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EDITORS' NOTE

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We are excited to present the twenty-seventh issue of the Sahel Quarterly, focused on powering agriculture in Africa and the need to ensure access to adequate and affordable energy to improve food security across the continent and livelihoods of key actors in the sector.

Energy poverty remains a severe challenge across Africa. The continent accounts for 17%[1] of the global population, yet it only accounts for about 3%[2] of the global energy consumption. According to the International Energy Agency, over 600 million[3] people in sub-Saharan Africa have no access to electricity, and millions more experience poor or unreliable electricity supply. In rural communities, which are primarily agrarian and produce most of the population's food requirements, the World Bank (2019) estimates that only 28% of the rural population have access to electricity. The lack of access to adequate and affordable energy on the continent currently hampers food production, impedes food security, and stalls the growth of the agriculture sector. The lack of adequate and affordable energy in the sector is evident in the high costs of engaging in large-scale mechanized farming, post-harvest losses arising from poor food storage and transportation conditions, and high food costs due to high production costs. All of these exert pressure on food systems, rendering them vulnerable.

To foster the development of Africa's agriculture sector and produce sufficient food for its growing population, improving access to affordable energy across the nodes of the agricultural value chain is critical. Powering agriculture through improved access to adequate and affordable energy sources will prove transformation to reduce the pressure on rural food production systems and urban distribution and processing infrastructures, address post-harvest losses, maximize environmental benefits, and ultimately ensure stronger and more resilient food systems.

This quarterly presents practical solutions for stakeholders to alleviate energy poverty and improve access and usage in the agriculture sector to achieve economic and environmental benefits. We hope that this quarterly will inform, educate, and spur action to ensure that the actors within the agriculture sector in Africa can leverage energy for sustainable food production and food security on the continent.

1. Statista 2021, Distribution of the global population by continent 2020, Available at: <https://www.statista.com/statistics/237584/distribution-of-the-world-population-by-continent/> (Accessed: 29 May 2021).
2. Global Energy Statistical Yearbook 2021, Electricity Domestic Consumption, Available at: May 2021, <https://yearbook.enerdata.net/> (Accessed: 29 May 2021).
3. International Energy Agency (2019). Africa Energy Outlook 2019. Available at: <https://www.iea.org/reports/africa-energy-outlook-2019> (Accessed: 29 May 2021).

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POWERING AGRICULTURE IN AFRICA

BY HAJARAT OKENLA

The agriculture sector in Africa has the potential to deliver significant economic benefits while supporting livelihoods and improving food security. According to the President of the African Development Bank (AfDB), Dr. Akinwumi Adesina, the continent is urbanizing so rapidly, and the agribusiness sector is projected to be worth $1 trillion by 2030[4]. However, this projection is not guaranteed due to the lack of robust energy services in the agricultural sector. Currently, the agricultural systems in Africa, especially the sub -Saharan region, are generally underpowered, with countries categorized by small-scale, non-irrigated farming systems.

> ***"~600 million people in Africa did not have access to electricity in 2019".***
>
> ***International Energy Agency (IEA)***

According to the International Energy Agency (IEA), ~600 million people in Africa did not have access to electricity in 2019. Additionally, about 69% of the population uses biomass as fuel[5]. Currently, the agriculture sector is responsible for about 2% of total energy use across the continent[6]. Furthermore, the population in several African countries, especially in rural communities that are primarily agrarian, suffer from energy poverty - the lack of access to reliable affordable, and modern energy sources[7]. Most farms in rural communities cannot adequately access modern and clean energy due to the difficulty in connecting to centralized power grids. Quite often, modern and clean energy is also unavailable for food producers in remote communities.

However, Africa has the potential to generate energy for use in the agricultural sector. Countries on the continent possess exploitable hydroelectric resources at ~13% of the world's total. More than 15 African countries have excellent potential for wind energy, accounting for ~29% of the world's resources. In addition, the Rift Valley, running from Jordan to Ethiopia, Kenya, Tanzania, Congo, Malawi and ending in Mozambique, contains tremendous geothermal resources. Unlocking Africa's potential to generate energy, ensuring the availability and accessibility of energy that can be leveraged to support food production and foster growth will require practical efforts and innovation from various actors.

Stimulation the Use of Energy in the Agriculture Sector in Africa

The accessibility to modern and clean energy to support agricultural operations and improve the livelihoods of farmers and food producers will involve efforts from stakeholders to:

- **Create an Enabling Environment for Private Sector Participation:** Governments must create an enabling environment for mobilizing resources and fostering private sector investment in the energy sector through their policies. Governments should implement policies that will catalyse the development and promotion of modern energy techniques towards building sustainable businesses and creating economic opportunities.
- **Reform Public-Private Partnerships:** Public sector actors must reform existing and create new partnerships with private companies while taking advantage of their economic tendencies and competitiveness. The government could also serve as a regulator in facilitating the generation, transmission, and distribution of energy in various competitive forms and at affordable prices. Private sector organizations and donor organizations should be encouraged through policies and incentives to crowd-in investments to the energy sector. Large-scale investments in the sector can ensure that the identified natural resources in African countries are processed into value-added energy sources.
- **Harness Opportunities Within Global Programs:** In collaboration with private sector organizations and non-governmental organizations (NGOs), governments could build on existing initiatives and support in the landscape to enhance the population's access to energy. An example is the Global Commission to End Energy Poverty, which supports actors across the private and public sectors, such as investors and policymakers, by recommending coordinated actions to provide energy to underserved homes and businesses.

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4. Seth S. & Tom C. (2020). The Nexus of Agriculture and Energy in Africa; Five lessons for bridging the Agriculture Energy Gap. Available at: <https://nextbillion.net/africa-agriculture-energy-gap/ (Accessed: 29 May 2021).
5. International Energy Agency (2019). Africa Energy Outlook, 2019. Available at: <https://www.iea.org/reports/africa-energy-outlook-2019> (Accessed: 29 May 2021).
6. Rebekah S. (2020). Powering Agriculture: Unlocking Africa's Next Green Revolution. Available at: <https://www.africaportal.org/publications/powering-agriculture-unlocking-africas-next-green-revolution/>(Accessed: 29 May 2021).
7. African Energy Commission (2018). Energy poverty in Africa. Available at: <https://au-afrec.org/Docs/FR/PDF/2017 paper_on_africa_energy_poverty_en.pdf>(Accessed: 29 May 2021).

The introduction of appropriate policies and interventions to support the expansion of clean technologies and modern energy efficiency is crucial in reducing energy poverty and providing increased opportunities to support food production and agriculture activities on the continent.

