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SINGAPORE

NTU-SBF
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Africa Digest

Trends and Issues in Business and Macro Environment

Vol. 2021 - 34

Contents

1. Developments in Agriculture

Agriculture in Africa will always generate interest and discussion due to its importance to food security and its inherent challenges. Agriculture contributes significantly to GDP in many countries and employs large segments of their populations. Relative to its potential, the sector currently underperforms. Import levels are high in Africa and added value low. This report addresses recent developments in this sector.

VOLATILITY IN THE COCOA INDUSTRY IN WEST AFRICA

The global chocolate industry is worth US$100 billion in annual retail sales. As the two largest cocoa-producing countries globally, Cote d'Ivoire and Ghana account for 60% of global production. They have added a premium to cocoa's price to alleviate poverty amongst their smallholder farmers, who currently earn only 6.6% of the sale price of a bar of chocolate. However, global buyers appear unwilling to pay a US$400 per ton "living income differential" (LID) added to the price of cocoa bought from Cote d'Ivoire and Ghana.

The Ivorian Conseil du Café-Cacao and the Ghana Cocoa Board accused chocolate producers of avoiding the LID after Hershey sourced cocoa beans from the futures market in New York, bypassing payment of the LID. Authorities subsequently banned Hershey from operating sustainability programmes in their countries, which chocolate producers are keen to support amidst the increasing global focus on sustainability, deforestation and child labour.

While Hershey's subsequent commitments to pay the LID ended the dispute, it demonstrated the limited leverage held by cocoa producers. The suspension of the programmes by the governments of Cote d'Ivoire and Ghana, despite the benefits for their farmers, would reportedly allow them to have the upper hand in dealing with the problem of why countries who produce 60% of cocoa have no real power in setting its price.

The problem is exacerbated by rising farmgate prices and sustainability programmes that encourage millions of smallholder farmers desperate for cash to raise production, putting pressure on market prices. This year, governments jointly increased the price by 20% to US$2600 a ton, which is still US$500 less than what the Cocoa Barometer estimates farmers need to earn a living wage.

According to Jonathan Parkman from commodity brokers Marex Spectron, due to lower global demand and the negative impact of the LID, agreed sales in the two countries for 2020 and 2021 are far below normal. He expressed that a lack of transparency and accountability frustrated buyers and that the LID scheme needs reform.[1]

RAMPING UP AFRICA'S AGRICULTURE SECTOR

According to Louis van Ravesteyn, pan-Africa Head of Agribusiness, Personal and Business Banking of the Standard Bank Group, the AfCFTA can accelerate the development of sub-Saharan Africa's agricultural sector and help Africa to become self-sufficient in food production.

The World Bank recently reported that by 2035, 60% of African countries could see increased agricultural employment thanks to the AfCFTA, with the sector accounting for more than 50% of total employment in East Africa, including Ethiopia, Kenya, Madagascar, Tanzania and Uganda. Wages for unskilled workers are likely to proliferate in Sub-Saharan countries, while intra-African trade in agriculture will be 49% higher than currently.

Africa could easily support increased production for regional and international export markets. Its assets include an abundance of uncultivated arable land, favourable climatic conditions and underutilised fresh-water resources. By adopting the latest technologies and developing demand-driven strategies, through a well-researched and diversified product strategy based on viable production and export-parity pricing, the continent can remain competitive in the global marketplace.

African countries should share best practices, including appropriate production systems, agribusiness-supporting infrastructure, policies that boost investments in the sector, and value-addition and processing strategies.

According to Van Ravestyn, authorities should consider tax incentives that stimulate innovation, lead to the adoption of new technology, and prevent illegal trade and dumping in local markets. It is essential to improve investor confidence and reduce funding costs, and for banks to enable cross-border agricultural trade. Transparent market information systems, healthy competition, capacity-building programmes, and investments in transport and storage infrastructure would ramp up the sector's development.

Africa should also harmonise trade regulation, addressing import duty reductions and expensive non-tariff barriers that suffocate trade, including logistical challenges. Stakeholders should also integrate informally traded goods into formal markets by removing barriers for producers and supply intermediaries.

According to Van Ravestyn, Africa can become a leading supplier of agricultural products such as vanilla, cocoa and avocados to the global markets, with Asia and the EU continuing to drive global demand for African food products, such as black tea, fruits, maize and maize seeds, onions, palm oil, potatoes, poultry, rice, seafood, sesame seeds, sorghum, sugar, sunflower seeds and oil and vegetables.

As Africa's growing and increasingly urbanising population will drive long-term demand for consumer products, including foods, the growing agricultural sector will probably first satisfy regional demand before Africa becomes the world's breadbasket.[2]

FARMING BLACK SOLDIER FLY LARVAE

After being exposed to black soldier flies in the UK, Ugandan entrepreneur David Batobokwe started to breed the larvae in Uganda a few years ago. Black soldier flies produce larvae that are a concentrated source of proteins that can feed livestock, especially poultry and fish. They reportedly have more protein than all the protein sources currently in use and are full of fat and essential vitamins and minerals. Protein is vital to raising healthy hens and egg production.

Initially, government stakeholders in the agriculture sector informed him that his plans were beyond their mandate. Visiting the Makerere University, he learned more about the flies and became an insect expert to manage his innovation better.

Batobokwe has since the beginning of 2020 invested millions of shillings in commercializing larvae breeding. The facility can breed as many as 150kg of larvae per week, with each kilogram selling at UGX5,000 (~US$1.36).

According to farm manager Eldrrine Kabasinguzi, the larvae is becoming a common feed for livestock. Compared to the alternatives, mukene (silverfish) and soya, the maggots carry more protein and farmers can easily and quickly produce them.

A small-scale farmer aiming to feed a flock of 100 chicken or a fishpond of 2,000 fish, needs a system that can produce at least 50kgs every week. The structure can cost between UGX500,000 (~US$136) to UGX1 million (~US$272). Breeding eggs cost UGX56,000 (~US$15.25) per gram. One gram of eggs contains thousands of eggs that can help a smallholder poultry farmer start his or her larvae breeding.[3]

INNOVATING AGRIBUSINESS MODELS

Desmond Koney from Ghana inherited a pineapple farm after his father's death. In 2012, his first attempt at becoming a pineapple farmer failed due to theft, lack of fertilizers, and an unreliable market. Koney's first attempt at implementing a farming model with two friends failed. However, he eventually created Complete Farmer, which in 2018 enjoyed its early successes with soybeans and chilli peppers.

Koney wanted to "run farms like factories." According to him, Complete Farmer combines an "Airbnb land model" with a "crowdfarming" approach to capital investment to deliver made-to-order produce to clients globally. The company has completed 12 projects leveraging data to create detailed planting plans for eight common West African crops. It currently has plantings on an additional 1420 hectares of chilli peppers, ginger, groundnuts, sesame seeds, soybeans, sweet potatoes, tigernuts and yellow maize destined for China, India, Germany, the Netherlands, Qatar and the UAE.

Attracted by the generous returns offered by Complete Farmer, crowdfarmers globally have contributed US$700,000 to pay for seed, fertilizer, machinery and labour. Romain Grand, a Paris-based sales director, recently received a US$40,000 dividend on an investment of US$180,000 in several Complete Farmer projects over the past two years. He has invested an additional US$200,000 in ongoing soy and sweet potato projects. According to Grand, he has found no other investment of equivalent risk that offers similar returns.

In addition to international clients benefitting from the Complete Farmer model, many Ghanaian landowners have offered the company a total of 8900 hectares. To date, 2800 small-scale farmers now carry out various projects, which produce considerably higher yields for maize (22% above the national average) and soybeans (18% higher yield).

Aspiring crowdfarmers can sign up on the Complete Farmer website and invest, for example, US$750 per acre (0.4 hectare) on ginger crops. All of Koney's farms are insured against natural disasters, which gives investors peace of mind.

Koney must currently deal with several urgent concerns. Demand from international buyers outstrips investment by crowdfarmers. Much of the land is not yet ready for planting, and soil preparation machinery is expensive and difficult to obtain. To increase production capacity, he is developing a new app to enable friends to "buy" farms together. Koney is also exploring other sources of investment.

In the long-term, Koney plans to scale the concept across Africa.[4]

AVOCADO PRODUCTION FOR EXPORTS TO THE EU

Demand for avocados in the developed countries of Europe is strong, and health-conscious consumers are struggling to find sufficient supply. This provides an opportunity for Rwanda and other sub-Saharan countries with the right conditions for large-scale production of this high-value crop. Rwanda produces 141,130 metric tons of avocados per year, but most are varieties unfit for export. Kenya is the only East African country that has consistently developed its avocado production and therefore enjoys an export monopoly in the region. It is ranked eighth globally in avocado production.

Kenya mainly exports three varieties, i.e. Hass, Fuerte, and Jumbo. The country produces more than 115,000 metric tons of avocado annually, with 70% grown by small-scale farmers. Kenyan avocado exports jumped 15% to 68,000 tons over the 12 months to October 2020, generating U$125.8 million in revenues.

