



**NANYANG  
TECHNOLOGICAL  
UNIVERSITY**  
SINGAPORE

**NTU-SBF**  
**Centre for African Studies**  
Nanyang Business School

# Africa Digest

Trends and Issues in Macro Environment

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## 1. Trends in Agriculture in Africa

Africa's agriculture sector remains an important driver of job creation and economic development. This report addresses two growing sub-sectors, i.e. aquaculture and poultry. Both subsectors are currently underdeveloped and both present opportunities to entrepreneurs. Each can also play a meaningful role to address the challenge of food security in a continent that currently imports between US\$35 and US\$41 billion of food annually.

### AQUACULTURE IN AFRICA

Global consumption of fish has grown twice as fast as the population since 1961. One of the most important sources of protein, fish, accounts for about 17 % of animal protein consumed globally. One third of the supply of fish for consumption is derived from aquaculture. However, aquaculture production faces various challenges, including overexploitation, pollution and habitat change. The International Fund for Agricultural Development (IFAD) seeks to mitigate these pressures, and actively promotes initiatives that contribute to the increased sustainability of the fisheries sector.

In Angola, the IFAD addresses the challenges of overexploitation caused by bad fishing practices and destructive gear by supporting longer-term fisheries governance. Benefitting 15,000 people, this project aims to reduce poverty in artisanal inland fishing and small-scale fish-farming households in target communities.

In Djibouti, the IFAD supported a project to engage communities through participatory natural resource management. This project restores and preserves the mangroves and coral reefs, which are vital for fish stocks and help mitigate greenhouse gas emissions. Fisheries value chains affected by climate change also benefit from IFAD-supplied renewable energy equipment, ice plants and coolers/insulated containers to improve the conservation of fish products.<sup>1</sup>

Demand for fish in Malawi is very high, and nearly all fish is consumed locally. To boost the productivity of the sector, Malawi recently received a US\$13.2 million financing package for the development of a fisheries and aquaculture project. The Malawi government will contribute US\$1.38 million of the total cost of US\$14.57 million. The project aims to provide infrastructure for increased productivity in the fishery sector and improve market access. It is also expected to contribute to nutritious diets and boost employment along the fishery value chain.

Approximately 20,000 residents of the surrounding lakeshore and inland areas will benefit directly from the project, while 250,000 fish processors, vendors and retailers along the value chain will benefit as well. Other expected benefits include sustained income from fisheries, increased recovery of Chambo stocks and higher incomes from value addition (processing, storage and related marketing activities). The project will also improve the quality of life for youth and women along the fish value chain.<sup>2</sup>

Refugees from Western Sahara have lived for more than 40 years under extremely harsh conditions in five camps in the desert, near the Algerian town of Tindouf. Malnutrition rates and anaemia are a challenge, especially among women and children. Refugees rely almost entirely on United Nations World Food Programme (WFP) monthly food rations, and have limited access to fresh produce.

The USA recently contributed US\$560,000 to the WFP fish farm in Algeria's Tindouf refugee camps. The funds will help the WFP increase access to fresh fish produced at the world's first fish farm in a refugee camp. Expected annual production of the fish farm is 21,000 kg of tilapia.

The farm was built in partnership with Triangle Génération Humanitaire, a French NGO. Their fish-farming technique was successfully implemented under similar conditions in Algeria and experience shows it can be replicated in other refugee camps, provided groundwater is available.<sup>3</sup> Egypt recently announced the planned establishment of three fish farms and an animal farm in four African countries. The fish farms will be established in Algeria, Malawi and Zimbabwe, while the animal production farm will be developed in Uganda. Many other African governments have reportedly also requested that Egypt set up similar projects in their countries.



Not a new phenomenon, the fish farming projects started in 1998. Unfortunately, the 2011 revolution disrupted the initiatives, which were recently revived. Other countries receiving Egyptian support for fish farming include Eritrea and Togo.<sup>4</sup>

In Uganda, farmers were exposed to best practices in fish farming. This sub-sector dates to 1953. Over-fishing led to declines in fish species in major water bodies in the country. To deal with this issue, aqua fish farming was encouraged and is currently on the increase. The farmers were educated on issues such as aqua infrastructure, fish stocking, fish feeding and harvesting.<sup>5</sup>

China's Hainan Qinfu Foods Company intends to invest US\$450 million in Uganda in a specialized aquaculture industrial park on 5,000 acres of land. The project will include fishponds for tilapia farming, a hatchery for breeding stock, a tilapia processing plant and a fish feed processing plant. Other initiatives include collagen processing plants, fish feed processing plants, a packaging material factory, and a fish farming out-grower scheme.

In addition, the project will introduce Chinese management experience to Uganda's aquaculture sector by establishing a high-tech industrial park through the development of production capacity and by providing brood stock. Transfer of technology will also take place, as well as job creation for Ugandans through the establishment of an out-grower network.