MAKING A CASE FOR THE USE OF RENEWABLE ENERGY IN AGRICULTURE IN AFRICA

BY ABIMBOLA SCALE

Energy poverty is a critical challenge faced by many countries of the world. Africa accounts for 17%[8] of the global population, yet it accounts for only about 3%[9] of global energy consumption. According to the International Energy Agency (2019)[10], over 600 million people in sub-Saharan Africa have no access to electricity, and millions more experience poor or unreliable electricity supply. The per capita energy consumption is drastically low at 180kWh as against 13,000kWh in the United States of America (AFDB, 2020)[11].

While the average electrification rate in sub-Saharan Africa is 47%[12] of the total population, there is a wide disparity in rural and urban access to electricity. In rural sub-Saharan Africa, where food is primarily produced, only 28%[12] of the population have access to electricity. Urban dwellers and businesses, including food processing companies, have an electricity access rate of 78%[12]. Despite the increased access to electricity in urban areas, businesses face erratic power supply and high cost of energy, occasioned by high electricity tariffs and the need to purchase fuel or diesel to power supplementary energy sources such as generators.

Energy poverty significantly impedes food production and security as energy is crucial to all activities across the value chain. It is used directly as fuel or electricity to operate machinery and equipment for land preparation, irrigation, harvesting, heat, or cool buildings, and for lighting on the farm. Post-harvest, energy is required to support storage, transportation, and processing; examples of such activities include drying, milling, pressing, packaging, vehicular transportation from farm to fork, etc. Agriculture also utilizes energy indirectly in the fertilizers and chemicals produced off-farm.

With so many unable to power or afford appliances in the rural areas, about 65% of land is prepared manually with the resultant effect of low farm yields (World Bank, 2019)[13]. According to the Food and Agricultural Organization (FAO), sole reliance on human power would lead to the cultivation of only one and half hectares per year, this increases to four hectares if animal power is utilized and may further rise to eight hectares with the use of tractor-power. Post-harvest losses, estimated at 30 – 50%[14] of total food production, would require significant improvement in access to modern energy to reduce food loss.

In addition to the current gap in food production and availability, the rapidly growing population in Africa further exerts pressure on food systems. According to the United Nations (2019), sub-Saharan Africa would account for more than half of the world's population growth by 2050, with about 1.1 billion people added to its population[15]. This projected population growth implies that food systems need to be strengthened to close the current gap in food production and prepare for the rising demand necessitated by an increasing population. Improving access to energy is a critical factor that must be addressed to build strong food systems.

Renewable Energy – A Pathway to Increasing Access to Electricity

The African continent possesses enormous natural resources that could be harnessed to significantly increase access to electricity. These natural resources can produce solar energy, wind energy, hydropower, geothermal energy, and biomass energy. The IEA estimates that Africa's renewable energy capacity could potentially plug its current and future energy consumption.

8. Statista (2021). Distribution of the global population by continent 2020. Available at: <https://www.statista.com/statistics/237584/distribution-of-the-world-population-by-continent/> (Accessed: 29 May 2021).
9. Global Energy Statistical Yearbook (2021). Electricity Domestic Consumption, Available at: <https://yearbook.enerdata.net/> (Accessed: 29 May 2021).
10. International Energy Agency (2019). Africa Energy Outlook 2019. Available at: <https://www.iea.org/reports/africa-energy-outlook-2019> (Accessed: 29 May 2021).
11. African Development Bank Group (2021). Light Up and Power Africa – A New Deal on Energy for Africa. Available at: < https://www.afdb.org/en/the-high-5/light-up-and-power-africa-%E2%80%93-a-new-deal-on-energy-for-africa> (Accessed: 29 May 2021).
12. World Bank (2019). World Bank Open Data. Available at: <https://data.worldbank.org (Accessed: 29 May 2021).
13. World Bank (2019). (Em)powering Farmers in Africa: Small-scale Solar Lights a Path for Agricultural and Economic Impact. Available at: <https://www.worldbank.org/en/news/feature/2019/12/05/small-scale-solar-for-agricultural-and-economic-impact> (Accessed: 29 May 2021).
14. Deloitte (2015). Reducing Food Loss Along African Agricultural Value Chains, pp1-32. Available at: < https://www2.deloitte.com/content/dam/Deloitte/za/Documents/consumer-business/ZA_FL1_ReducingFoodLossAlongAfricanAgriculturalValueChains.pdf > (Accessed: 29 May 2021).
15. United Nations (2019). The World Population Prospects 2019, Available at: < https://population.un.org/wpp/> (Accessed: 29 May 2021).

Africa's hydropower potential is about 12%7 of the world's hydropower potential and is three times more than the current electricity consumption in sub-Saharan Africa. Africa, however, utilizes only about 8%3 of its hydropower potential. The utilization ratio of hydropower potential varies across regions ranging from a low of 3%7 in Central Africa to a high of 19%7 in Western Africa. The potential for solar energy is also highly abundant, with most countries in Africa receiving about 300 days of bright sunlight. The United States Department of Energy's National Renewable Energy Laboratory estimates that the solar energy potential is equivalent to 90 – 100 million tons of oil per year. Without a doubt, renewables must play a significant role in closing the energy gap in Africa.

Given that rural areas are the hub of food production, it is important to address the poor access to electricity in these areas with a sense of urgency. Off-grid solutions powered by renewable energy sources present tremendous opportunities to increase rural access to electricity. Developing countries often face high technical costs of connecting rural dwellers to the national grid due to distance and low installed generation and transmission capacity. With falling technology costs, renewable energy solutions, particularly leveraging solar energy, can be deployed to such rural communities. Examples include decentralized systems such as mini-grids and stand-alone systems - solar home systems.

In agriculture, low-cost innovative technologies such as grain dryers, solar water pumps, irrigation systems, and cold storage for smallholder farmers are critical in increasing food security. Establishing extensive and reliable solar-powered cold chains in off-grid environments could enable farmers to raise food supply by 15%, due to reduced post-harvest losses (Grand View Research, 2021)[16]. Companies such as ColdHubs in Nigeria and Solar Freeze in Kenya are already taking bold steps in setting up accessible renewable energy technologies, but scaling is required.

Recent accounts of flooding, droughts, desertification, and change in weather patterns have brought to the forefront the issue of climate change in Africa. African countries are significantly exposed to the impact of climate change due to heavy reliance on agriculture. They are also projected to consume a significant percentage of global energy demand by 2050. As such, it is crucial to explore renewable energy sources in addressing energy poverty. Renewable energy is a clean source of energy that produces zero greenhouse gas emissions as against fossil fuels and plays a vital role in mitigating climate change.

Critical Roles of Stakeholders in Improving Access to Energy

Renewable energy presents benefits to the agriculture sector, such as increased agricultural productivity, engagement in more value-adding activities, reduction in post-harvest losses, and greenhouse gas emissions. As such, stakeholders must work assiduously and cohesively to promote the use of renewable energy for agricultural systems. Governments, private sector actors, civil society organizations, development partners, and research organizations all have vital roles to play.