Rwanda produces 82,000 metric tons of locally grown avocado varieties that are not export-grade. To address this situation, the Rwandan government in 2012 launched an aggressive plan of distributing export-grade seedlings and educating the public on the value of different avocado varieties. The country's agriculture scientists may require investing deeply in avocado development to develop an exportable variety that will take fewer years to mature.

The avocado market performance more than doubled from 2000 to 2016, with a total production of 5.5 million tons in 2016, and a 69% increase in harvested areas. European consumption is projected to grow from 650,000 tons in 2018 to more than 1,100,000 in 2020.

Investors might well consider Rwanda for large-scale avocado production. The country has the ideal agro-climatic conditions for avocado cultivation, with a lower cost basis for avocado packaging and export than other countries in the EAC. It is also well-positioned to serve as an extension of the existing regional avocado export network, with export-oriented industries enjoying substantial Government support.[5]

POINTS OF INTEREST

- Policies and strategies that will grow Africa's agriculture sector are essential. New practices can contribute to import substitution, higher exports and export revenues, higher returns for the farmers and more employment opportunities. Many governments talk about supporting women and youth in the agriculture sector. However, there is little meaningful increase in terms of implementation. The African farmer's average age is 60 years, a real challenge for the sector's future. Few of Africa's youth show interest in embracing agriculture as a career. Although we do find exciting success stories in some countries, scaling the sector remains a challenge.
- While food exports will undoubtedly generate export revenues, the short-term focus must be on self-sufficiency. Spending between US$35 and US$41 billion annually to import food is a massive waste. Besides, such imports destroy job opportunities in Africa, with local currencies weakening due to cash outflows. Import substitution is, therefore, a significant driver of the development of the African food sector.
- Africa's cocoa farmers' poverty levels remain problematic (and unacceptable), despite the lucrative nature of the product. The global chocolate manufacturers announce high levels of revenue and profits. Consider the company referred to in the above case study. Hershey's net sales increased from US$7.386 billion in 2015 to US$7.986 billion in 2019, while net income attributable to Hershey increased from US$512.9 million in 2015 to US$1.149 billion in 2019. The growth in net income over the four years is a staggering 124%! With the increase in net sales being far less spectacular (8.12% over four years), this is an indication that Hershey has its costs under control, which could include the cost of sales (that includes the cost of raw materials such as cocoa). Facts such as these beg the question as to why the LID is an issue. Chocolate products are in high demand. A small premium added to the price that would go directly to cocoa farmers would not greatly affect demand. In some countries, Fair Trade organisations apply precisely this model and contribute meaningfully to the lives of labourers in the industry.
- Avocados in East Africa are now a highly sought-after export crop. It is a high value product that generates high revenues relative to other agriculture products. With health becoming an increasingly important attribute, populations in developed countries turn towards consuming this product in growing numbers. With large numbers of its population employed in agriculture, Rwanda will do well to embrace the production of export variety avocados. Given the extended supply chain and delays from variety development to harvesting the first crops, waiting too long before developing export varietals could lead to Rwanda missing out on a potentially very lucrative export opportunity. The country will need to compete with countries such as Kenya and South Africa who are also significant producers of avocados.
- Ghana's Complete Farmer reminds one on the business model of FarmCrowdy from Nigeria, but with a slight adaptation (the Airbnb land model). The generic business model used by the various entrepreneurs is open for adoption in different countries in Africa. It is good to see how entrepreneurs embrace this opportunity. However, Africa's farmers would have an easier route to success if their governments were to invest 10% of their annual budgets in the agriculture sector, as resolved at the Maputo Declaration of 2003 and the Malabo Declaration of 2014. As indicated in the African Digest of November 2019, the continent has made little progress toward this commitment over the past two decades.

2. Developments in Digital Technology

Digital transformation has tremendous potential to improve daily life in Africa. The footprint of the technology is spreading both geographically and across an increasing number of industry sectors. These include agriculture, education, financial services, health, manufacturing and telecommunications. This report examines emerging developments in the use of digital technology in these sectors.

AFRICA WELL-POSITIONED IN MOBILE PAYMENT UTILISATION RATES

A recent BCG report reveals that China has the highest global mobile payment utilisation rates, followed by Kenya and Ghana. The report estimates that the total annual value of global mobile financial services transactions is between US$15 trillion and US$20 trillion. The number of mobile payment users in sub-Saharan Africa is set to increase from the current 400 million to 650 to 750 million by 2025. The potential size of the African mobile payments market may approach 850 million customers. African consumers contribute US$2.5 trillion to US$3 trillion in transaction volume, resulting in annual earnings from servicing these financial transactions of US$25 billion to US$30 billion.

While the overall number of mobile transactions in Africa is high, use across the continent is inconsistent. Kenya and Ghana both have mature mobile payments sectors and account for much of the business on the continent. Digital transactions via mobile wallets and phones represent 87% of Kenya's GDP and 82% in Ghana. However, less than 50% of financial transactions occur through mobile payments across the rest of the continent.

African telecoms companies MTN and Vodacom launched “super-apps”, some in collaboration with the likes of Alipay from China. Mobile devices will reportedly become the payment platform of choice as African economies develop. Banks will have little option but to compete in the mobile payments and other phone-based transactions spaces. Success will provide banks with access to new business opportunities in education, energy, healthcare and transportation.

The use of digital platforms offers the potential to develop more holistic solutions to payment challenges facing African consumers, and positions Africa as the “next foreground for exponential growth." Two factors raised broad interest in mobile money transactions, i.e., the Covid-19 pandemic and more significant customer awareness. Africans are increasingly likely to have mobile phones and be eager for services that contribute to a higher quality of life.[6]

DIGITISING THE INFORMAL MARKET

AfriNova Digital is a South African company that builds digital products. These fulfil needs in the education and training, utilities, municipalities, cities, and retail sectors. AfriNova launched its digiToken online app in August 2020 to curb the spread of the Covid-19 virus. The app eliminates the need to visit ‘busy’ public spaces, by allowing users to make digital payments for their accounts, loans, traffic fines, DSTV subscription, funeral cover and more. The app targets individuals who are typically excluded from the market in Africa, especially in rural areas and Africa’s townships. It creates both safety and convenience, as users do not need to leave their homes to settle monthly accounts.

The platform caters to users with both debit and credit banking accounts, as well as users without a bank account. The latter can use digiToken’s smart wallet, digiWallet, which allows customers to purchase products available on the platform. There are no service fees applicable and users are not charged transaction fees when using the digiWallet to purchase electricity or airtime.

AfriNova Digital, a self-funded venture, received a growth spurt from the launch of digiToken. Many new customers use the app to purchase essential items. digiToken now aims to broaden the company’s online market, to ensure inclusivity among Africans residing in rural areas with little or no access to digital markets, and to drive the economic activity of the informal market. The app will facilitate activities in the digital market for those who rely heavily on cash, those who do not have a bank account, and those who depend on shared value. With its business model, digiToken creates employment opportunities for consumers and small businesses alike.

AfriNova Digital is collaborating with its partners to grow the number of products available on digiToken to strengthen the value of the company's mission of providing convenience to consumers. It is also investigating expansion to the rest of Africa and some parts of Europe as the platform is built to be scalable and extendable.[7]

SUPPORTING BUSINESSES TO GO ONLINE

Businesses in Africa intend to shift to online markets and attract new customers. Moving online has become more critical with the onset of the Covid-19 pandemic. In Botswana, in pursuit of this goal, a new tech startup, Ponatshego, recently launched a platform to help African SMEs develop an online market presence. This will enable the SMEs to sell their products online, extend their customer reach and increase their sales revenues and profits.

Facing competing platforms in Botswana, Ponatshego beat the competition and earned an adequate market share. Its platform is easy to use, fostering and encouraging interaction with users and ensuring a quick and responsive user experience. Its customers can view videos on the best ways to use the advertised products, enhancing customer experience, and promoting the brand and products of the SMEs.

As e-commerce is a relatively new concept in southern Africa, trust is an issue. Ponatshego thus ensured that its website is always fast, responsive, and easy to use. This pleasant user experience motivated customers to buy products online. The startup provides a live chat on its platform to answer questions or inquiries in real-time.

SMEs interested in moving onto this online marketplace must undergo a one-week training programme offered by Ponatshego, after which they would be vetted. Only after that would they be able to sell their products on the digital platform.

Ponatshego intends to address related challenges, such as supporting fulfilment by African businesses. Eventually, they hope to deal with the high costs of building a brick-and-mortar business, developing the skills required to develop their own e-commerce platform, and increasing online sales. Ponatshego enables doing business on its platform without any barrier and making payments in multiple currencies.[8]

DEVELOPING A BIONIC HAND IN TUNISIA

Cure Bionics was launched in 2017. The Tunisian startup is developing a 3D-printed solar-powered and affordable bionic hand to help amputees and others with physical disabilities across Africa. Their customizable bionic hand has block-like parts that can be replaced if damaged or to accommodate a child's physical growth. This feature is superior to traditional prosthetic designs that require a series of resized models as children grow up.