Hainan Qinfu is the leading fishing enterprise specializing in tilapia aquaculture in China.<sup>6</sup>

## **GROWTH IN THE POULTRY SECTOR**

Lebanese agricultural development company Tanmia will expand its business in Egypt to open a poultry farm in early 2020. This decision was driven by the rapidly growing demand for chicken in Egypt, where meat prices are high. The project will be implemented in two phases. The first will include 60 farms about 200 kilometres from Cairo, with annual production capacity of 120 million chickens.

The second phase, to start in 2023, aims to double both the number of farms and production capacity. Investment in the entire project is US\$90 million, half for each phase. The project will create around 8,000 job opportunities.<sup>7</sup>

To boost food security and economic growth, the government of Rwanda launched a livestock master plan that identified poultry as one of the avenues to contribute to national food and nutrition security, income generation, job creation and economic growth.

Rwanda's poultry industry aims to transform the largely subsistence-oriented sub-sector to a more knowledge-intensive and market-oriented sub-sector, adding value to poultry products.

The master plan targets increased consumption of chicken meat by 124%, and egg production by 110%, over the next five years.<sup>8</sup>

Rwandan poultry farmer Jean-Baptiste Musabyimana produces about 60,000 eggs (organically produced) per day, to neighbouring countries, especially the DRC. His egg production to the DRC generates ~US\$1.6 million annually before expenses.

In 2018, he won the contract to supply around 400,000 eggs monthly to the UNs' forces in the DRC. He is the first Rwandan to be accredited to supply poultry products to the UN.

Having started with an investment of US\$1 million, the farm is now valued at US\$4 million. He has grown the number of chickens from 10,000 in 2016 to 70,000 currently, but wants to increase the number to 200,000 eventually. He employs 50 permanent workers and 15 casual labourers.

He wants to make poultry farming in the country a more lucrative business, for him and other investors. He has subsequently helped eight farmers across the country by providing them with training.

Musabyimana also owns a chicken feed production factory that produces about 15 tons of feed daily. He uses some of the feed for his chickens and sells the surplus to other farmers.<sup>9</sup>

## POINTS OF INTEREST

- An increasing number of countries on the African continent is turning towards aquaculture and poultry to assist in the production of sufficient food for their populations. The benefit of both is that it is possible to create start-ups without large capital outlays. This makes it ideal for small entrepreneurs to develop their own businesses and, in the process, generate much needed jobs. They also make a meaningful contribution to food security.
- Poultry and fish are also more affordable than beef and mutton. Consequently they have the potential to play a stronger role in the provision of protein to the people of Africa.
- Governments in some countries are also actively encouraging women and the youth to become “fish-preneurs” to provide themselves with a job as well as providing protein for the population at large. A number of these countries are currently importing fish and chicken, which is unnecessary given the potential that exists in these countries.
- We are also seeing countries such as Rwanda that are adopting reforms to make it increasingly easier to register a business and start operations. The Rwandan Development Board has created a one-stop office where everything can be done in less than a day.
- It is also good to see businesses along the whole value chain developing. In the case of poultry, feed stock companies are also developing to provide in the need for chicken feed.

## **2. Trends in Infrastructure in Africa**

Africa's infrastructure challenges are well known. Financing of infrastructure projects remains a challenge, as does availability of the skills and knowledge required for implementation and operation.

### **FINANCING INFRASTRUCTURE IN AFRICA**

The Asian Infrastructure Investment Bank (AIIB) approved Benin, Djibouti and Rwanda as members in July 2019. As prospective members, they become full members (non-regional) once they complete all required domestic processes and deposit the first capital instalment with the Bank. The AIIB, with its head office in Beijing, China, is a multilateral development bank. Its mission is to improve social and economic outcomes in Asia and beyond. Their mandate includes infrastructure projects in Africa.

The AIIB was created in 2016 by 57 founding members as a multilateral institution focused on supporting sustainable development through infrastructure. The African Development Bank estimates that Africa needs infrastructure development of US\$130 – US\$170 billion a year. This would result in a financing gap in the range of US\$68 – US\$108 billion.<sup>10</sup>

The AfDB will end its financing for coal projects in Africa. To increase its development impact, it converted the multi-donor trust fund Sustainable Energy Fund for Africa (SEFA) into a “special fund”. This will allow the Bank to access a wider range of financial instruments beyond the current scope of technical assistance. In its previous format, SEFA supported small and medium-scale renewable energy and energy-efficiency projects through early stage interventions to enhance project bankability and access to private sector investments. In its new mission, the fund will focus interventions on three areas: (1) green mini-grids to accelerate energy access to underserved populations; (2) green baseload to support clean generation capacity; and (3) energy efficiency to optimize energy systems and reduce energy intensity. According to the AfDB, the special fund's access to a variety of financial instruments will unlock more private sector investments in new technologies and businesses.<sup>11</sup>

### **FDI IN INFRASTRUCTURE IN AFRICA**

Africa needs infrastructure investment of between US\$130 and US\$170 billion per annum. From a financing perspective, it has an investment deficit of between US\$68 and US\$108 billion per annum. Fortunately, many African countries show strong growth, and infrastructure is an increasingly appealing asset class for investors.

