom have promoted campaigns to “dismantle or stop” the perpetrators of electricity theft. In both countries, EDM and Eskom have urged people to denounce members of their communities who steal electricity by reporting them using a free telephone number, with guarantee of anonymity for the informer.<sup>7</sup> EDM reported that the company has been forced to divert resources from the power grid expansion projects to finance the costs caused by sabotage of infrastructure and energy theft. The company is now

---

<sup>3</sup> Interview with a 26 old man from Mavalane township in Maputo. Interview conducted on January 31, 2014

<sup>4</sup> “South Africa power blackouts problematic for ANC as poor claim unfair targeting”: <http://www.washingtontimes.com/news/2015/jan/15/south-africa-power-blackouts-problematic-for-anc-a/?page=all>

<sup>5</sup> “Mozambique’s electricity company EdM loses US\$13 million through power and equipment theft in first half”, Macau Hub: <http://www.macauhub.com.mo/en/2011/07/28/mozambique%E2%80%99s-electricity-company-edm-loses-us13-million-through-power-and-equipment-theft-in-first-half/>

<sup>6</sup> “Illegal electricity connections will be disconnected- City warns” Northcliffmelvilletimes: <http://northcliffmelvilletimes.co.za/192412/illegal-electricity-connections-will-be-disconnected-city-warns/>

<sup>7</sup> “report electricity theft: <http://www.operationkhanyisa.co.za/index.php/static/report-electricity-theft>

working on a law that will increase the penalties for stealing electricity as a response for electricity theft. In South Africa, huge costs are also incurred by electricity cable thieves.

The government should re-address the problem of electricity theft by designing pro-poor policies, which will include either subsidizing or providing some basic free electricity to the poor. Free electricity should be offered particularly to people who cannot afford to pay high electricity bills. Such measures will curb electricity theft and reduce maintenance costs drastically. Subsidies or free electricity could be compensated by charging higher rates (tier charge system) where by the companies and industries that use most of the electricity should be charged more. Eskom should be charged an economically fair bill for the electricity South Africa imports from Cahora Bassa. One reason the costs of power are historically high is the huge cost of repairing transmission lines as a result of the South African apartheid government's sponsorship of Renamo, the army that attempted to overthrow the Mozambique government before 1992. South Africa still owes a major debt for this destruction.

The government should also control corporate electricity and reverse the power grab underway in the energy sector. Charging large corporations and the rich will give sustainability to free electricity for the poor.

#### **4. Popular uprising against electricity injustice**

Electricity is also tied to other state services. In urban Mozambique, EDM coercively collects a solid waste fee through the household electricity bill. Even though many neighborhoods are not covered by the garbage collection service, yet they are charged for it. This system causes outrage for residents of such under-served neighborhoods. Consumers questioned the legitimacy of the coercive charges since their contracts with EDM never foresaw those fees. Recently, Maputo Municipal Council announced that the waste fee will be raised, in order to ensure greater sustainability of solid waste collection operations in the city (Noticias, 2014). Citizens recently interviewed by Miramar TV<sup>[1]</sup> in Maputo said it is not fair to increase the waste fee since they are not benefiting from that service. One interviewee stated that “They must come and collect the garbage first. Otherwise I will not pay (the bill)”.

Because politicians consider Mozambicans to be a peaceful people (having survived a liberation war until 1975 and then an externally-financed conflict from 1975-92 that left two million dead), everyone was taken by surprise when rising prices on municipal and public services catalysed mass protest. Mozambicans demonstrated intolerance to unjust increase on food, water and fuel prices (including electricity). Most spectacularly, in September 2010, Maputo was paralyzed as people protested the rise by as much as 30% of a loaf of bread. Some other mass protests occurred in cities and towns due to increase on public transport fees. Their impact was generally positive, as Maputo retracted some of the municipal price hikes.

These are not just urban protests against the maldistribution and overpricing of energy. In May 2014 members of a rural resettlement in Tete province blocked the

main rail route for moving coal to port from Vale and Rio Tinto mines. The protest was based upon resentment against mining companies from poor locals who wanted to see large share from the natural resources. Sufficient low-level resistance has been recorded by Justiça Ambiental so that inevitably, as foreign investors reflect on the benefit of drawing South African energy, their decisions will be based on the potential for intense social and environmental controversy.