According to the founder and CEO of Cure Bionics, Mohamed Dhaouafi, their bionic hand is also smarter than existing models on the market. They integrate "machine learning" into their algorithm to facilitate recognition of muscle signals. Sensors attached to the arm detect muscle movements, while AI-assisted software interprets them to transmit instructions to the digits. The hand has a wrist that can turn sideways, a mechanical thumb and fingers that bend at the joints in response to the electronic impulses. The use of 3D printing makes their design customisable and lighter than other models.

Cure Bionics hopes to market its first bionic hands within a few months, first in Tunisia and then elsewhere in Africa. The envisaged price is around US$2,000 to US$3,000.[9]

THE NEED FOR DIGITAL TECHNOLOGY IN AGRICULTURE

The National Agriculture Marketing Board (NAMBoard) recently established a portal for farmers to place online orders for agriculture inputs, saving them transport fees and allowing them the time to stay in their fields and tend to their crops. The European Union funded the portal's development through the Climate Smart Agriculture Market Oriented Agriculture Project (CSMA). Unfortunately, this portal is connected only to the NAMBoard Farm Store, which disadvantages farmers as its prices are not competitive. Although ordering through the Farm Store portal is convenient, delivery of the inputs can take up to two weeks, depending on the farm's location.

Farmers can communicate via WhatsApp to provide updates on their crops to NAMBoard extension officers. The extension officers need not visit the farms but can remain up to date on what is happening on them. Should photos of their crops indicate a disease, these officers can provide both a diagnosis and a possible solution to the farmer.

In another development, a report developed by the Technical Centre for Agricultural and Rural Cooperation (CTA) and Dalberg Advisors, has indicated that more than 90% of the market for digital services that support African smallholder farmers remains untapped. This market could be worth more than US$2.26 billion.

If Africa were to embrace an inclusive, digitally-enabled agricultural transformation, it could drive greater engagement in farming from women and youth and create employment opportunities along the value chain.

According to former CSMA project manager, Bheki Ginidza, consumer associations must be empowered to request food people want to eat to be healthy. He recommends consolidation of information systems within African markets, and using them to predict what consumers are going to eat and in what quantities each year. Farmers currently lack this information. This gap can lead either to flooding the market and subsequent food waste, or scarcity that increases food prices.[10]

POINTS OF INTEREST

- Digital payment platforms have indeed grown exponentially in countries such as Kenya and Ghana. However, the real potential for growth lies in Nigeria with its 200 million consumers. This country's initial uptake was slow due to a constraining regulatory environment, which has reportedly been addressed. The MTN and Vodacom superapps are also likely to play a significant role in increasing uptake in their areas of operations. In South Africa, Vodacom has twice failed to successfully launch M-Pesa and needs to succeed with its new app. Alibaba’s initiatives to support e-commerce in East Africa (as in Ethiopia and Rwanda), and its eventual expansion into the rest of Africa, will also boost uptake of mobile money platforms on the continent. The same goes for Jumia’s e-commerce expansion. The spread of the Covid-19 pandemic is likely to drive higher levels of mobile money use instead of physical cash.
- Projects to support SMEs and informal businesses in Africa to go online will also increase the utilisation of mobile money platforms on the continent. They will also support the success of these businesses, helping them to become more efficient, in the process creating jobs and addressing poverty issues. The benefit for Africa’s consumers are self-explanatory, especially for those in remote and rural areas. A field of operations that remain a challenge, is that of delivery, as addresses in many areas, including in cities, are problematic. Even large e-commerce companies such as Jumia struggle with this aspect and are investigating all kinds of solutions.
- Despite the obvious benefits of adopting digital technology in sectors such as agriculture, the levels of utilisation are still very low. This can be attributed to the fact that the average farmer is 60 years old and that digital technology is rather foreign to many. As frequently indicated, launching digital applications and business models in the sector will not only boost the efficiency levels in the sector, but attract more of the youth to remain in the sector. The potential areas of application of digital technology span across the entire range of activities in the agricultural value chain, from procuring inputs to supporting market-related and delivery of fresh produce to the end-consumer. This approach is no longer a “nice-to-have,” but has transformed into a “must-have.” The agriculture sector of Africa has become too important for food security, employment creation and contribution to GDP to manage on such a lackadaisical manner.
- Africa can be quite innovative in its digital technology developments. The case of the bionic hand in Tunisia is a great story of African ingenuity. Other examples include the development

of a glove that translates sign language into speech, and the use of e-waste to develop 3D-printers.

3. Developments in Investments and Economics

Africa is a continent with great upside potential. However, its economies appear to be underperforming. This failure persists despite significant levels of FDI and Official Development Assistance from overseas governments and institutions. This situation must be addressed if Africa is to avoid being locked into a state of permanent poverty. This report addresses some recent developments in this regard.

AFRICA LOSES OUT ON ILLICIT FUND REPATRIATION

A recent report by UNCTAD referred to Africa as a 'net creditor to the world'. Companies cheat on the payment of taxes and royalties to the governments of the countries in which they operate by under-declaring the value of their exports. Commodity sectors where this practice is rife, include gold, diamond and platinum, which are collectively responsible for almost half of the total royalties lost annually. According to economists, despite being aid-dependent, Africa is a net exporter of capital due to tax-dodging and people hiding cash in tax havens. Calls have been made for the introduction of tough measures on multinational companies and on practices such as profit repatriation. The value of these illicit fund repatriation is reportedly close to US$89 billion annually.[11]

AFRICA'S MOST SOPHISTICATED ECONOMY FACING FAILED STATE DESIGNATION

The South African risk consultancy Eunomix recently warned that the country risks degenerating into a "failed state" politically and economically in the next decade. The consultancy group identified the cause of the country's decline as its lack of growth-friendly economic policies.

According to the CEO of Eunomix, Claude Baissac, the group's first forecast for South Africa, issued in 2016, concluded that the country would have declined to 42nd place in governance, 65th in prosperity and 40th in welfare in 2021. However, its latest forecast indicates Eunomix has a 75% confidence level that South Africa would rank near the bottom of a table of more than 180 countries in terms of governance and prosperity. Baissac concluded that in the absence of meaningful change, South Africa will be a failed state by 2030.

The socio-economic consequences of the Covid-19 pandemic contributed to this dire situation. Data from Statistics SA in September 2021 reveals that the South African economy has entered a deep recession. Its GDP contracted by an annualised 51% in the second quarter due to the lockdown.

According to Baissac, South Africa's rapid economic decline was the inevitable outcome of an economic structure mis-matched to the country's developmental requirements. South Africa's natural resources were insufficient to fuel growth, while capital-intensity projects were poorly aligned with sources of comparative advantage.

To deal with an urgently needed employment-generating growth, Eunomix suggested the South African government adopt a dual-track strategy led by an SEZ programme. Such a dual-track strategy could rapidly attract investment, generate employment and lower pressures on the economy. The suggested focus was tourism, renewable energy and data centres. The strategy would target labour-absorbing industries like agri-processing, light-manufacturing, and customer-centric services on a large scale.

This strategy would also enable the government to "maintain the welfare state, current levels of public sector employment, and develop only the most promising infrastructure projects and sectoral initiatives in co-operation with the private sector."[12]

Adding further pressure on the South African economic policy, ratings agencies Moody's and Fitch both lowered South Africa's sovereign ratings further into junk territory in the second half of November. This will increase the country's borrowing costs and constrain its fiscal framework. According to the South African Minister of Finance, Tito Mboweni, the South African government urgently needs to implement structural economic reforms to avoid further harm to the country's sovereign rating. The downgrades are reportedly due to rising debt and weakening in the country's fiscal strength.[13]

UGANDA POSITIONING ITSELF AS AN FDI MAGNET

Uganda is one of the top destinations in Africa for FDI. This is reportedly due to its conducive business environment, supportive legal regime, and relatively stable political and economic environment. The government created its One-Stop-Centre (OSC) at the Uganda Investment Authority (UIA) to support business registration and licensing. A number of industries are prominent in attracting FDI.

Uganda has about 7.8 million ounces of gold reserves. Three gold refineries in Uganda will help the country save the millions of dollars it loses by exporting unprocessed gold (US$800,000 per ton of gold). They will also create jobs for the youth. As the country's top export earner, gold generated US$1.3 billion last year.

The country's 21 confirmed oil and gas discoveries are estimated at 6.5 billion barrels of oil, with 1.5 billion recoverable at current price levels. Investment in the sector now total US$20 billion. While Uganda is building a 60,000 barrel-a-day refinery to serve national and regional demand, most of the oil will be transported via a 1,445km pipeline to the Tanzanian port of Tanga. The oil discoveries have stimulated the development of businesses in the food supply chain, equipment and logistics, and infrastructure, and can boost the country's growth by 10% per annum. Oil revenues can also support the development of other sectors, such as agriculture, health and education.

Local production of sponge iron ore has the potential to save the country US$60 million in iron ore and steel imports, thereby supporting the government's import substitution strategy. The project will create 1,500 jobs once fully operational. Uganda's Vision 2040 earmarked the iron and steel sector as a key driver toward the transformation of its economy.

A fertiliser phosphate plant (US$620 million project) with a production capacity of 100,000 tons and a bricks factory in the country will promote industrial growth and strengthen agriculture productivity. The plant has created 1,200 direct jobs and 2,000 indirect jobs.