The recent Africa Investment Forum hosted by South Africa set up a platform to raise capital and establish a US\$40 billion pipeline of projects. 25 countries attracted high-value investment deals. At the forum, 52 transactions in 25 African countries secured investment interest worth US\$40.1 billion (up from US\$38.7 billion in 2018), in several infrastructure sub-sectors, including agriculture, energy and transportation. The agriculture sector needs investment of about US\$45 billion per year to harness its full power and move the continent up the value chain to create jobs and revenue. However, currently only US\$7 billion is invested.

Ghana signed a US\$600 million deal with the AfDB, Credit Suisse AG and the Industrial and Commercial Bank of China Limited to finance new cocoa warehouses, rehabilitate plantations and support the processing sector. In the railway sector, African Investment (AI) SkyTrain Consortium from South Africa signed a concession agreement with Ghana to construct the Accra SkyTrain project.<sup>12</sup>

### **DEVELOPING THE SOUTHERN SGR**

In early December 2019, Tanzania, Burundi and the DRC agreed to construct a standard gauge railway (SGR) connecting the DRC and Burundi (both landlocked) with the port of Dar es Salaam in Tanzania. Their agreement aims to facilitate transport among the three countries via this new Southern SGR (as distinguished from the Northern SGR connecting Kenya with Uganda and South Sudan). HP Gulf of Germany will complete feasibility studies by end January 2020.

According to Tanzanian President John Magufuli, the governments of Tanzania and Rwanda also plan a SGR link from the Isaka dry port in Tanzania to Rwanda. Feasibility studies for this SGR linking Tanzania and Rwanda are complete, and the two countries now seek financing for the project.<sup>13</sup>

## **DEVELOPING REFINING INFRASTRUCTURE**

The Nigerian National Petroleum Corporation (NNPC) announced in November 2019 its plan to establish two new 200,000 barrels-per-day (bpd) condensate refineries to boost in-country refining capacity. Condensate refineries primarily refine condensate, not crude oil, as do conventional refineries. They often produce a single product, often petrol. Upon completion, the refineries will help transform Nigeria into a net exporter of petroleum products.

Exports from Nigeria's refineries will thus include petroleum products from its condensate refineries, products from the 445,000 bpd capacity of the existing refineries (currently being refurbished), and products from the 650,000 bpd Dangote refinery. It is envisaged that the complementary efforts of the NNPC and the Dangote Group will guarantee energy security for Nigeria.<sup>14</sup>

## **OIL PIPELINE INFRASTRUCTURE CONNECTING ANGOLA AND ZAMBIA**

Construction of the Angola-Zambia oil pipeline project is set to start, now that US\$5 billion for the project is available. Upon completion, the 1,400-km pipeline will transport up to 100,000 barrels of oil equivalent a day of petrol, diesel and gas. The pipeline is vital to meet current demand in Zambia and the sub-region, and to prepare for increased consumption. It will take five years to complete and will be executed by the Zambian company Baseli Balisel Resources (BBLR), together with Angolan energy company Sonangol.

Both countries will gain additional benefits from the project. Zambia will see enhanced trade in oil, development of its petroleum refinery infrastructure and capacity building. For Angola, the project will create a new regional destination for value-added oil products, now mostly exported as crude oil to countries outside Africa, such as China, India and the USA. Overall, completion of the project will also facilitate the construction of roads and railways to connect neighbouring countries.<sup>15</sup>

## **POINTS OF INTEREST**

- The AfDB is not the first financial institution to stop financing coal projects in Africa. This will stimulate the development of renewable and clean energy projects. However, it will still be quite a while before the inflection point of coal giving way to clean energy such as LNG will be reached. It will probably take another few years (even decades) before renewable energy take over as the primary source of energy in Africa.
- It is also good to see the interest of foreign investors in becoming involved in financing Africa's infrastructure. There remain many opportunities though, in all of the sectors of Africa, e.g. transport (roads, rail, ports, airports), energy, water, housing, etc. African governments, however, have to ensure they address the ease of doing business, issues of security, governance (eradicating corruption) and create incentives for foreign investors.
- Addressing especially transport infrastructure will assist in regional economic integration. Poor and non-existent roads and railways in Africa is a major challenge that constrains Africa from doing business with itself. Subsequently we see African countries doing more business with foreign countries than with other African countries.
- It will be interesting to see the progress of the northern SGR (from Mombasa in Kenya through to the interior) relative to the southern SGR (from Dar es Salaam in Tanzania through to the interior). Both have received a lot of criticism and China has at times refused to provide more financing. However, both fulfil a vital function of linking landlocked countries with ports on the East African coast. Their efficient management is of cardinal importance.