African governments, supported by private-sector think tanks, must develop clear electrification strategies and targets, which should include an evaluation of the least-cost options for electrification and a pathway to achieving 100% access to electricity. Governments must also ensure an enabling policy and regulatory environment that eliminates barriers to entry into decentralized electricity production systems and encourages private sector investment. They could also consider providing tax incentives to power sector investors and agricultural companies that adopt renewable energy. At the same time, rural dwellers could be given subsidies in the form of lower tariffs or free connection services.

The Africa Case Scenario by the International Energy Agency estimates that achieving a reliable electricity supply would require an annual investment in power supply of about $120 billion per year until 2040. Development Finance Institutions (DFIs) and Non-Governmental Organizations (NGOs) have a vital role in this regard. DFIs could provide development finance to strengthen the local financial sector to provide long-term loans to private sector actors by offering guarantees or refinancing services. They must also develop risk mitigation strategies that can attract private sector investment in power sector development.

16. Grand View Research (2021). Cold Chain Market Size & Growth Report, 2021-2028, Available at: <https://www.grandviewresearch.com/industry-analysis/cold-chain-market>

National governments may also allocate a specific percentage of their budget or utilize sovereign wealth funds to finance power sector investments.

The onus lies on the private sector actors to venture into renewable energy production and invest in the development of low-cost technological solutions for the agri-food chain using renewable energy sources. It is also essential that private sector players such as processors, farmers, and input providers adopt climate-smart practices in their activities to reduce greenhouse gas emissions. Research institutes, with financial support from NGOs and development partners, may also develop new innovative technologies powered by renewable energy sources or new and affordable electricity production systems.

REDUCING FOOD LOSS IN AFRICA THROUGH INCREASED ENERGY ACCESSIBILITY

BY IFEOLUWA OLORUNNIPA

According to the Food and Agriculture Organization (FAO) (2019), sub-Saharan Africa has one of the highest percentages of post-harvest losses among regions in the world. Currently, Africa does not produce sufficient food to feed its growing population, and food loss occurs at various stages of the value chain, majorly before reaching the consumers. Of the total food lost in sub-Saharan Africa, 36% is lost at production, 36% at the storage and handling stage, 7% at processing, and 15% at distribution and markets, with 5% lost due to food waste after reaching the consumers[17].

While there are unique challenges across each stage of the value chain, some key drivers of food loss are energy-related. These include the epileptic supply of electricity, high cost, and poor access to energy to support agricultural activities, particularly in rural communities. Achieving food security in Africa will remain elusive without increased access to energy for the agriculture sector.

Improving access to energy and the productive use of energy in the agricultural sector to optimize processes along the value chain presents an opportunity to enhance food security on the continent by reducing food loss. Improved access to energy and its productive use can also provide additional benefits to the economy as food producers can increase their income through the sale of produce that is otherwise lost to post-harvest losses.

How Companies Across Africa are Leveraging Energy to Reduce Food Loss

Several innovative business models that leverage energy to reduce food loss are emerging in Africa. Some examples include:

- **Solar Freeze, Kenya:**[18] Solar Freeze offers food storage options in the form of mobile solar-powered cooling units and refrigerated transport services for rural smallholder farmers to help reduce post-harvest loss. The off-grid portable solar cold units or stores help smallholder farmers avoid food losses due to a lack of proper storage for agricultural produce. Its refrigerated transport services also provide opportunities for smallholder farmers and traders to move small quantities of their produce more frequently and cost effectively through a sharing economy, and farmers do not require an internet connection to order services.
- **Cold Hubs, Nigeria:**[19] Cold Hubs provides solar-powered walk-in cold rooms for off-grid storage and preservation of perishable food. Farmers store their produce in clean plastic reusable crates, supplied by the company and stacked inside the cold room. Cold Hubs also offers a pay-as-you-store payment option where farmers pay a daily flat rate on each crate of food stored, reducing the burden on farmers to pay the entire storage amount up-front.

- **Jumeme, Tanzania:**[20] Jumeme is a rural mini-grid power supplier in islands of Lake Victoria. The company also runs a model that involves purchasing tilapia fish from local fishermen in Lake Victoria after capture, cleans, and freezes them on-site using electricity from its mini-grid, reducing post-harvest losses for the farmers. The company then transports and sells the fish to distributors in Tanzania's capital city, Dar Es Salaam, ensuring a sustained supply of fish and providing the fishermen with greater market potential for their fish, due to access to middle-class consumers in the capital. The company has selected communities where its mini-grids can be integrated into existing economic activities such as fish farming to boost output.
- **Zambezi Pineapples, Zambia:**[21] Zambezi Pineapples is a pineapple processing factory that leverages excess electricity from the Zengamina hydropower station at the Zambezi River in Zambia for its operations. The company sources pineapples locally from smallholder farmers in the region and processes them into dried fruit and juice using energy from the hydropower station.

17. Flanagan, K., Robertson, K. & Hanson, C., (2019). Reducing Food Loss and Waste: Setting a Global Action Agenda. World Resources Institute. Available at: <https://files.wri.org/d8/s3fs-public/reducing-food-loss-waste-global-action-agenda_1.pdf (Accessed: 29 May 2021).
18. Solar Freeze (2021). Available at: <https://www.solarfreeze.co.ke/> (Accessed: 31 May 2021).
19. ColdHubs (2021). Available at: <https://www.coldhubs.com/> (Accessed: 31 May 2021).
20. González G. & Peterschmidt N. (2019). KeyMaker Model Fundamentals: Mini-grids as a tool for inclusion of deep rural communities" Green Mini-grid Se4all Africa, AFDB
21. Ibid

The drying machines at the factory then run overnight to better spread the demand for electricity between the community which the hydropower station serves and the factory. The company helps to offtake pineapple from farmers, serving as a reliable buyer and limiting the post-harvest loss of pineapples produced in the region.

Recommendations

Improving access to energy and the productive use of energy across the value chain presents a huge opportunity to reduce food loss across Africa.

Agri-food entrepreneurs must develop innovative business models that identify partnership opportunities with private sector organizations and leverage them to improve access to energy for their operations.

Private sector organizations, such as business development service providers, can offer capacity support training and workshops to support agri-food entrepreneurs in building their capacity to develop innovative business models that incorporate energy efficiency or leverage alternative energy sources for their operations.

Public-private partnerships are also crucial in improving access to energy and its use in the agriculture sector. Government agencies can provide funding support for private sector organizations to implement these capacity support programs to agri-food entrepreneurs. Governments and private sector organizations can also partner to commit investments to and manage infrastructures and facilities that provide energy services for the agriculture sector and can support the optimization of processes across the value chain. These include investments in facilities such as shared community storage and agro-processing spaces to be managed by the private sector, which can help reduce post-harvest losses as agri-food entrepreneurs have increased access to affordable energy for their storage and processing needs.