Various hydropower plants in the country will create jobs, reduce load-shedding and make a significant impact on the local population thanks to increased power supply. With more power coming online, tariffs are expected to drop, especially for manufacturers and other intensive energy users.

Uganda is promoting development of 27 industrial parks and business zones to drive job creation and spur growth across the country. The parks will help industrialise Uganda, create jobs and contribute to national development. Outputs will include steel products, plastics, textiles, gas cylinders, packaging materials, trucks and buses. Kampala Industrial and Business Parks currently employ 23,000 people, a number that is expected to rise to 200,000. The parks will support Uganda's import substitution agenda. They will also contribute to its balance of trade position and the implementation of its value addition strategy to increase volumes, quality and value of Uganda's exports.

The World Bank, through the Uganda Municipal Support Infrastructure Development (USMID) project, released US$150 million to boost infrastructure development in municipalities across the country. A taxi park was also constructed in each of three municipalities. USMID is now implementing a US$350 million five-year project in eight cities, which will end in 2023.[14]

POINTS OF INTEREST

- The negative situation in which South Africa finds itself was aggravated by more than a decade of shameless looting by senior members in government and the governing political party, the ANC. They used the state-owned enterprises such as Eskom, SAA and Transnet to channel money into their own pockets. Party officials and government executives also used the pandemic to loot funds earmarked for PPE purposes. Sadly, global consulting companies such as KPMG, McKinsey, BCG and SAP participated in this free-for-all. Most of these advisors are now returning the exorbitant fees they charged for little value-added. After recently reneging on a labour deal regarding salary and wage increments, the government now faces legal action from labour unions, stating it did not have the funds to finance these agreements.

- ANC Secretary-General Ace Magashule now faces 21 counts of corruption, fraud, and money laundering related to an asbestos project during his tenure as Free State premier. The ANC's Integrity Commission ruled on 15 December that he must step down from his role in the party until after his trial., It is unclear whether Magashule will comply with the ruling. Despite all this negative financial and political news, the country's currency strengthened steadily over the past few months, suggesting that investors were not all that concerned with the situation and that the country's underlying value was still sound. Despite the strengthening of the Rand, there are still few incentives for foreign investors to target South Africa. For this to happen, the country's government must create an investor-friendly environment by, amongst others, addressing the high levels of debt, corruption, electricity challenges, uncertainty regarding expropriation of private property, and reduce empowerment regulations.
- Companies that repatriate funds illegally divert funds needed for investment. This phenomenon is not new. The UNECA reported in October 2016 that illicit financial flows cost Sub-Saharan Africa US$1 trillion over the preceding 15 years. Africa's annual infrastructure investment needs are between US$140 and US$170 billion. Sub-Saharan Africa received US$50 billion from Official Development Assistance and Official Aid in 2018. A halt to illegal capital outflows — estimated at US$89 billion annually — would close most of the gap. Between 2008 and 2012, illicit financial flows to GDP ratios in Togo and Liberia were the highest globally at 76.3% and 61.6%, respectively. The constant high leakage rate raises serious questions about the morality of some organisations doing business in Africa.
- The Uganda initiatives have the potential to enhance economic growth, improve earnings and create jobs. However, its oil production is behind schedule and should be the target of executive management attention. Interestingly, the original intent was that the oil pipeline would link the oilfields to Kenya's port of Lamu. However, when President John Magufuli became president of Tanzania in 2015, one of his first actions was to convince Uganda's President Museveni to use Tanga instead of Lamu. This change also delayed Kenya's plans for its oil exports.
- While the above examples of high potential are undeniable, reality tells a different story. The percentage of the population in Uganda living with less than US$5.50 per day in 1992 was 95.8%. This fell to 87.1% in 2012. It has since increased slightly to 87.8% in 2016. World Bank statistics on poverty show the percentage of the population living under this line rising from 19.7% in 2012 to 21.4 % in 2016, the most recent available data. The bottom line: when the population at large does not benefit from the country's economic wealth, questions must be raised as to the identities of the primary beneficiaries.

4. Linking Africa to the World: New Developments

Despite many shortcomings and the perceived risks inherent in investing in the continent, Africa continues to be an attractive investment destination. New players such as Russia, Turkey and the UAE now appear on the African playing field. However, not every new investment is in the best interest of the continent. This report addresses recent developments in this regard.

THE NATURE OF RUSSIAN DEALS IN AFRICA

Russian Deputy Minister of Foreign Affairs Mikhail Bogdanov views Africa as one of Russia's top foreign policy priorities. Russia is implementing its new strategy of economic, political and scientific co-operation with the continent. Many believe this move will benefit Russia far more than it does Africa.

A recent report by Dzvinka Kachur, a researcher on Russian interests in Africa, explores Russia's growing relationship with Mozambique and Zimbabwe. Kachur finds that Russia has yet to convert its political connections into robust economic co-operation. Russia is currently not among the top five major export or import partners for either Zimbabwe or Mozambique, due to the relatively recent nature of Russia's renewed interest in Africa.

Examples of significant trade and investment deals between Russia and Zimbabwe include platinum rights for MiG-35 fighter jets. Another deal involved bartering diamonds for fuel in Zimbabwe. The link between natural resources and restricted trade is crucial to Russia-Africa relations. Nearly half of Russian arms exports now go to Africa. Most high-level agreements on business development between Zimbabwe or Mozambique and Russia focus on state access to mineral assets such as platinum or gold in the case of Zimbabwe and gas for Mozambique. In return, Russian offers military equipment and political support. Russia is also willing to support African leaders in their desire to remain in power.

Kachur expresses the opinion that Russia's engagement with Africa, driven by the priorities of large Russian companies, focuses on niches such as extractives and nuclear energy. These include Gazprombank, co-owned by the Russian state and national natural gas giant Gazprom. A foothold in Mozambique's natural gas sector is also key to the Putin regime's pursuit of energy. Another player is Vi Holding, which is controversially involved in Zimbabwean platinum mining. Alrosa mines diamonds in Zimbabwe, while Rosatom, Russia's state atomic energy corporation, pursues power deals in South Africa and elsewhere in Africa.

Russia focuses on raw extraction in its relations with African countries rather than adding value to natural resources or working toward the horizontal or vertical development of support industries.

Kachur views corruption and deal-making directed by narrow elite and corporate interests as the primary drivers for co-operation between Russia and both Mozambique and Zimbabwe.[15]

A RUSSIAN NAVAL PRESENCE IN SUDAN

Russia recently announced its opening of a new naval base in Sudan's Port Sudan. Russian troops and warships in the Red Sea will impact the balance of power in the region as it will enable Russian vessels to operate in the area for far longer than before. Developing a naval base at Port Sudan is part of a more comprehensive Russian strategy to reinforce its presence across Africa. The base will allow the Russian navy to expand its operations into the Indian Ocean and the Gulf of Aden. This base will be Russia's first in Africa since the end of the Cold War and only the second such facility outside Russia.

Russia reportedly intends to develop additional bases in the Central African Republic, Egypt, Eritrea, Madagascar, and Mozambique. Russia has a vested interest to protect its investments in offshore gas reserves in Mozambique, for instance. The insurgency in the Cabo Delgado province is a potential threat to gas pipelines. A naval base in Sudan will improve Russia's ability to project force over the Mozambican theatre, either by striking at insurgent targets ashore or disrupting their flows of supplies.

Such a naval base also positions Russia in the regional contest for influence between the USA and China, with both these countries having military centres in Djibouti. The USA's concerns about China's capacity to disrupt Djibouti's main port must now consider the prospect of Russian warships in neighbouring Sudan. Also, the small Russian naval presence in the busy Red Sea shipping lanes utilised by NATO forces and the navies of Western allies and the Chinese adds complexity to the region's security challenges.

While the USA contemplated its overseas obligations throughout the single-term Trump administration, Russia emerged as a willing source of military support for its allies. Russia may appear as a reliable and proactive guarantor of peace and stability for Africa. All powers that rely on passage through the Red Sea and the Gulf of Aden, including the USA and China, now need to re-evaluate their force deployments and provisions for their merchant vessels' future safety in the region.[16]

QATAR AIRLINES EXPANDING ITS FOOTPRINT IN SOUTH AFRICA

Qatar Airways recently (October 2020) entered into partnership agreements with FlySafair, South Africa's largest domestic airline, and Airlink, another local South African airline.

Qatar's "interline agreement" with FlySafair will allow passengers to book connecting flights through either of the companies. Travellers won't have to book connecting flights separately. The airlines will handle the check-in and baggage for each other's passengers so passengers need to check in only once for connecting flights on either airline.

Qatar passengers worldwide will now gain seamless connectivity via Cape Town, Durban and Johannesburg to ten of FlySafair's domestic connections, including Port Elizabeth, East London and George.

The Airlink agreement connects Qatar Airways travellers with more than 20 regional destinations in Southern Africa, including Gaborone, Maun, Tete, Lusaka, Harare and Victoria Falls.