- Nigeria has long had the challenge of its government refineries being inefficient and unproductive. Dangote started building a 650,000 bpd refinery, which is due to come on line within the next year or so. The Nigerian government's announcement that it will be building two new refineries must be seen in the light of its earlier decision to address the low productivity of its four existing refineries. Prior to this decision, there were many calls for the privatisation of the state refineries. It seems that this is not a strategy the Nigerian government will be entertaining. Hopefully the government will, in addition to the refurbishment of the existing refineries, also develop strategies to ensure the efficient and cost-effective functioning of all its refineries.
- Angola reaching out to Zambia on oil exports is a welcome move. For too long Angola's oil was mostly shipped to China. The value addition envisaged is an equally welcome development, creating many meaningful jobs and generating higher levels of revenue.



### 3. Trends in Mini-grids in Africa

Installation of renewable energy mini-grids in Africa is growing exponentially. Many governments on the continent support the benefits of mini-grids as faster, cheaper and easier sources of electricity for their (mostly rural) populations.

#### INVESTMENT FUNDING FOR MINI-GRIDS

A group of twelve energy and impact investors identified mini-grids as a vehicle to deliver access to power in rural Africa. They urge governments and donors to create a unified Results-Based Financing (RBF) mechanism to support renewable energy mini-grids in Africa. These investors are Acumen, Blue Haven Initiative, Ceniarth, CrossBoundary Energy Access, DOB Equity, ENGIE Powercorner, Hoegh Capital Partners, KawiSafi Ventures, Renewable Energy Performance Platform (REPP), responsAbility, SunFunder and Triodos Investment Management. The group has more than US\$2 billion under management, with more than 100 mini-grids already built or under development.

The proposed RBF mechanism must help mobilize private capital, both debt and equity, to provide clean energy systems. The model enables a foundation, donor or government agency to condition payment to a service provider based on actual performance and desired outcomes. The investors would provide the private capital needed by donor and government-backed mini-grid subsidy programmes in Africa to complement the RBF model.

The International Energy Agency (IEA) estimates that it would take 200,000 mini-grids to meet the energy needs of 450 million people without power, most of them in Africa. Mini-grids and other decentralized renewable solutions are the lowest-cost options for bringing electricity to those living without energy access.

According to McKinsey, the benchmark cost for rural grid connections is US\$2,300 per connection, which is more than double that of rural mini-grids serving 100+ connections at around US\$1,000.<sup>16</sup>

#### MINI-GRID LESSONS FROM TANZANIA

In rural Africa, extension of the main grid is technically difficult and costly. Solar mini-grids are expected to play an increasingly important role in providing access to electricity. Researchers from the Stockholm Environment Institute (SEI) studied the adoption of solar mini-grids in rural Tanzania to understand key issues. Following are some impact and sustainability factors they identify as important:

- Mini-grids should ideally be flexible enough to be integrated with existing energy solutions.
- Electricity for social uses must be separated from that for productive uses. This would help reduce the impact of investment costs on tariff setting, which is a key constraint to the financial sustainability of mini-grids.
- Private-sector entrepreneurs should be provided with the opportunity to get involved with mini-grids to provide productive gains for the community while receiving a good return on their investment.
- Solar mini-grids support household and community shifts from a reliance on wood and charcoal to a modern energy source with lower environmental and health impacts.
- A plug-and-play power capability is available that provides intelligent tripping and an electricity recharge kit that enables implementation of a pay-as-you-go business model.
- Solar home systems (SHS) may be difficult to maintain. Consequently many businesses and households complement their SHS with the mini-grid for a more stable and reliable power supply, while at the same time reducing electricity costs.
- In Tanzania, the investment required to acquire a mini-grid is high, and not competitive compared with the national grid.
- The priorities of the various stakeholders in the system (developers, government funders and rural customers) are not always aligned.<sup>17</sup>

## USING MINI-GRIDS TO SUPPORT THE MAIN GRID

South Africa's electricity load shedding challenges and ageing infrastructure, together with huge delays in bringing new capacity online, requires innovative approaches. According to Dr Sam Duby, Africa Director for TFE Energy and mini grid expert, many of South Africa's energy supply challenges could be addressed by the use of mini-grids. He stated that "deregulation would open a market for people to produce and sell power, which would revolutionise the energy landscape in South Africa."

Dr Duby expresses the opinion that allowing people to build their own power sources, such as rooftop solar panels, and enabling them to feed surplus electricity into the main grid, would help communities and towns to become energy independent.

Africa now has more than 2,000 mini-grids, a number that is rapidly rising. Some see mini-grids as the only realistic solution for remote and rural electrification, while reducing technology costs make it increasingly viable. It is possible to link mini-grids to create an integrated and more robust system.

Dr Duby believes creating a market for independently produced energy would incentivise and unlock investment into the sector. The subsequent increase in generation capacity would enhance system resilience and reduce blackouts. He identified Nigeria and Togo as examples of African governments that adopted progressive policy frameworks to support the off-grid industry.