LEVERAGING MINI-GRIDS IN POWERING AGRICULTURE IN AFRICA

BY AYODEJI OJO

African agriculture is in dire need of innovative electrification than ever, given food insecurity in the continent and its rising population. Post-harvest losses, which account for 30 - 50% of food produced in sub-Saharan Africa[22] contribute to food insecurity and impact malnutrition rates across the continent. The situation is expected to worsen due to the adverse impacts of COVID-19 and the rapidly increasing population in Africa. Globally, there has been increased advocacy for the adoption of clean and renewable energy towards building climate-resilient economies and achieving the seventh Sustainable Development Goal (SDG 7). Therefore, prioritizing clean and affordable energy can significantly reduce post-harvest losses and improve the livelihoods of smallholder farmers and industrialization. The adoption of innovative electrification models such as mini-grids can improve the economic outcomes of African farmers while creating sustainable businesses around value addition for agricultural products.

According to a recent study on agricultural electrification[23 24] , electrifying agricultural activities such as cassava grating, grain milling, and rice milling using mini-grid technology would reduce tariffs by 8 - 14%. Therefore, increasing and monitoring investments in mini-grid technologies can potentially reduce energy poverty in the agricultural sector while addressing the pervasive food security problems. However, the agricultural landscape is dominated by smallholder farmers with limited resources and opportunities. This implies that cost-efficient models such as mini-grids can help improve their efficiency and attract investors to the agriculture sector.

There are two models for electrifying agricultural production. The models involve facilitation or value addition by setting up processing centers and fees for service in processing or storage. The first model, which focuses on value addition, can be built around the aggregation of agricultural produce, provision of value addition, and the onward sale to final consumers or industries as raw materials which can help reduce post-harvest losses and enhance food security. The second model, fees for service in processing or stage, is popular in rural Africa as farmers patronize individuals within their communities for farm/community level processing of crops such as cassava, rice, maize, and sorghum. However, the farmers and operators of such outfits have always relied on inefficient fossil fuel-driven machines. Apart from the environmental effect of fossil fuel-driven processing equipment, they are inefficient relative to the electric-powered options. For instance, a new two-stage electric mill could reduce operating costs by about 10% while increasing the yield of milled rice by 20-30% and improving quality.3 This implies that investments in fee for service model can help address some of the inefficiencies in the agricultural sector.

An example of the innovative mini-grid model in Africa is the Mokoloki[25] Undergrid Nayo Tropical Technologies, Rocky Mountain Institute, and the Nigerian Rural Electrification Agency (REA). The project provides efficient and sustainable services to the agricultural community by electrifying agribusinesses such as bakeries, green farms, Soya drink factory and hotels within the peri-urban community[26]. There are seventeen similar mini-grid-based electrification initiatives currently providing services to the underserved population across Africa[27].

In conclusion, stakeholders must increase and monitor investments in agricultural electrification towards building resilient economic systems across Africa. They can also leverage lessons from current initiatives to strengthen the agricultural sector to promote food security and livelihood improvements.

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22. Deloitte (2015). Reducing Food Loss Along African Agricultural Value Chains, pp1-32. Available at: < https://www2.deloitte.com/content/dam/Deloitte/za/Documents/consumer-business/ZA_FL1_ReducingFoodLossAlongAfricanAgriculturalValueChains.pdf > (Accessed: 29 May 2021).
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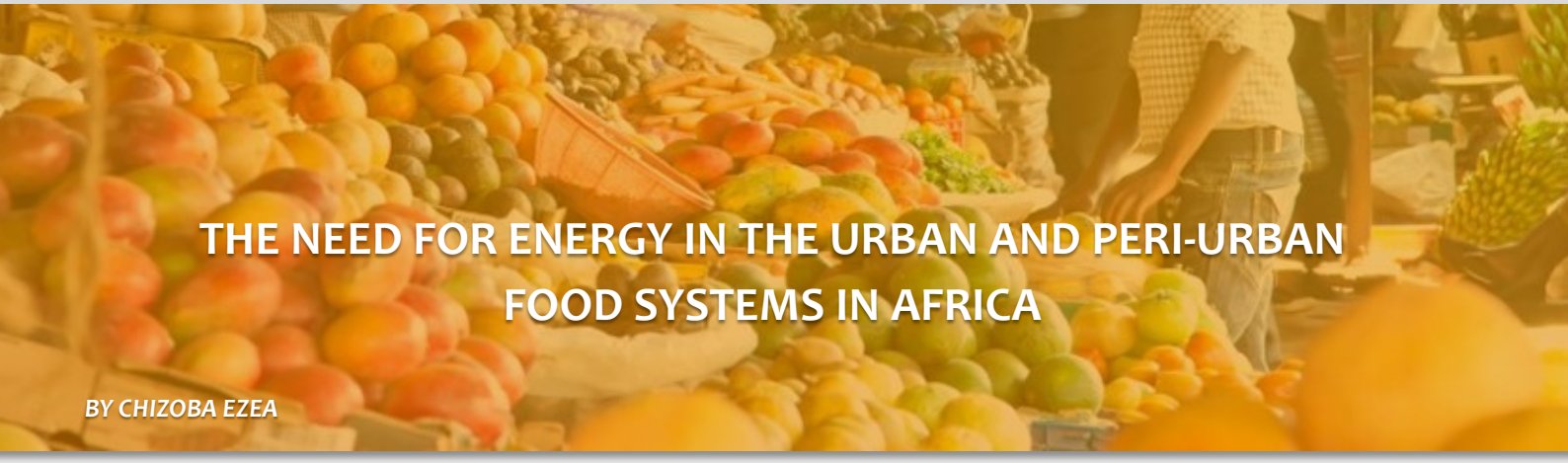


THE NEED FOR ENERGY IN THE URBAN AND PERI-URBAN FOOD SYSTEMS IN AFRICA

BY CHIZOBA EZEA

With Africa's population expected to double by 2050, more than 80% of the population growth is estimated to occur in urban areas[28]. Disruptions such as the impact of climate change (droughts, flood), conflicts and crises in rural food-producing regions, and the COVID 19 pandemic have exposed the vulnerability of food systems in Africa, particularly in urban areas. Also, the energy consumed by long food supply chains from the transportation of food from rural food-producing regions to urban areas raises sustainability concerns. These issues necessitate the need to build resilient food systems that can ensure food production and availability in urban areas. It is crucial to increase the accessibility and affordability of energy in the agriculture sector in Africa, to support urban agriculture and ensure the availability of food for its growing urban population.

Urban agriculture involves producing, processing, and distributing food within or close to an urban or peri-urban area. Large scale urban agriculture can help address the demand for food by the growing urban population and reduce the dependency on rural food-producing areas, however this will require increased energy access and usage. Improving energy usage for urban agriculture presents several benefits including, increased food supply, accessibility to affordable food by the urban population, and environmental protection.