FlySafair resumed flights in June. SAA is still in business rescue and not yet flying domestically. Comair, owner of kulula.com and the local operator of British Airways flights, is also in business rescue and has not resumed flights.[17]

TURKEY EXPANDING ITS FOOTPRINT IN RWANDA

According to Burcu Cevik, Turkey's ambassador to Rwanda, trade relations between Turkey and Rwanda are steadily growing as more Turkish businesspeople are showing an interest in investing in Rwanda. This phenomenon's main drivers include Rwanda's business friendly environment, political stability, its adherence to the rule of law, principles, and existence of strong institutions. One indication of Rwanda's attraction is its ranking as Africa's 2nd easiest country to do business.

Turkey's investments in Rwanda are mainly in the energy, construction, and education sectors, with others in the health, manufacturing and hospitality sector. The total amount of Turkish investments in Rwanda now total US$400 million, constituting 13% of FDI in Rwanda.

Turkey's biggest investments in Rwanda is by Hakan Mining and Electricity Generation Inc., currently completing construction of a Peat Power Plant 80 MW capacity in the southern part of the country.

One of the biggest hot air balloon companies operating in Turkey plans to invest in Rwanda as well. This will generate an impact on the tourism sector of Rwanda.

Turkish construction company Summa built two significant buildings in Kigali, i.e., the Kigali Convention Centre and Kigali Arena. Summa also completed renovating one of the university buildings in the capital. Cevik expects more projects and investments for 2021.

New Turkish investments in Rwanda appear in the manufacturing sector, to produce furniture, construction materials, water treatment, household goods and personal use hygienic products.

The two countries have already signed 20 agreements in sectors ranging from education to trade and investment.[18]

SUPPORT FOR AFRICA'S FARMERS

The mandate of an European Commission and AU taskforce set up in May 2018 included promoting African food security, transferring skills, climate change adaption and investment in Africa's agri-business. That mandate was extended earlier this year and the Covid-19 pandemic has accelerated work towards those aims. Covid-19 created fears that African agricultural production would be badly hit by supply chain disruption.

In April, the FAO and the AU described the food supply system as 'an essential service that must continue to operate during periods of lockdown, emergency, curfew and other containment measures', to ensure that farming communities and food supply are protected. The World Bank has warned that disruption to production and supply chains could 'spark a food security crisis' in Africa, forecasting a fall in farm production of up to 7% if there are restrictions to trade, and a 25% decline in food imports.

Fortunately, it seems that despite drops in agricultural production of up to 25%, African countries have responded to the pandemic, and its disruption to their supply of food imports, as an opportunity to prioritise domestic agricultural production and food security. This tactic emerged in several African states, including Botswana and Ghana.

The EU, meanwhile, has provided financial support and technical assistance. In early December 2020, the European Commission announced a €180 million support package for small farmers and fishermen in Tunisia. In November, a €38 million fund was launched for Angola's farming community for the purchase of corn, beans, sorghum seeds, as well as fertilizers, work tools and small equipment.[19]

POINTS OF INTEREST

- Russia's investments in Africa serves Russian interests. This is not a strange phenomenon as most countries take this course. However, the target countries must decide whether the intended investment is acceptable. Countries targeting African countries as a source of raw commodities should be convinced to involve the home country in the adding of value to the raw commodity. This will increase the value of the investment for Africans by creating more meaningful employment opportunities and generating opportunities for import substitution and export revenues.
- The AU currently works towards its goal of "Silencing the Guns in Africa by 2020." This campaign aims to achieve a conflict-free Africa, prevent genocide, make peace a reality for all and rid Africa of wars, violent conflicts, human rights violations, and humanitarian disasters. Unfortunately the continent is rife with conflict and insurgencies. Although Russia's export of arms to Africa can support efforts to maintain peace and security, many of these arms find their way to the insurgents they were meant to suppress. Silencing the guns will be far from easy.
- Russia's naval base in Sudan has been a long time in the making and dates back to the time of the former president of Sudan, Omar al-Bashir, who offered his country as a gateway into Africa for Russia. Russia was initially interested in obtaining a presence in Djibouti, but the authorities there were of the opinion that the presence of another large power, in addition to China and the USA, would not be in the best interest of anybody. Russia subsequently used a port in Eritrea for logistical purposes and investigated the development of the Port of Berbera in the autonomous region of Somaliland as a military base. It is therefore positioning itself to have a meaningful presence in an important geostrategic part of the world, with the ability to project power into the Indian Ocean and the Red Sea. Whereas up till now it has mainly been the USA that has been nervous about China's expansion in the sensitive Horn of Africa, as well as the rest of Africa, both China and the USA should be concerned about Russian expansion on the continent.
- The expansion of Qatar Airways' footprint in South Africa follows the actions of Emirates, which pursues a similar strategy in the region. It is not only South Africa that is targeted, but also countries such as Rwanda. The poor state of affairs of many airlines in Africa, with the exception of Ethiopian Airlines, provides a lot of scope for well-managed foreign airlines to exploit the

many opportunities in Africa. In South Africa, state-owned national carrier SAA degenerated over three decades to find itself in business rescue, with the government pumping in billions to keep the airline aloft, so far unsuccessfully.

- With the Brexit agreement now certain, it is to be expected that many EU countries will target Africa, either to gain access to markets and commodities or to gain influence through support programmes. Supporting food security in Africa will reduce the pressure on aid programmes from EU countries, as well contribute to stemming the migrant tide targeting Europe. Many of these migrants leave Africa to escape poor living and working conditions. Improved food security and an improved economic environment should reduce incentives to leave Africa. This in turn will hopefully lead to a reduction in the rate of brain-drain, which the continent cannot afford.

5. Developments in Renewable Energy

Renewable energy in Africa now permeates many applications previously dominated by other sources. Beyond the established trend to use renewable energy to electrify rural and remote areas, it is increasingly used to diversify the energy mix for large cities. This report addresses some recent developments in the domain of renewable energy.

MINI-GRIDS PROVIDING ELECTRICITY TO REMOTE AREAS IN SENEGAL

In Senegal in West Africa, the Senegalese Rural Electrification Agency (ASER) programme wants to deploy solar mini grids in 1,000 isolated villages in Senegal to deal with the total energy requirement. The project will provide access to electricity on a sustainable basis to the people in the most challenging locations through private rural electrification concessionaires. Currently, while many areas of the country still do not have access to electricity, the available energy sources are not sustainable.

Funding for the ASER programme received approval by the Green Climate Fund (GCF) Board. This will allow the Climate Finance Innovators (CFI) consortium, supported by the International Climate Initiative (IKI), to proceed with the project and will boost Senegal's national ambition of universal access to electricity from renewable sources. The CFI consortium has provided technical support throughout all stages of the proposal. The West African Development Bank (BOAD), which serves as Accredited Entity towards the GCF, will manage the funds.

ASER will now be able to contribute significantly to the achievement of the goal set by the Senegal Government of obtaining universal access to electricity by 2025. The ASER programme will benefit approximately 39,000 newly electrified rural households within five years with a 32 MW solar PV mini-grid generation capacity. The initiative will also reduce annual emissions by an estimated 45,098 tons of CO_2 annually and more than 1.1 million tons of CO_2 over the project's lifetime.

The ASER project will also accelerate and sustain the electrification of communities and businesses that remain outside the boundary of the Rural Electrification Priority Plan and Senelec (National Electricity Company of Senegal).

This project intends to develop replicable climate financing models in Ethiopia, Senegal and Uganda that are based on the CDM (Clean Development Mechanism) elements and activities.[20]

SOUTH AFRICAN CITIES BYPASSING NATIONAL PROVIDER ESKOM

South Africa has started to tap into both solar PV and solar CSP energy to reduce its dependence on its unreliable and increasingly unaffordable national supplier, Eskom. As such it leads Africa in the adoption of solar as a source of energy. The country's two largest cities, i.e. Johannesburg and Cape Town, recently announced their plans to shift to this more sustainable source. Their new strategy is reportedly driven by three factors, i.e. Eskom's unreliability, their commitment to reduce carbon emissions, and to protect customers from rising power prices.

Eskom has been struggling for more than a decade to provide enough electricity for South Africa's population and industry at large, leading to frequent rolling blackouts. It is euphemistically referred to as "load shedding" and comprises of various stages, each indicating a certain time period during which no electricity would be available.

To deal with these challenges, both Johannesburg and Cape Town have embraced renewable energy and are considered early adopters of this cause in Africa. They have obtained approval from the Ministry of Energy to wean themselves off Eskom and its unreliable and "dirty" supply and have chosen to use more sustainable sources such as solar and power generated from landfill gas.

Cape Town intends generating 300 MW of renewable energy in three to five years, diversifying its sources of energy.

The moves by Cape Town and Johannesburg will significantly reduce the revenue of Eskom as they are both big consumers. As it is, Eskom is struggling to service a US$30 billion debt.[21] A reduction in revenue will place pressure on Eskom's already significant challenge to service this debt.

RECYCLING SOLAR WASTE

Recycling electronic waste in Rwanda costs between Rwf500 (~US$0.51) per kilogram for some materials and Rwf150 (~US$0.15) per kilogram for others, depending on the waste type. Recycling can be quite expensive as one company discovered when it had a ton of solar product waste to recycle.