Nicolette Pombo-van Zyl, editor of ESI Africa, who states that, South Africa can reach a 100% energy access rate through implementation of mini grids, supports Dr Duby's views. The future is not about going off-grid, but tying mini-grids into the main grid.<sup>18</sup>

## MINI-GRIDS AT TOURIST SITES

Meeco, a Swiss company, recently delivered a mini solar PV power plant with a capacity of 54kWp to a tourist accommodation camp located close to the Masai Mara National Reserve in Kenya. Meeco used its sun2rope solar system, which is a low environmental impact system. Meeco mounts solar panels on special cables attached to existing walls, wooden or steel pillars, or suspends them between buildings. The environmental impact is minimised since ropes, cables, and solid wood replace heavy steel structures. The system also contributes to other objectives, such as reducing logistics costs by using locally available wood in controlled planting areas, instead of steel structures with long delivery times. This method considerably reduces the carbon footprint of solar installations.

The energy produced recharges the batteries of the storage system that produces light after dark, heats hot water and recharges the safari camp's sun2move electric bicycles.

The mini solar power plant also allows the Camp to lower the amount of diesel fuel used to run electric generators, thereby reducing carbon dioxide emissions.<sup>19</sup>

## MINI-GRIDS IN RURAL AREAS

Africa Green Tec from Germany recently inaugurated its 20th containerised solar mini-grid in Mali. The mini-grids provide villagers with good access to electricity. Called Solartainer, the off-grid mini solar power plant is made up of 144 solar panels connected by inverters, with a peak capacity of 42 kilowatt peak (42kWp). The facility includes a lithium battery storage system to enable the system to provide electricity after sunset.

Africa Green Tec implemented the project in partnership with the Malian Agency for the Development of Rural Electrification (Amader). They aim to install containerised solar mini grids in 50 villages.<sup>20</sup>

In Morocco, the village of id Mjahdi became the first village in Morocco and Africa to be fully powered by solar energy. The Moroccan ministry of energy, local authorities, other renewable energy parties in Morocco as well as French renewable energy businesses completed the project. The village is totally autonomous and not connected to the national grid at all. The solar PV system, consisting of 32 solar PV panels, generates 8.32 Kwh and provides electricity to 20 houses and more than 50 people. Equipment such as power heaters, ovens and streetlights are provided with electricity. To provide

electricity after hours, the system includes a battery. The system is seen as a pilot and has the potential to be replicated in various regions in Morocco.<sup>21</sup>

The Government of Benin recently inaugurated a mini solar photovoltaic power plant that provides electricity to the populations of the Borgou and Alibori regions in the east of the country.

The small solar PV power plant is composed of 60 250 Wp solar modules, 12 solar inverters and 72 batteries used to store electricity that allows people to have electricity after sunset. The Bouanri solar power plant supplies 40 kWp. Capable of supplying 200 households in rural areas, the system can also power 10 streetlights and a drinking water treatment system with a daily capacity of 20 m<sup>3</sup>.<sup>22</sup>

## **DEVELOPING NEW BUSINESS MODELS**

Other businesses have also developed in the sub-sector. In Tanzania, operators of solar-powered kiosks have partnered with Wassha, a Japanese startup, to offer electric lanterns and other gadgets to customers who otherwise would not be able to operate them. Wassha lends solar panels to kiosk operators, along with LED lanterns and other electronic devices free of charge. The kiosks rent the equipment to customers and send Wassha the rental fees by smartphone. The devices are charged using solar photovoltaic systems installed at the shops. Wassha hopes to increase the supply of solar powered lanterns by 80% to 2,000 by the end of the year, and to 10,000 within three years.<sup>23</sup>

## **INTERNATIONAL BUSINESSES BECOMING INVOLVED IN AFRICA**

Big European energy companies are becoming involved. Royal Dutch Shell invested in Uganda's SolarNow in 2017. SolarNow provides solar home systems to more than 25,000 customers in Uganda and Kenya. Electricite de France (EDF) created a joint venture with Bboxx (a British solar power company) in Togo. EDF aims for a 35% market share 35% of the solar home market in Togo in the next 5 years.

Engie in 2018 acquired Fenix International, which provides home solar systems in Uganda, Zambia and other African countries.

Japanese trading houses are actively investing in companies that operate power generation businesses. Marubeni acquired a stake in Wassha in 2018 and, in June 2019, bought a stake in Azuri Technologies. Azuri sells solar panels, rechargeable batteries, TVs and other products on an instalment basis in Africa. Marubeni plans to become the largest shareholder in Azuri.