Benefits of Improving Energy Use in Urban Food Systems

- **Increased Food Supply:** Urban agriculture has the potential to record more crop yield/area than conventional farms since climatic factors are controlled, and food can be grown upwards, despite the limited availability of land in urban areas. For instance, Fresh Direct Produce and Agro-Allied Services in Nigeria, grows vegetables in stackable containers and leverages automated systems such as hydroponics and aquaponics to produce food in urban areas. With increased access to energy, similar farming models which leverage automated systems can be scaled across cities to ensure large scale food production and reduce dependence on food from rural areas, particularly for perishable produce such as vegetables.

- **Access to Affordable Food:** Four out of the nine countries that spend over 40% of household income on food are in Africa[29] , and the urban poor are disproportionately affected. Scaling urban food production by increasing energy use can reduce the household income spent on food as urban food production reduces the duration and costs of activities along the value chain, such as storage and transportation, which negatively impact food prices. With increased energy to support and scale urban food production, the resulting increase in food supply and its proximity to consumers can reduce the prices of certain foods due to a reduction in production costs to support affordability by the urban poor.

- **Environmental Protection:** The increased use of energy in urban agriculture through greenhouses and automated systems such as hydroponics also presents an alternative for food production given depleted natural resources such as land and water. Food production within and around cities also reduces the miles between transporting food from rural food-producing areas to urban areas, reducing greenhouse gas emissions from trucks and activities involved in food transportation across distances.

Recommendations

An increase in energy availability for urban food production to build resilient food systems will require urgent action across stakeholders in the public and private sectors.

Governments must develop and implement strong policies that ensure the creation of an enabling environment for private sector participation and competition in energy provision for the sector, to improve energy access.

28 Muggah, R., & Hill, K., (2018). African cities will double in population by 2050. Here are 4 ways to make sure they thrive. Available at: <https://www.weforum.org/agenda/2018/06/Africa-urbanization-cities-double-population-2050-4%20ways-thrive/> (Accessed: 18 June 2021).

29. Alex Gray, (2016). Which countries spend the most on food? This map will show you. Available at: <https://www.weforum.org/agenda/2016/12/this-map-shows-how-much-each-country-spends-on-food/> (Accessed: 18 June 2021).

In partnership with government agencies, private sector organizations should champion energy interventions that provide investment in infrastructure and technologies to harness renewable energy for food production to support the demand for energy in the sector. They can also partner with non-governmental organizations to provide technical assistance for food producers to develop their capacities to leverage energy for their food production, including harnessing renewable energy. Private sector organizations can also engage in research and development efforts to identify alternative energy options that can optimize food production activities.

An efficient energy system in Africa for the agricultural sector, particularly for urban agriculture, presents opportunities for the continent to achieve food security for its population.

PUBLIC SECTOR SUPPORT TO ENSURE ENERGY ACCESS IN THE AGRICULTURE SECTOR IN NIGERIA

BY ISMAEL ADENIJI AND AYODEJI OJO

Introduction

Agricultural activities require a sustainable and affordable source of energy to ensure the production of food for consumption and raw materials for agro-based industries and the development of rural communities. While stakeholders in the agriculture sector may leverage several sources of energy for their activities, electricity is the most popular source of energy in Nigeria, particularly for rural-based agro-processing companies, powering of farmhouses, milling, grating, and smoking, among other activities.

However, agricultural activities and food production in Nigeria are primarily driven by rural communities that are either underserved or unserved and have little access to energy which hinders the productivity of the sector. The Rural Electrification Agency (REA) is the agency of the Federal Government of Nigeria with the mandate to provide electricity to rural and underserved communities to catalyse rural economic growth and improve the quality of lives of Nigerians through the implementation of various renewable energy-focused programs.

Engr Ahmad Salihijo Ahmad

Given the critical role of the REA in the energy landscape in Nigeria, the Sahel team held an interview with the Managing Director/Chief Executive Officer of the agency, Engr. Ahmad Salihijo Ahmad, to gain insights on the impact of the agency's activities in the rural sector, understand the challenges of rural electrification in the country, opportunities for partnerships to enhance access to electricity, and the key roles of stakeholders to ensure a lasting solution to the energy challenges in the country.

Below are the highlights from the interview session:

Q: The REA has the responsibility to ensure affordable electricity to rural and underserved communities in Nigeria. What are some of the projects that the agency has implemented that have targeted the rural agricultural sector

A: The agency has positioned itself to stimulate opportunities by working closely with the private sector, investors, and other relevant government agencies. To impact the lives of the Nigerians, the agency has instituted projects that address different sectors of the economy.

As mandated by the Federal Government, the agency is implementing projects such as the "Solar Power Naija," "Energizing Health," "Energizing Education Programme," "Energizing Economies Initiative," and the "Rural Electrification Fund.

The "Solar Power Naija" (SPN) initiative, anchored on local manufacturing and assemblage of equipment used in providing electricity to unserved and underserved Nigerians, aims to connect houses and generate job opportunities for Nigerians. The programme aims to achieve 5 million connections, impacting about 25 million Nigerians while also generating about 250,000 job opportunities in the renewable energy sector. Through the provision of low-interest loans and concessionaries, the SPN program also deployed the first 100,000 units of solar home systems in Jigawa State, in partnership with the Niger Delta Power Holding company and A-Solar, a private sector player.

Through the "Energizing Education Programme," the REA has installed solar powered facilities in six universities and is currently working to replicate this in additional universities across Nigeria. Also, the "Energizing Economies Initiative" is geared towards working with economic clusters and private developers to provide power for industrial areas.

Under the Rural Electrification Fund (REF), a Research and Innovation Hub was developed to explore the use of technology and innovation in rural electrification in the country. The agency also commissioned grants to private companies through the REF, to develop and build mini-grids and deploy solar home systems and appliances across rural areas in Nigeria. This has led to the installation of twelve additional mini-grids and 19,000 solar systems across the country. Fifty-one mini-grids are also currently in the pipeline for installation in the ongoing 2nd Call of the Rural Electrification Fund.

Since the onset of the COVID-19 pandemic, four solar hybrid mini-grids have also been installed at isolation and treatment centres across the country. The successes achieved through this intervention led the agency, under the Nigeria Electrification Project (NEP), to further expand on the intervention in collaboration with other key stakeholders. The Nigerian Electrification Project (NEP) is a private sector-driven programme funded by World Bank and African Development Bank.

Presently, the agency is collaborating with the Federal Ministry of Agriculture and Rural Development and private

sector stakeholders to develop solutions that will ensure the use of productive use appliances, designed to power agricultural activities in the rural areas.

Q: What are the challenges faced by the REA in achieving its mandate of electrification for rural areas?