To deal with this challenge, Energy Private Developers (EPD), an association of private companies in the energy sector in Rwanda, and EnviroServe Rwanda, a public private partnership e-waste recycling facility in Bugesera District, recently hosted a free-collection day of waste materials from all solar home systems companies working in Rwanda. This will happen every last Friday of the month.

During normal operations, while there is no disposal cost for certain materials that have value and can be reused, the companies must pay for the disposal cost of other products. On the free-collection day, companies will not be charged and ordinary citizens do not pay disposal costs for their e-waste.

In 2019, the recycling facility collected 300 tons of waste from solar products, which could increase to 400 tons in 2020, 1200 tons in 2021 and 1400 tons in 2022. Of the 3,000 to 4,000 tons of e-waste collected annually, solar waste comprises about 10%.

According to Solange Mutezinka from the Note Solar Lamp Company in Rwanda, while they target to build solar lamps factories and distribute the products, they had no means of collection and disposal. The best mechanism to deal with waste disposal was reportedly through a B2B partnership. There are currently no collection points and cost of transport was a challenge. The alliance referred to above aims to prevent human health threats by ensuring "a proper and efficient waste management of hazardous solar materials that have reached their end of life."

The new campaign will include ten companies with hundreds of tons of obsolete solar energy products, materials, equipment, and accessories arriving at e-waste plants. Between 10,000 tons and 15,000 tons of electronic waste are expected to be collected every year, compared to the 40% currently collected.[22]

SOLAR DESALINATION PLANTS

The Climate Fund Managers (CFM) and the Dutch Fund for Climate and Development (DFCD) partnered to install 200 solar-powered desalination systems in Kitui County, Kenya. In this part of Kenya, many wells used for water supply contain salt and fluoride, making the water unsuitable for direct consumption. The solar desalination system supplier, Solar Water Solutions (SWS), will install solar water purification systems to purify the brackish water. CFM provides project funding (US$15 million) through its Climate Investor Two (CI2) fund.

The installation of 200 solar-powered desalination systems pilot phase will follow a pilot phase. The SWS plants will purify the brackish groundwater in Kitui County into drinking water. Each plant, powered solely by renewable energy, includes a mobile container equipped with a reverse osmosis water treatment system, solar panels and a water dispenser to allow local residents to purchase water using their mobile phone.

The 200 desalination systems will supply 1,300m^3 of drinking water daily and more than one GWh annually of clean off-grid energy to power the desalination plants.

The partners intend to expand the platform throughout East Africa following their successful implementation efforts in Kenya.

Solar Water Solutions was launched in 2015 and completed a similar project in Namibia in 2019 when it installed a seawater desalination system in Henties Bay, a coastal town in Namibia.[23]

RENEWABLE ENERGY SUPPORT FOR TELECOMS OPERATOR

A consortium consisting of three firms from France, Norway, and South Africa recently raised US$35 million to finance and launch Escotel. The partners are Inspired Evolution (an investment advisory firm), Norfund (a Norwegian government-linked private equity firm) and Sagemcom (a French technology company). The new consortium will provide cleaner energy to telecom towers in Africa. Escotel's first contract is with French telecoms operator Orange.

Mauritius-based Escotel will provide energy services to owners and operators of mobile phone towers. It will own and operate decentralised renewable solar energy and hybrid storage systems. These will power approximately 900 telecoms sites owned by Orange in Sierra Leone, Liberia and the DRC. The initiative will reduce the carbon footprint of Orange's local mobile operators, improve operational efficiency and reduce costs. Implementation will involve hybridising existing power supply systems at telecom sites through the supply, installation and operation of cleaner solar power and storage systems at the new telecom sites.

The project will prevent emission of more than 6,240 tons of CO2 annually in Sierra Leone, and 10,092 tons of CO2 in Liberia. Escotel receives support through the Multilateral Investment Guarantee Agency (MIGA), a World Bank subsidiary. MICA covers the project is for the risks related to transfer restrictions and inconvertibility, war and civil unrest, and expropriation for an initial period of up to 10 years.[24]

POINTS OF INTEREST

- With solar technology as the primary platform, renewable energy is making a significant contribution to providing electricity to the vulnerable at the bottom of the pyramid, not only in West Africa but throughout the continent. Increasingly, projects now utilise even smaller configurations, i.e., nano-grids where each dwelling relies on its own power system. The growth of renewable energy utilisation in Africa will continue and increase in pace and scope through efficiency increases and cost reductions. The smart option for foreign (and local) investors would be to tap this huge opportunity for sustainable investment on the continent.
- South Africa's Eskom has become a national embarrassment with its degenerating efficiency and inability to keep the lights on, despite annual promises by presidents and ministers in this regard. Factors that have contributed to this sad state of affairs include massive corruption in political circles and among senior executives at the company, management incompetence, lack of maintenance and no proper strategic direction. There has been an array of chief executives trying to get the company back on the straight and narrow over the years, but most of them, excluding the present incumbent, have reportedly been involved in corrupt practices. It is also interesting to know that, despite the inefficiencies of the company, the average salary at Eskom is one of the highest in the country at an average of approximate R600,000 (US$41,200), which is huge in South Africa. The number of employees has also increased significantly, as did its debt load. This makes the future viability of the company a problem for the South African government, and eventually for the country's taxpayers.
- In addition to providing electricity to traditional consumers, we are also seeing renewable energy being used in applications such as telecoms towers, agriculture (water pumps for irrigation), and desalination and water purification for human consumption. The low cost that comes with renewable energy technology, combined with its low carbon footprint, makes it an attractive option in these applications. Hybrid systems are increasingly being reported on, showing upon the versatility and flexibility of renewable energy systems.
- The initiative in Rwanda to deal with solar technology electronic waste is a timely one. Due to the benefits of renewable energy for the most part of Africa, the e-waste problem that accompanies the technology is seldom addressed in the popular media. It can become a serious problem should it not be addressed, as is the case for electronic waste in general. According to the UN, in 2019 2.9 million tons of e-waste was generated in Africa. It can also become a business opportunity as the waste technology can be used for other purposes. An example of such is the development of a 3D-printer in Togo using e-waste. Some African

countries have already been the recipient of e-waste from abroad. This is another practice that must be stopped as the continent does not have the capacity to deal with it. To be fair, as indicated by UNEP, 85% of the e-waste dumped in Ghana and West Africa was generated in the region. Thus, stopping foreign waste dumping in Africa will not put an end to e-waste. Governments in Africa must address this emergent problem by adopting appropriate policies.

6. Developments in Sustainability

Concepts such as sustainability and the circular economy are increasingly talked about in Africa. Recycling and reuse of raw materials such as plastic and wastewater are acutely important ideas, given the damage from plastic in the environment and the scarcity of water. Global warming, climate change and food security are equally relevant phenomena. Thus, we must embrace initiatives that provide solutions to these challenges. This report addresses recent developments in this domain.

RECYCLING PLASTIC WASTE IN UGANDA AND SOUTH AFRICA

In Uganda, Coca-Cola Beverages Africa (CCBA), Stanbic Bank Uganda and the Ugandan company Nice House of Plastics recently agreed to promote responsible use and recycling of plastic waste. They view their agreement as a strategy to sustainably protect the environment of Uganda. This is the first instance of private sector stakeholders in Africa collaborating to promote sustainable plastics recycling through an ecosystem driven by value addition to create products while protecting the environment.

Stanbic Bank Uganda will finance initiatives to collect and recycle plastic waste. CCBA will collect and supply flakes of plastic waste to the Nice House of Plastics. The latter will use the flakes to manufacture equipment such as chairs, containers and crates for the storage of beer and milk bottles. According to Barbara Mulwana, Managing Director of Nice House of Plastics, one of their main raw materials is recycled plastic waste, some of which they must import. The collaboration with CCBA and Stanbic will help them address raw material supply issues and promote a safe environment.

The initiative of CCBA and its partners is aligned with Coca-Cola's strategy to reduce its environmental impact in Africa through the recycling of plastic waste. CCBA has also introduced a new range of returnable bottles in at least three of the nine South African provinces.[25]

As part of its World Without Waste campaign, in South Africa Coca-Cola collected the equivalent of 113% of the PET plastic bottles that the company sold into the South African market in 2018. In addition, 866 schools participated in the campaign's Schools' Recycling Programme in 2018. The programme has educated more than 700,000 learners on recycling. A key performance indicator will always be to what extent the group has succeeded in removing single-use plastic items from its value chain.[26]

RECYCLING EFFORTS IN EGYPT

Following the approval of new waste management laws in Egypt, Nestlé Egypt launched an initiative to improve plastic recycling waste in the country. One of the pillars of the project is a digital platform, set up by Paymob, that enables the monitoring of recycling activities in Egypt. The platform consolidates data on the plastic recycling process and the quantities of waste recycled. The platform will facilitate payments for recycled waste across the Middle East and Africa.

As part of its initiative, Nestlé Egypt is also collaborating with the Egyptian Ministry of the Environment and CID Consulting, a company that provides management and development consulting services for public and private sector organisations.