Mitsui & Co. and Sumitomo Corp. have bought into M-Kopa Solar, a Kenyan company that sells solar panels and related products in Africa. Mitsubishi Corp. rents solar panels and rechargeable batteries to households in Cote d'Ivoire, in partnership with EDF.<sup>24</sup>

## **POINTS OF INTEREST**

- In spite of the research on Tanzanian mini-grids by the SEI being a year old, the points made are still relevant and worth addressing in developing strategies for mini-grid expansion in Africa.
- It also appears that a possible optimal configuration for electricity is one where SHSs, mini-grids and the national grid are all integrated in a complementary manner.
- As was the case in the poultry sector where feed factories are being developed to provide in the demand, we are seeing the same principle developing in the renewable energy sector where business models around the provision of ancillary products are being developed.
- The trend where international companies are getting involved in the financing and provision of mini-grids is continuing. Africa's huge backlog in the provision of energy to its people and businesses makes the mini-grid sub-sector an attractive investment target, one which will be available for a considerable time.
- South Africa's electricity provider, Eskom, is on the verge of bankruptcy (some will say it is already and that only the government's debt guarantees keep it afloat). Using mini-grids and



SHSs and partnering with the private sector will go a long way to address the serious challenges facing the country currently.

## 4. Trends in Renewable Energy in Africa

Renewable energy is becoming increasingly popular. In addition to its wind, solar and hydro sources, Africa also has the benefit of geothermal sources and LNG. This report addresses instances that illustrate the continuing rise of this trend.

### COLLABORATION ON RENEWABLE ENERGY R&D

Africa developed test and R&D centres to develop the usability and efficiency of renewable energy technologies that will meet energy challenges through adoption of environmentally friendly solutions. This is the role of two recent initiatives in Senegal and Kenya.

While 45% of people in Senegal are without electricity, solar energy is under-exploited. The Polytechnic University of Dakar and the Federal Institute of Technology of Lausanne, Switzerland, launched the photovoltaic solar systems test centre (Ct2S) in June 2019. The Centre's objective is to train 200 Senegalese technicians in solar energy for the benefit of both Senegal and the region. Companies will be able to test the performance of their equipment at the Centre, and obtain advice on best implementation practices in the solar sector.

In East Africa, the Kenya Electricity Generating Company (KenGen) will create an Energy Research & Development Centre. Geothermal energy and its applications will subsequently be developed from here. This Centre will test new ideas for power generation and related industrial projects. KenGen, who has been using geothermal energy in the Olkaria Rift Valley since 1981, is now exporting its intellectual property.<sup>25</sup>

### COMMERCIAL ROOF-TOP OFF-GRID PROJECTS

In Nigeria, companies increasingly turn to off-grid solar to minimize the impact of failures in the national electricity grid. One example is the Jabi Lake Mall shopping centre in Abuja soon to be running on solar energy. Mall owner British investment fund Actis and CrossBoundary Energy, an investment fund that finances off-grid projects, recently signed an agreement to provide an off-grid solar PV power plant on the roof of Jabi Lake Mall. The project is supported by the Solar Nigeria programme (implemented by Adam Smith International, with funding from the British government) and support from the Shell Foundation.

Crossboundary collaborates with German construction company Soventix on the project. Soventix will be responsible for the engineering, procurement and construction of the 600 kW power plant. Actis will not participate in financing the project, but will pay a monthly invoice that covers maintenance, monitoring and insurance costs over a period of 15 years. The installation will avoid CO2 emissions of 13,000 tons per year.

This Abuja project is not the first Crossboundary Energy off-grid project in Nigeria. In March this year, the firm entered into an agreement with Nigerian Breweries Plc. to supply a 650 kW solar off-grid plant in the southeastern city of Ibadan. Crossboundary and Actis are also collaborating in Kenya on the construction of a solar car shelter in Garden City Mall, Nairobi.

Manufacturing companies in South Africa increasingly turn to solar to supplement energy needs, go green and bring costs down. SolarSaver is a provider of customised rooftop solar PV solutions through its unique rent-to-own model. With zero installation costs, fully inclusive maintenance, monitoring and insurance, and flexible purchase rights, SolarSaver makes it possible for manufacturing companies to 'rent the sun.'

With increasing electricity costs, solar energy efficiency for businesses has become a low-risk investment, with substantial rewards, particularly for high day-time energy users. In businesses such as Sheffield Manufacturing, a significant amount of electricity is used during the production process. The installation of solar PV systems will bring this cost down considerably.

SolarSaver recently completed a 130 kW grid-tied solar PV system with 330 solar panels at Sheffield, a producer of high-quality stainless-steel goods. Lance Green of SolarSaver reports that the factors that



made Sheffield a good solar installation candidate were its location in an open area with minimal high-rise buildings and trees, its large roof space, and its need for mainly day-time electricity usage.<sup>26</sup>

The International Energy Agency (IEA) reports rapidly increasing rollouts of solar, wind and hydropower projects. The IEA expects solar energy to play the lead role in global renewable energy, as falling costs are already below retail electricity prices in most countries. The cost of solar power is expected to decline by a further 15% to 35% by 2024.<sup>27</sup>

### **TAPPING INTO WIND POWER**

Kenya set the goal of 100% renewable energy generation by 2030. It is now a step closer to achieving this goal, with the launch of Africa's largest wind farm. The privately funded Lake Turkana Wind Power project (costing US\$680 million) will contribute 310 MW to the national grid, increasing Kenya's power supply by 13% and reducing the country's reliance on geothermal generated electricity.