A: Apart from insufficient funding for the planned programmes designed to bridge the huge energy gap in Nigeria, the lack of awareness of best practices by end-users regarding appliance availability and economic opportunities of electrifying value chain activities continue to be a challenge to achieving the agency's mandate. For instance, not many people are aware of the productive use appliances that the REA promotes. Some of the appliances that could be powered with renewable energy include milling machines, husking machines, oil press, grinding machines, fermenting machines, packaging machines, etc. Farmers need to embrace the use of these appliances.

Q: What roles can additional stakeholders play in collaborating with the REA to achieve the mission of providing electricity for the agricultural and rural sector in Nigeria?

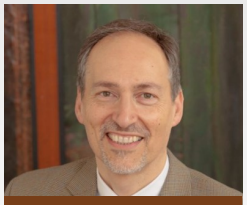
A: While the government strives to provide an enabling environment and increase funding for the rural electrification sector, partnerships with other stakeholders are also crucial in ensuring a sustainable and affordable energy source to the unserved and underserved population. The private sector can provide investment for the design and development of infrastructure to support the provision of electricity. Development partners can also continue to offer grant funding and subsidies to achieve the Sustainable Development Goal 7 – universal access to a carbon-free environment by substituting fossil fuels for renewable energy, thereby providing clean, reliable, and safe power. Lastly, the communities, who are the beneficiaries, must also ensure proper usage of the infrastructure provided to ensure sustainability. To achieve the mandate of REA, partnership and collaboration with stakeholders across various sectors is crucial.

Conclusion

Powering the underserved and unserved rural communities and their agricultural activities will require a multi-stakeholder approach. Among other things, this will involve the enactment of a policy framework that allows for research and innovation, promotion of renewable energy and its products, and investment into the sector both by indigenous and foreign players.

USING SMART MARKETS TO TACKLE ENERGY POVERTY IN THE AGRICULTURE SECTOR IN AFRICA

BY AISHA HADEJIA


Roy Steiner

Sahel held an interview with Roy Steiner, the Senior Vice President, Food Initiative at The Rockefeller Foundation, to understand how the Foundation is utilizing smart markets to tackle energy poverty by building food systems that account for human health, nutrition, and the environment.

Q: Agriculture is one of Nigeria's key strategic areas. Lack of access to energy affects farmer's ability to efficiently produce, process, and bring their produce to the market. How is the Rockefeller Foundation focusing on the needs of low-income farmers to solve their energy problems? What are some of the challenges being faced so far?

A: The Rockefeller Foundation is working with partners and grantees to dramatically accelerating the pace of electrification in Nigeria and around the world by leveraging decentralized renewable energy solutions to empower entrepreneurs, including low-income farmers. Our goal is to build the climate-smart energy system of the future that can power more efficient and resilient supply networks that deliver healthy foods to vulnerable populations, creating economic opportunity along the way. We recognize the importance of connecting smallholder farmers in sub-Saharan Africa, many of whom are women, to reliable and clean energy sources.

In Nigeria, we are working with private and public sector partners to build solar mini-grids and drive demand for the reliable, renewable energy these mini-grids produce among smallholder farmers. With the private sector, we are developing new business models that incorporate mini-grids across different agricultural value chains, such as cold storage, grain processing, and irrigation. To ensure that communities and entrepreneurs, especially women smallholder farmers, can access and consume energy, we plan to work at the village level with community organizations and authorities to engage these farmers.

Q: Smart market systems are vital towards driving the energy revolution; how do you foresee the changing market landscape in Africa?

A: Open-air food markets are a critical component of food market systems, serving as a nexus between producers and consumers. However, most open-air food markets in Africa face major challenges: poor handling of produce means large volumes of food losses; poor waste management and sanitation lead to health and environmental hazards; and unreliable power supplies, congestion in market spaces, and lack of security are persistent issues.

Smart Markets provide an opportunity to reimagine open-air food markets by harnessing renewable energy sources to build safer and more efficient, and resilient markets. Through employing solar mini-grids, Smart Markets include cold storage and mini processing facilities and provide a reliable source of power to market vendors, households, and businesses at and near the market.

Smart Markets have the potential to bring about climate, economic, social, and gender effects. Some expected impacts include: mitigated carbon emission; reduced volumes of waste ending up in landfills; job- and income-generation; nutritional and hygienic gains; improved accessibility to a reliable power source; and additional economic and social benefits for women, who make up a large proportion of market vendors.

Adoption, scaling, and replication of smart markets that utilize renewable solar energy have the potential to significantly change the market landscape in Africa. Smart Markets will allow consumers to access safe, nutritious, and affordable foods in hygienic environments, with minimal chances for transmission of communicable diseases such as Covid-19. These new energy sources will create new opportunities for increased economic activity, with extended business hours and reduced post-harvest losses, thus increasing efficiencies and earnings to value chain stakeholders, including farmers. Smart Markets will also include charging and swapping centers for electric vehicles and bikes that can be utilized for passenger transport and delivery of produce to consumers ordering through newly established digital market platforms.

Q: What role must stakeholders (government, financial institutions, businesses, etc.) play to facilitate the scale-up and continued progress made so far in this sector?

A: While they can be developed by private investors, markets are generally a public infrastructure provided by Governments. A scale-up of the Smart Markets requires a concerted partnership effort between the public and private sectors as well as development partners and financial institutions.

Governments have a critical role in providing land for the establishment of Smart Markets as public infrastructure

facilities. The private sector has an opportunity to engage in public-private partnerships to invest in various aspects and services of the markets such as the solar mini-grids, e-mobility stations, cold storage, and mini processing, waste management, and related cyclical business models and digitization.

Smart Markets offer viable investment opportunities with acceptable returns on investment and payback period. One current example is the Smart Market pilot at the Naivasha Fish Market in Kenya, which is co-supported by The Rockefeller Foundation and Nakuru County Government and implemented by the Eastern Africa Grain Council (EAGC). Private sector actors have been invited to invest in the pilot with several smart solutions, including the operation of an e-mobility center for charging and swapping batteries for electric vehicles and bikes, cold room storage, and fish processing and waste management.

Q: What is the Foundation doing to help consumers and stakeholders understand smart market systems and how to use them?

A: In recent years, there have been attempts to build new markets or transition old ones that have completely failed in East Africa, resulting in "ghost structures" with state-of-the-art facilities that have been rejected by vendors. One possible reason for these failures is that authorities create structures in a vacuum without sufficient stakeholder involvement and consultations, resulting in intimidating structures that alienate vendors and consumers.

To ensure maximum relevance and uptake of the Smart Markets, the Foundation has previously engaged experts in human-centered design to work with stakeholders and market participants and develop the various components to provide safety, basic sanitation, and comfort to market participants while promoting and amplifying economic prosperity and sustainability. We have also mapped the policy and regulatory environment needed to make Smart Markets successful.