This initiative aims to support and stimulate the collection and recycling of plastic waste, with Cairo serving as the pilot city for the project. Currently, 44.8% of Egyptian households and 52% of industries throw their rubbish in the street. The digital platform will pay each person registered in the system for their contribution to the initiative every month, via electronic wallets.

Nestlé Egypt hopes to use this project to progress towards its goal of making 100% of its plastic packaging in Egypt recyclable or reusable by 2025.[27]

VALUE ADDITION IN BENIN

Three classrooms in three schools in Benin, built with recycled plastic bricks, were inaugurated in August 2020. The Beninese authorities were motivated by a donation from UNICEF of the need to set up a factory to manufacture the bricks from plastic waste. This not only helps combat plastic pollution, but also reduces the lack of school infrastructure in the country. UNICEF imported raw material for the production of the first batch of bricks for the building of the classrooms from Colombia.

The building of plastic bricks in Benin will enable it to reduce the deficit in school infrastructure, especially in the most disadvantaged areas, as well as contribute to poverty reduction by improving revenues of women and young people involved in the recycling of plastic waste and to fight against plastic pollution. The need for classrooms in Benin is extensive. In 2018, in the Atacora department in north-west Benin, the secondary education department had a deficit of 424 classrooms.

In addition to the reduction of plastic pollution, the production and use of recycled plastic bricks has many economic advantages. Recycled plastic bricks are inexpensive, durable and easy to assemble. Their use for classroom construction requires only one week's work using local labour, with no special qualification requirements. Building classrooms from recycled plastic brick is also 40% less expensive than traditional classrooms and no water or cement is required for assembly.[28]

COOLING FACILITIES FOR SUSTAINABLE FARMING IN KENYA

Smallholder farmers living in hot and arid regions struggle to get fresh crops to market and sell them at the best price. Cooling facilities will enable them to deliver high-quality, fresh produce to markets and sell at higher prices. It would also allow farmers to harvest more produce before heading to markets, making the trips more efficient and profitable while also expanding consumers' access to fresh produce. However, the energy resources needed to support refrigeration is problematic in many smallholder farming communities.

To address this challenge, an MIT research team is collaborating with researchers at Kenya's University of Nairobi to develop a cost-effective large-scale cooperative storage facility. The design uses the evaporative cooling properties of water to keep harvests fresh for a longer period.

Size remains a challenge as few designs are large enough to effectively store several tons of produce and satisfy important criteria such as ease of construction, quality of performance, and affordability. While designs do exist for solar-powered mechanical refrigeration, costs associated with the energy supply, implementation, and maintenance of these units is prohibitive to many smallholder farmers.

The researchers selected shipping containers as the basis for the cooling chamber. This provides the opportunity to recycle existing, used materials. They retrofitted a shipping container with a double-layered insulating wall, a solar-powered fan to force air through a central matrix of wet pads, and interior storage crates arranged to maximize convection and cooling rates and ease of use. A standard 40-foot-long shipping container outfitted as an evaporative cooler will be able to store between 6,500 - 8,000 kilograms of produce and cost between US$7,000 and US$8,000. Compared to mechanically refrigerated designs of a similar size, this is a 50% cost reduction. This option is very attractive to farming cooperatives, brought about by using local materials and a centralized manufacturing strategy.

The team worked with farmers to refine the design. They installed a solar-powered electronic control system to allow farmers to automate the fan and water pumps. This increases efficiency and minimises maintenance requirements. As more than one farmer uses a container, a crate-stacking arrangement was provided to facilitate inventory management. The containers also provide protection from rodents.

Community involvement and co-creation was deemed critical in adapting technological solutions to people's needs and to maximize their use of the solution. Centralized manufacturing and construction of the containers is an additional strategy to ensure the accessibility and affordability of the technology for the communities they aim to serve.

While the current design was developed for farmers near Nairobi in Kenya, the design is suitable for deployment in many other regions in Kenya and parts of West Africa.[29]

GROWING FORESTS IN THE DESERT

As part of plans to preserve the environment, reduce pollution and optimize the use of natural water resources, Egypt grew a forest in the middle of the desert. The project used wastewater to support its economy and fight environmental and climate change.

The Serapium Forest flourishes despite droughts and low rainfall. It consists of 200 hectares of trees planted in Ismailia city, in northeast Egypt. The project goals are to optimize the use of treated sewage water, produce wood, create viable wood-based industries, produce biofuels, protect the country against desertification and erosion, address food security problems, stabilize sand dunes, protect the coasts and boost tourism. Some trees, such as mahogany and camphor, could become a permanent income source in Egypt, by exporting wood from the trees or using them in the local wood industry.

The forest set a precedent for other projects to reduce water pollution and unemployment, and African countries followed suit. In 2019, 21 African countries, including Egypt, embarked on a tree-planting project, dubbed the Great Green Wall. It starts from Senegal, in West Africa, and stretches to Djibouti, in East Africa, and is currently 15% complete. At its completion by the end of 2030, it will stretch over nearly 8,000 kilometres, extend over 100 million hectares and cost an estimated US$8 billion.

According to Ragaei Saafan, the Serapium project manager, the treated sewage water will help transform large areas of the Egyptian desert into arable and economically viable areas. These forests will purify the air, combat desertification and help reduce the high summer temperature. There is also a possibility to raise livestock without any significant cost, except for the potable water.

The wastewater is channelled in big underground basins high in micro-organisms, and oxygen is pumped to accelerate the water purification process. The water, high in nitrogen and phosphorus, which are good for the forest, is then stored throughout the forest. The trees have grown four times faster than in any other forest in Europe where the weather is much more favourable.[30]

POINTS OF INTEREST

- With large parts of the world suffering from deforestation, such as in Brazil and Central and West Africa, the Egyptian initiative is a welcome alternative. Food production is frequently used as the driver of such deforestation efforts, which is an important goal worthwhile striving towards. However, the negative effects of deforestation cannot be denied and must be addressed. While replanting trees in the same areas is a good strategy, the Egyptian strategy of planting trees in the desert using recycled wastewater goes far beyond dealing with deforestation and must be emulated wherever possible. Using trees with inherent market potential increases the value of this strategy, through all the benefits mentioned above.
- Plastic recycling has been a hot topic for several years. However, the need for this intervention is ongoing and probably will be for many years to come. The use of recycled plastic as input for the circular economy is also not new, but will hopefully expand into more geographical areas, as well as into more areas of application. We have already seen plastic as raw material for bricks for schools, and for paving, roads, energy generation and even clothing.
- Cooling facilities for Africa’s smallholder farmers will make a significant contribution to sustainable farming and reduce post-harvest losses, while increasing the revenues of these farmers and the range of choice available to consumers. Africa’s climate has not been kind to smallholder farmers and the temperature in countries such as Kenya, Rwanda, Uganda and in West Africa along the tropics are such that the lack of cooling facilities have a severely negative impact on the route to market of fresh produce. Low-cost solutions that provide efficient cooling potential must therefore be embraced.
- While it is frequently the small entrepreneur with the interesting idea to capitalise on recycling that catches the attention of the media, it is the efforts of large corporates that have the potential to bring about the most change. Efforts by Coca Cola and Nestle must therefore serve as a benchmark for other corporates to emulate.

7. Developments in the Telecommunications Sector

Telecommunication companies began by packaging telephone sets and connection capability. When mobile services entered the market, the same companies sold mobile phones and airtime. Later, they added messaging and Internet access. Telecoms operators in Africa have come a long way. Their current diversification to mobile money has telecoms operators competing with banks. This trend began by enabling basic financial transactions amongst the poorest of the poor. However, the scope soon escalated to a broad range of more sophisticated financial products and services. Many other services based on mobile access to data and networks are emerging to serve other needs. This report addresses recent developments in this sector.

STRONG FOCUS ON MOBILE MONEY

Mobile money is the major driver for financial inclusion across the continent. The capability to store, access and use small amounts of funds while on the go offers affordable and inclusive financial services to the previously unbanked. Mobile money creates jobs, builds skills and contributes to the UN's sustainable development goals in Africa.

Safaricom intends to secure a larger market share of the financial services sector. The telecoms firm hopes to generate more revenue from its M-Pesa mobile money platform, which now accounts for a third of its revenues. The operator plans to expand the scope of M-Pesa beyond sending and receiving cash, obtaining loans and paying for goods. To implement this strategy, Safaricom is testing new products. These include Bima (Insurance), Mali (mobile savings) and a unit trust investment product.

Safaricom CEO Peter Ndegwa announced its strategy to broaden M-Pesa into a fully-fledged financial services provider that will compete with banks, insurance firms and fund managers. M-Pesa will expand services to its 26.7 million active customers, who now transact about Sh1.5 trillion (US$3.76 billion) a month. The mobile services operator will also tap the wealth management arena and grow its portfolio of savings, unit trust and insurance products. He stated that Safaricom is actively seeking regulatory approval to launch insurance, unit trust and saving products from the Capital Markets Authority (CMA), the Central Bank of Kenya (CBK) and the Insurance Regulatory Authority (IRA).