Kenya is perceived as one of leading countries in the world in the development and implementation of clean energy, particularly in the geothermal sector. It currently has an energy mix that consists of 85% renewable energy.

Kenya increased its installed capacity from 1,768 MW in March 2013 to 2,712 MW in 2019 through renewable energy projects, including solar and wind power.<sup>28</sup>

### **SOLAR DEVELOPMENTS**

Senegal will build two solar powerplants, with a total installed capacity of 80 MWp, in the rural regions of Kahone and Touba in centre of the country. Proparco coordinated the interventions of co-funders IFC and EIB in this operation. Part of IFC's contribution is financed by the Finland-IFC Blended Finance for Climate program. The three entities have granted loans totalling €38 million (~US\$42 million) for the construction and operation of the two solar power plants.

The World Bank's Scaling Solar programme aims to promote investments in renewable energy in emerging markets. The two solar powerplant projects are its first two achievements in Senegal. Nearly 600,000 people will now have better access to renewable electricity, while the projects will also create or support more than 2,300 direct and indirect local jobs. In addition, the projects will avoid the emission of 2.2 million tons of CO<sub>2</sub> over the lifetime of the installations while producing the cheapest energy in Senegal.

French renewable energy specialists Meridiam and Engie, will also participate in the Senegal projects.<sup>29</sup>

The Arab Industrialization Organization (AIO), an Egyptian state-owned enterprise (SOE) intends to build solar power plants in seven African countries, as an effort to reduce the energy deficit in Africa.

The AIO will launch solar power plants in Uganda, Congo, Tanzania, Eritrea, Somalia and South Sudan, with capacities ranging from 2 to 4 MW. The company will deal with the design, financing, construction and operation of the plants, which will be used for lighting and desalination of drinking water in the target countries. It will benefit from an Egyptian government grant, worth US\$12 million.

Egypt itself is embracing solar energy, such as the Benban photovoltaic park located near the city of Aswan, which has been described as the largest solar power plant in the world. The country plans to produce 20% of its electricity from renewable energy sources by 2022.

In 2017, Egypt moved up 23 places in Bloomberg's annual Climatescope ranking to the 19th position out of 71 countries surveyed. Bloomberg has also indicated Egypt to be the second fastest growing country in the renewable energy sector.<sup>30</sup>

### **POINTS OF INTEREST**

- It is great news to see African governments and institutions collaborating on a regional basis to increase the access to electricity. Sharing the intellectual property on renewable energy will support the whole region, and create synergies that would otherwise not be possible at the

country-level. We are already seeing Kenya playing an important role in supporting not only Ethiopia, but also countries such as Zambia and Zimbabwe.

- The obvious opportunity of commercial enterprises using rooftop installations to complement their access to the national grid, is also increasingly being tapped into. Many of these enterprises are also pushing their surplus energy into the main grid, in the process registering credits they can use to get energy from the national grid when they are running low on their own resources.
- We are also observing the continuation of the trend where international companies are becoming involved in the generation, development and financing of renewable energy projects in Africa. This is the same as for the mini-grids. This confirms the lucrative nature of renewable energy projects in Africa.
- Kenya is attempting to reduce its dependence on geothermal energy sources by tapping into wind and solar. These two sources are currently making a small contribution to the country's energy mix and has a large potential to tap into.

## 5. The Decline of Jumia Technologies

Jumia has had somewhat of a chequered journey since its listing on the New York Stock Exchange. In July 2019, it partnered with Vivo Energy, owner of Engen and Shell-branded petrol stations across Africa, to deal with delivery challenges (last-mile delivery). Jumia obtained approval to set up pick-up stations at Vivo's over 2,000 fuel station outlets, allowing customers pick up orders make payments. The partnership was piloted in Kenya, Morocco, Senegal and Ivory Coast before being eventually rolled out to countries where both companies operate. Vivo operates in 23 African markets while Jumia operates in 14.

Jumia has struggled with challenges such as inconsistent address systems, underdeveloped road networks and relatively limited mapping in several of its African markets. These challenges are exacerbated in remote rural areas.

According to Yomi Kazeem, "the Vivo partnership offers the potential benefit of uniformity and brand recognition with a well-known chain of fuel stations as opposed to customers needing to figure out the specific location of multiple pick-up stations."<sup>31</sup>

September 2019 saw shares of Jumia fall to an all-time trading low of US\$7.56 on the NYSE. This was a long way from its launch price of US\$14.50 in April, when Jumia was valued at around US\$1.12 billion. Shares reached a high of US\$49.77 in May, placing a value of ~US\$4 billion on the company.