In Kenya, a Smart Markets policy is under development with the State Department for Housing & Urban Development, and a political economy analysis conducted by EAGC yielded insights on the markets and the most ideal pathways for implementation through a close engagement and partnership with stakeholders. In addition, we are documenting this new knowledge and will develop guidelines for implementing Smart Markets, along with a dedicated website and a communication and engagement plan to help stakeholders to understand, adopt and use Smart Market Systems.

We are already seeing significant impact: The Government of Kenya has requested that the Smart Markets team develop the architectural designs for the Ruai Wholesale Market, a flagship project to be constructed at the periphery of the City of Nairobi with a national and regional catchment for agricultural produce.

For more information on how smart markets are reshaping the food and agricultural landscape, visit covid-19-smart-food-markets-for-the-future.

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SAHEL PARTNERS RECEIVE ALUMNI ACHIEVEMENT AWARD FROM HARVARD BUSINESS SCHOOL

For 50 years, Harvard Business School (HBS) has recognized several outstanding women and men by conferring on them its highest honor, the Alumni Achievement Award. This year, Sahel's Co-Founders, Mezuo Nwuneli and Ndidi Nwuneli, were two out of the six distinguished graduates of HBS who received the 2021 Alumni Achievement Award from the University in recognition of their significant contribution to their companies and communities while upholding the highest standards and values. Other award recipients were Ray Dalio, H. Naylor Fitzhugh, Terry Virts, and Deborah Winshel.

On June 16, 2021, HBS celebrated the award recipients in a virtual event which also served as an opportunity for recipients to share their insights and experience in conversations with the Dean, Prof. Srikant Datar, and former Dean, Prof. Nitin Nohria.

Part of the Citation read by the Dean for Mezuo and Ndidi Nwuneli During the Virtual Event!

Mezuo O. Nwuneli, MBA 2003

With diligence, determination, and devotion,
You bring finesse to finance
As you distribute food and fortitude
Throughout Africa.

When caught in the crossfire,
You took time to consider
How to ensure that your next steps
Led you down the right path.

With entrepreneurial know-how
And expert execution,
You serve up passion, compassion,
faith, and solutions
To your community, country, and
continent.

Mezuo, today we honor and celebrate
the enormous impact you have had in
Nigeria and across Africa.

Ndidi Okonkwo Nwuneli, MBA 1999

Spirited entrepreneur,
Social enterprise enthusiast,
You are a force for good,
Nurturing nutrition and advancing agriculture
in Africa – and beyond.
Leading by example,
You embolden people everywhere
To set their sights higher,
And leap beyond their aspirations
To reach deeper, more meaningful levels
of success.
Consummate Christian,
Your faith guides you and inspires others
As you spread your own brand of hope,
healing, and humility
Throughout the world.
Ndidi, today we honor and celebrate your
extraordinary leadership as an
advocate for others.

Congratulations to Mezuo and Ndidi Nwuneli!

NOURISHING AFRICA TURNS 1!

There are emerging groups of dynamic, visionary, and committed entrepreneurs driving the African agriculture and food landscapes, yet many of them struggle for survival in very difficult and often hostile environments. Agripreneurs, as we refer to them, struggle to access funding, advertising opportunities, data, information, and markets when trying to scale their businesses. As a direct response to their needs, Sahel Consulting Agriculture and Nutrition Limited launched Nourishing Africa in July 2019. Eleven months later, Nourishing Africa was fully incorporated and became an independent organization on June 18, 2020, with the mandate of equipping and connecting agri SMEs across Africa.

Nourishing Africa is a knowledge and membership platform aimed at helping agri-food entrepreneurs from farm to fork scale their agribusinesses across the continent. Currently supporting over 1000 African agribusinesses across 35 countries, Nourishing Africa's mission is to "drive the profitable and sustainable growth of the African agriculture and food landscapes by attracting, empowering, equipping, connecting and celebrating over 1 million dynamic and innovative young agri-food entrepreneurs". The virtual hub serves as a platform for these stakeholders to accelerate their work, connect with each other, and celebrate their successes on the continent.

Since its inception, Nourishing Africa has built a virtual community of agri-food entrepreneurs where they are able to connect directly with each other and gain access to opportunities including funding, data, learning resources, events, technology, talents, inputs, and other resources and tools that they need to scale their businesses. To date, the organization has successfully nominated over 60 agribusinesses for funding and other support, critical to their growth. Nourishing Africa has facilitated over 50 strategic offline and virtual convenings and training for agri-food entrepreneurs across Africa, partnering with relevant organizations to deliver tailored content in the entrepreneurs' areas of focus.

Nourishing Africa also partners with development institutions to develop and implement support programs for agri-food businesses across Africa, focusing on helping these businesses to build successful models that ensure profitability, sustainability, social and economic impact in their communities. In December 2020, Nourishing Africa, in partnership with The Mastercard Foundation and the United States African Development Foundation (USADF), launched the Entrepreneurs Support Program (ESP), designed to support over 2,000 MSMEs across the Nigerian agriculture and food landscapes to rebuild and strengthen their businesses through training, small grants, and ongoing support; a model we hope to replicate across the continent.