These new products will offer interest rates of 10% on deposits capped at Sh70,000 per saver, nearly double the current interest rate that banks now pay on savings. According to analysts, Safaricom may find a huge untapped market with the new savings product, as the savings rate is very low in Kenya. To break into unit trusts, Safaricom is expected to partner with a fund manager licensed by the CMA, who will also approve the new product.

Kenya also has a very low insurance penetration rate, estimated at below 10% of the population. Safaricom is keen to win market share in the sector, now served by international firms such as Prudential Plc and Swiss Re. Safaricom is targeting the uninsured, and will leverage technology and data analytics to determine consumer behaviour and develop new strategies.

These new products come at a time its parent firm, Vodafone Group, has disclosed that it wants to partner will Chinese digital payment provider, Alipay, to extend M-Pesa into financial services.[31]

Africell is a fast-growing mobile telecommunications operator with a footprint across West, Central and East Africa. The firm recently shifted its focus to mobile money as the core of its expansion strategy in the Gambia, Sierra Leone, Uganda, and the DRC. Africell also intends to target Angola.

The firm deploys its AfriMoney platform to enable its strategy to provide mobile money services. These will allow customers to rapidly and securely send funds to individuals and organizations on any network, including those without phones. Africell plans to expand the range of services available through AfriMoney. These will include international remittance and PayGo services such as home solar, merchant payments, integrations with local banks and other payment providers. Customers will also benefit from exclusive offers on airtime, data and other services from AfriMoney.

Africell reportedly collaborates with local and international NGOs to increase the scale and effectiveness of its services and disburses humanitarian funds to the disadvantaged through AfriMoney.

The COVID-19 pandemic accelerated the need for swift, secure, and contactless ways of sending money and buying goods and services. According to the GSMA, there were 50 million new mobile money accounts registered in Sub-Saharan Africa in 2019, while account adoption across the region will surpass the half billion mark by the end of 2020.

According to Andy Widmann, Head of AfriMoney at Africell Group, AfriMoney will serve as a platform for its partners to offer new innovative products and services to the previously underserved.[32]

INNOVATING CONNECTIVITY IN AFRICA

In Namibia, tech entrepreneur Joshua Nghaamwa created a device seen by many as an ICT solution for Africa at large. His digital smart box device, Master Terminator, was patented in 2012, but has since been re-engineered into a portable device that can be used to increase mobile network connections and provide access to the Internet. The aim of Master Terminator is to expand network coverage to connect unconnected rural public schools, health centres and individuals to foster socio-economic development via electromagnetic waves. The device is 4G compatible, fits in a laptop bag and has a USB port that enables users to connect their modem, router or cellphone. This can be used to charge the user’s device or to and increase its Internet connection speed. Master Terminator is Bluetooth and Wi-Fi enabled, with connectivity for up to 10 devices. While the device uses a built-in battery, it can also receive power from a solar charger to ensure operations even in remote places.

According to Nghaamwa, his device is aimed at “bringing connectivity, at better speeds to the masses throughout Africa, and to give tourists and field workers the ability to communicate more effectively and conveniently."

Nghaamwa received a grant in 2015 from the National Commission on Research Science and Technology, which allowed him to launch the project and work with engineers to develop a prototype and transform the device into a fully functioning product.[33]

FOOD RETAILER ENTERING THE MVNO SPACE

South African food and clothing retailer Pick n Pay recently officially launched PnP Mobile, the country’s latest Mobile Virtual Network Operator (MVNO). PnP Mobile will rely on MTN’s mobile network infrastructure to offer customers prepaid, SIM-based access to services including airtime, data, and SMS.

Pick n Pay Smart Shoppers (PnP loyalty card holders) will earn free data rewards of up to 2.5GB per month in addition to loyalty points when shopping at any Pick n Pay store in the country.

Customers can register their new PnP Mobile SIM card within minutes and without any paperwork through Pick n Pay’s new paperless RICA facility.

This initiative by Pick n Pay is driven by a very high mobile phone penetration rate with very high prices for mobile data services. The retailer believes that by expanding their services into the mobile market they can benefit millions of their customers. This innovation will enable Pick n Pay customers to earn points from their loyalty card, while receiving free data on their PnP Mobile SIM card.[34]

DIVERSIFYING SECTORS OF OPERATION

Safaricom intends to expand its business scope beyond the telecommunications and financial services sectors. It recently adopted a strategy to offer services in the education, agriculture and health sectors, using technology to expand its business. This is part of an approach to simplify its products and services and align them with its future strategy, which focuses on its transformation into a technology company.

According to CEO Peter Ndegwa, Safaricom wants to be a purpose-led technology company with customer-obsession as its foundation. Safaricom views technology and a data-driven economy as the main drivers of Kenya's economic growth and will use this as a launchpad for the next two decades.

The company subsequently plans to reach out "to new frontiers, be more present, more world-class, and enable new platforms that would help to launch our small and micro-enterprises to greater possibilities."

To support small micro-enterprises, Safaricom recently unveiled "Pochi la Biashara" (business wallet). This innovation helps small business owners such as food vendors and boda boda riders separate personal transactions from business transactions and keep track of their earnings and expenses.[35]

Telecoms giant Orange recently announced the launch of its online training platform "Orange Campus Africa" (OCA) in partnership with the Virtual University of Senegal (UVS). OCA will be hosted at its data centre in Côte d'Ivoire, will bring together content from renowned partners in education and training in one place.

With the advent of the Covid-19 pandemic, Orange Middle East and Africa (Orange MEA) stepped up its e-learning initiatives, with many its subsidiaries providing free mobile access to selected courses hosted by international and African partners.

According to Alioune Ndiaye, CEO of Orange MEA, the organisation wanted to offer a global platform that would meet the specific needs of African populations. It wanted universities to rely on online tools to provide additional training and target more students. Students and professionals could take these courses on a personal basis and obtain a certification or even a diploma recognised in their country.

This platform's advantages include the adaptation of training to local contexts (cultural, economic, etc.), optimised access via a smartphone, and mobile payment in local currencies for additional or premium services.

Universities in Africa can utilise the platform to teach new topics such as those related to technology and the digital economy, monitor their students online, and supplement training with virtual classes. Companies can train their employees using training content from universities or other companies.

Typical courses offered by OCA include courses from the virtual universities of Tunis and Senegal, the French digital universities UNIT (Engineering and Technology) and AUNEGE (Economics and Management), Finafrique (a training company) and EPITA Graduate School of Computer Science. Several other European and African institutions have also confirmed their intension to utilize the platform to distribute their training.

Small organizations that offer training, such as start-ups or local organizations, can also host their content on the OCA site and gain visibility.[36]

POINTS OF INTEREST

- The earlier section on developments in digital technology on the continent noted that countries increasingly embrace mobile money. This segment is rapidly evolving. Service providers include telecoms operators, plus retail banks that (belatedly) realised they run the risk of being disintermediated in key market segments. The number of telecoms operators that seek to diversify their digital product and service offering escalates constantly. The main driver for change in the telecoms sector is the maturity of voice as a service and its declining profitability. Telecoms operators in Africa also experience pressure from regulators to reduce data prices, placing them in a race to zero profit. With technology driving convergence, product and service diversification is increasingly easy, which lowers entry barriers.
- Beyond mobile money platforms, telecoms companies also target entertainment and education. The latter sector will become more interesting with Covid-19 driving change in delivery. A decade or two ago, many viewed online courses as of lower quality. Now we find well-known global brands offering master's programmes, MBAs, PhDs and executive education online. Access to potential students is a challenge. With its large number of subscribers, many of whom

could become students, African telecom operators can become a strategic channel for delivering online programmes and courses. Foreign universities with strong brands now have online access to Africa’s students. This will press universities on the continent to redefine their value offering to maintain a unique selling proposition (USP). Their simple dilemma: if students can choose from the best universities worldwide, why should they choose a local university?

- While telecoms operators target vulnerable players in other sectors, the food retailer Pick n Pay enters the telecoms sector by adopting a posture as an MVNO. MTN will benefit as the provider of data and SIM cards. However, the convergence of the data and voice sectors may enable Pick n Pay to become a competitor at some future point. Its large number of clients represents a potential that could be exploited should the company decide to enter the sector as a full-service provider. The Safaricom mobile money services initiative in 2007 in Kenya is a case in point. Banks made the mistake of thinking Safaricom would be a non-starter. Today, if Pick n Pay succeeds in developing its proposed basic model, there is nothing to stop it from buying a struggling telecoms operator and launching a fully-fledged telecoms company. Its retail food customer base would serve as the foundation for its expansion drive.
- Once again, we see African ingenuity applied to solve difficult challenges, such as connectivity in remote areas, this time in Namibia. Internet connection is frequently a problem outside of cities and towns in Africa, even in a sophisticated country such as South Africa. Despite its creation in Namibia, the Master Terminator device indeed has the whole of Africa as its potential market. It will also enable entertainment companies such as Netflix and Amazon Prime to expand their streaming services into more countries. It will enable service providers to expand into remote areas in countries they already serve. Entertainment is only one potential application segment. With digital technology increasingly applied to health, and with connectivity being a constant challenge, the device could significantly advance the progress of digital health services in Africa and sectors such as agriculture and education.

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