## **5. Conclusion**

The electricity situation in Mozambique shows that if the current trend to centralized and capital-intensive energy production prevails, the country will continue to face the challenges discussed in this paper. That may lead to widespread protests across the country. It is necessary that the government of Mozambique changes its approach and puts people over profit for corporations when it comes to electricity production and supply. The overly export-oriented nature of the economy must therefore change; otherwise it will hardly serve the Mozambican people.

Also, while the government intensifies penalties for electricity theft or fraud by ordinary consumers, Mozambique rural and urban poor are not unaware of the enormous electricity subsidies and other facilities that big companies, like Mozal, are granted. This raises questions amongst poor, such as why they are targeted with heavy penalties but companies get hugely subsidized electricity.

Initiatives to improve electricity in countries like Mozambique, such as the US government initiative “Power Africa”, are challenged to do their work very differently, if they want to fill the existing gap instead of widening it. They will not help if their intention is to support the existing models, and continue to subsidize the already rich companies. Power Africa will have to look at people-based and -owned small-scale and middle-scale energy projects, and redirect energy subsidies downwards, not upwards.

## 6. Bibliography and references

### Studies:

Brouwer, R e Falcão, M.P., 2004. Wood fuel consumption in Maputo, Mozambique. *Journal of Biomass and Bioenergy*. Volume 27, Issue 3: 233-245.

Brockway, T. and Salhotra, R. 2011. Mozambique Cuts Poverty, Creates Jobs with Clean Energy. Think Progress.org

Hankins, M., 2009. A Renewable Energy Plan for Mozambique. JA! Justiça Ambiental

Smith T., 2004. Electricity theft: a comparative analysis. Department of Social and Behavioral Sciences, Zayed University, P.O. Box 19282, Dubai, United Arab Emirates

### Press articles:

Vale sells stake in Mozambique coal mine to Mitsui for \$763 mln, Reuters, 2014. <http://af.reuters.com/article/investingNews/idAFKBN0JN1FC20141209>

Anadarko's Controversial Mozambique Project Shows Appetite for Natural Gas, WSJ, 2014. <http://www.wsj.com/articles/anadarkos-controversial-mozambique-project-shows-appetite-for-natural-gas-1407810602>

Anglo American buys stake in Mozambique mining project Revuboe, telegraph, 2012. <http://www.telegraph.co.uk/finance/newsbysector/industry/mining/9423733/Anglo-American-buys-stake-in-Mozambique-mining-project-Revuboe.html>

Damaged pylons plunge northern Mozambique into darkness, EsiAfrica, 2015. <http://www.esi-africa.com/damaged-pylons-plunge-northern-mozambique-into-darkness/>

Governo Moçambicano recua no aumento de preços, BBC. [http://www.bbc.co.uk/portuguese/africa/news/story/2010/09/100907\\_mozgovacceptsdemandslc.shtml](http://www.bbc.co.uk/portuguese/africa/news/story/2010/09/100907_mozgovacceptsdemandslc.shtml)

Ressano Garcia power plant increases energy supply in Maputo, Mozambique, MacauHub, 2014. <http://www.macauhub.com.mo/en/2014/08/29/ressano-garcia-power-plant-increases-energy-supply-in-maputo-mozambique/>

### NGOs:

ADECRU. <https://adecru.wordpress.com/2015/02/04/poluicao-do-porto-seco-de-carvao-da-jindal-atinge-30-mil-pessoas-em-mocambique/#more-297>



Amnesty International. <http://www.amnesty.org/en/news/nigeria-long-awaited-victory-small-comfort-shell-pays-out-over-niger-delta-oil-spills-2015-01-0>

International Rivers. <http://www.internationalrivers.org/resources/civil-society-responds-to-chinese-funding-for-mozambique-mega%E2%80%93dam-mphanda-nkuwa-3904>

### **Energy Companies Websites:**

<http://www.hmnk.co.mz/en/go/the-project>

<http://www.sasol.com/media-centre/media-releases/sasol-edm-inaugurate-new-gas-power-plant-mozambique>

<http://www.bhpbilliton.com/home/investors/news/Pages/Articles/Mozal%20Smelter%20Expansion%20Officially%20Opened.aspx>

### **Government and general Websites:**

[https://energypedia.info/wiki/Mozambique\\_Energy\\_Situation](https://energypedia.info/wiki/Mozambique_Energy_Situation)

<http://www.whitehouse.gov/the-press-office/2013/06/30/fact-sheet-power-africa>