The reasons for its loss of value were the revelations in August 2019 that Jumia was struggling with internal fraud and improper sales practices of up to US\$18 million, escalating legal threats and widening losses topping US\$70 million during the period.<sup>32</sup>

Unfortunately there was also a report by Andrew Left of Citron Research, who alleged that Jumia had misled investors by doctoring its numbers. This accusation has since led to lawsuits against Jumia that are believed to still be ongoing.<sup>33</sup>

In November 2019 it was reported that Jumia had shut down its operations in Cameroon after it determined that it could not remain afloat there. Apparently Jumia fired its entire Cameroon workforce and did not make any public announcements about it. Jumia did, however, make a brief statement that it has come to the conclusion that its transactional portal as it was run, was not suitable to the current context of Cameroon.<sup>34</sup> This exit from Cameroon was preceded by exits from Gabon and the Congo, where Jumia also closed down its subsidiaries.<sup>35</sup>

Soon after exiting Cameroon, Jumia also closed down in Tanzania on 27 November 2019 to focus on other markets in Africa. Jumia now only has a presence in 12 countries on the continent. According to Jumia, business in Tanzania has not been sustainable, despite the country having strong potential. They would now put their focus and resources where they could bring the best value and help Jumia thrive. Buyers and vendors in Tanzania will now transact through jumia.tz.<sup>36</sup>

After suspending its operations in Cameroon and Tanzania, Jumia, downsized its e-commerce business in Kenya. Jumia reportedly severed ties with approximately 6% of its workforce in Kenya by laying off up to 30 employees in its Kenyan office. This is seen as yet another step to streamline its operations to cut its losses. In the earnings call of November 2019, Jumia reported yet more losses despite increased revenues and users.<sup>37</sup>

Jumia announced on 9 December 2019 that it was closing down its hotel and flight bookings vertical, Jumia Travel, in an attempt to halt its mounting losses and get the company back to profitability.

Apparently Jumia Travel will be offloaded to its partner, Travelstart, the online flight-booking platform which operates mainly in Nigeria and South Africa. Jumia will continue to promote the Travel category, while Travelstart will be responsible for the operational side of the business. This move will allow Jumia to focus on its growth and path to profitability.

Jumia Travel had huge marketing spends in pursuit of growth prior to the restructuring of Jumia, and bad deals struck by management with companies that have corporate bookings on Jumia Travel have these companies owe Jumia millions of dollars.<sup>38</sup>

Jumia also announced it would suspend its food and drinks delivery service Jumia Foods in Rwanda effective 9 December 2019. They made the decision to be able to put their focus and resources where they can bring the best value and help them thrive.”

Jumia shares traded at US\$5.76 on Monday 9 December 2019 in New York, down 1.5%.<sup>39</sup> This fell further to US\$5.43 on 11 December 2019.

Jumia has been struggling with profitability since becoming a publicly traded company earlier in 2019. The firm missed revenue estimates for the second time in three quarters, and recently reported a third-quarter loss of US\$55 million, an increase from US\$45 million in 2018. According to the group's unaudited financial statements, its operating loss for the nine months' period to 30 September 2019 increased to US\$181 million from US\$130 million in the same period last year. Jumia suffered a total loss since its launch in 2012 of **almost US\$1 billion** and was cash-flow negative at US\$159.2 million for the 12 months to 31 December 2018.

The firm earlier reported a rise in active consumers from 2.1 million in October 2018 to 2.7 million by April 2019, while active merchants moved from 43,000 to 53,000 during the same period.<sup>40 41</sup>

### POINTS OF INTEREST

- Jumia has been tapping into the massive e-commerce potential that Africa presents. It was presented as the Amazon of Africa and listed on the NYSE with much acclaim. However, since then things have gone south for the company, as indicated above.
- Logistical challenges, such as lack of addresses, and trust issues have played a role to reduce the efficiency of Jumia's operations. It also has developed a massive debt burden since its launch in 2012. This is in spite of a strong growth in consumer numbers and the growth in mobile phones and the availability of internet capacity in Africa.
- One might say that this is how Amazon developed in the earlier years of its existence. In Africa, it is not certain whether the likes of Jumia will be able to follow the same growth path. As it is, in Kenya, Masoko has for reportedly failed to develop traction. In South Africa, Spree and Superbalist also had to merge. The jury on the success of the now enlarged Superbalist is still out, however.
- A lot has been said about the online potential in Africa. The experience of Jumia, Masoko and Spree/Superbalist raises questions about either the relevance and validity of this potential market or the strategy used so far to tap into this potential. It is also not clear whether part of the problem is a timing issue. Amazon had a far more advanced consumer market in the USA to tap into, which Africa is definitely not.

Author: Mr Johan Burger  
Editor: Dr. A. Lee Gilbert  
Editor-in-chief: Prof. Sam Park

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## Contact Information:

Que Boxi

Email: [cas@ntu.edu.sg](mailto:cas@ntu.edu.sg)

Phone: +65 65138089

Address: S3-B1A-35 Nanyang Business School

Nanyang Technological University

50 Nanyang Avenue Singapore 639798