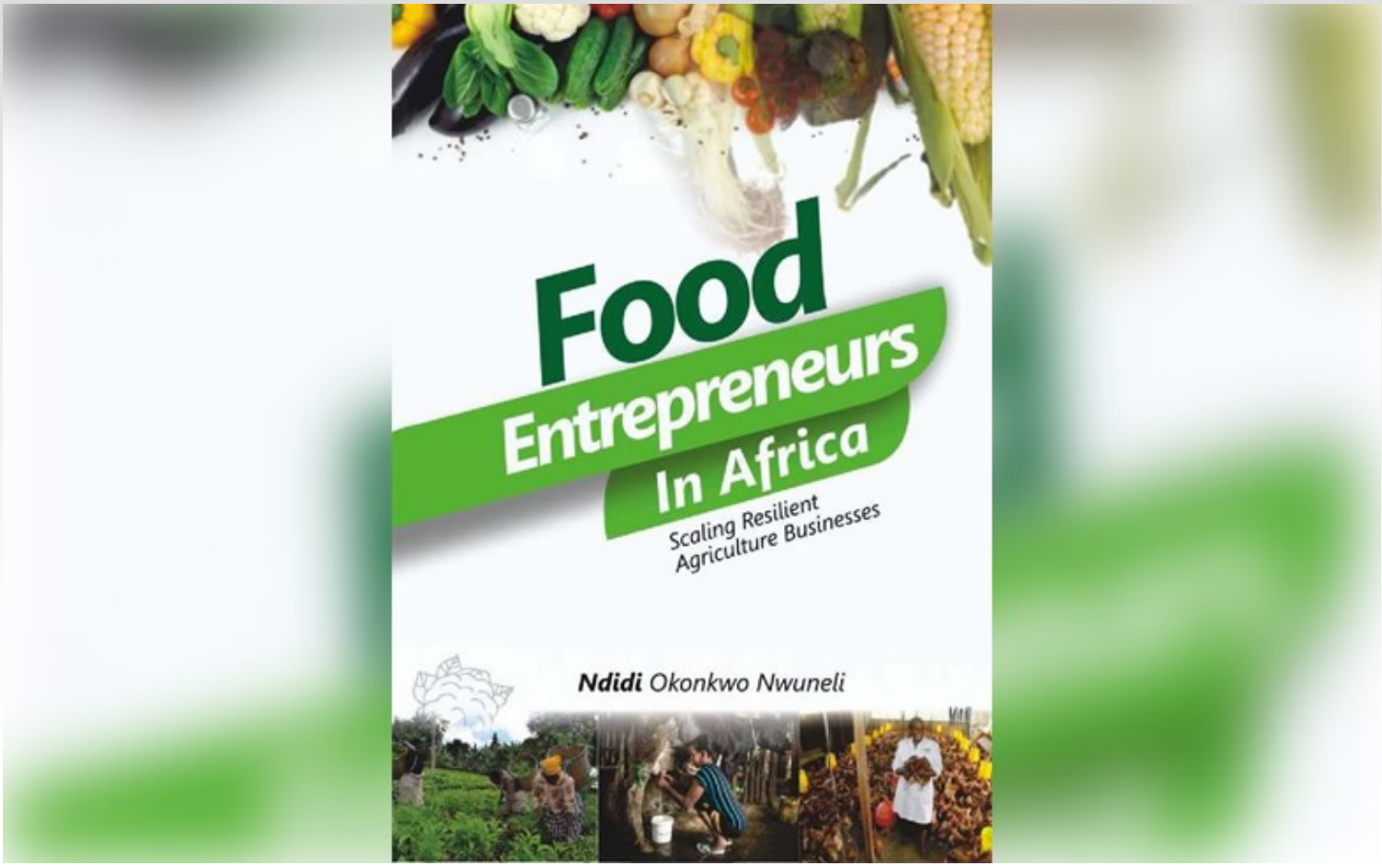
To our partners, our Board, our team, and most importantly, our incredible members, thank you for believing in us, for working with us, and for continuing to serve as inspiration and motivation to keep going and creating greater impact on our continent.

We look forward to celebrating our 5th, 10th, and 50th anniversary with you all by our side, truly transforming the African agriculture and food landscape.

Ify Umunna & Rahmat Eyinfunjowo

Co-Founders & Co-CEOs

SAHEL PARTNER LAUNCHES NEW BOOK ON SCALING RESILIENT AGRICULTURE BUSINESSES



Sahel Consulting and Nourishing Africa held a virtual conference on March 22, 2021, to celebrate the launch of a new book by Ndidi Okonkwo Nwuneli titled: Food Entrepreneurs in Africa: Scaling Resilient Agriculture Businesses and discuss the theme – "Preparing the Next Generation of Entrepreneurs to Transform Africa's Food Ecosystem." Over 600 participants from across the globe joined this virtual event. Ify Umunna, Co-CEO of Nourishing Africa, served as the host of the event.

In her welcome address, the author – Mrs. Ndidi Okonkwo Nwuneli, also the Co-Founder and Managing Partner of Sahel Consulting and the Chair of Nourishing Africa, highlighted the journey that led her to write the book, including her experiences as an entrepreneur in the food and agriculture sector and her engagement with entrepreneurs across Africa. She also shared the critical ingredients for starting and scaling successful and resilient businesses. She underscored the need for Africans to own and drive the transformation of food systems on the continent.

The keynote speaker, Dr. Shawn Baker, Chief Nutritionist of the United States Agency for International Development (USAID), emphasized the immense potential of the food and agricultural sector to absorb the teeming population of young people on the continent. He commended the practical how-to approach taken in the book and expressed delight at the inclusion of the much-needed chapters on leadership team management and technology to address the dearth of resources on these areas in the landscape.

Rebecca Marsh representing the Routledge Publishing team also commended the practical, action-oriented, can-do approach taken by the book in addressing the most pressing issues of sustainability and resilience from multiple perspectives.

The distinguished panellists – Nathalie Akon Gabala, Regional Director – West, Central and Northern Africa of Mastercard Foundation, Professor Chris Ogbechie, Dean and Professor of Strategic Management of the Lagos Business School (LBS), Dr. Eleni Gabre-Madhin, the Chief Executive Officer of blueMoon Ethiopia, Mr. William Asiko, Managing Director of the Rockefeller Africa Regional Office and Mrs. Mbali Nwoko, Founder and CEO of Green Terrace, South Africa provided valuable insights on the theme – "Preparing the Next Generation of Entrepreneurs to Transform Africa's Food Ecosystem."

Mrs. Mbali Nwoko highlighted the importance of support networks for key players in entrepreneurial development and her commitment to facilitating access to these networks for emerging entrepreneurs through blogging and podcasting. Prof. Chris Ogbechie also described interventions of the Lagos Business School aimed at attracting young people to the agricultural sector, such as the Agribusiness Management Programme. He further noted the urgent need to enhance the quality of the agriculture curriculum in tertiary institutions to include experiential learning.

Dr. Eleni Gabre-Madhin expounded on the relevance of accelerators, incubators, and risk capital in building the food ecosystem. She also highlighted the need for a reduced regulatory sandbox to support innovation across the continent and ended with actionable advice to de-risk start-ups and enable scaling. Addressing some of the ecosystem challenges raised by Dr. Eleni, Mr. William Asiko emphasized the need to create an enabling environment for start-ups to thrive by instituting policies that are pro-small businesses. He noted that the Rockefeller Foundation had set up an accelerator fund to support SMEs at the idea inception and development stage and an ag-energy initiative to ensure affordable and sustainable energy solutions to entrepreneurs in the sector.

On a conclusive note, Nathalie Akon Gabala highlighted the correlation between agriculture and the implementation of the Young Africa Works strategy of the Mastercard Foundation aimed at unlocking dignifying and fulfilling work for 30 million young Africans, particularly young women, by 2030. She emphasized the role of the Mastercard Foundation as a convener in bringing together young people, educational institutions, and policymakers to unlock the potential of the food and agriculture sector across the continent.

In his review of the book, Dr. Lawrence Haddad, Executive Director of the Global Alliance for Improved Nutrition (GAIN), commended the practical approach taken to guide entrepreneurs in the food sector. In his words, "…simply put, it is probably the best book I have ever read on this topic. I will make sure it is widely available to all of my staff at the Global Alliance for Improved Nutrition. I will urge my colleagues and my partners to read it, learn from it, share it, critique it and critically act on it and I urge you to do the same."

Mrs. Tito Aderoju, the founder of Oryx Foods, also shared her thoughts on the book, calling it a Mini-Masters in African Agribusiness. She emphasized the need for educated Africans to embrace entrepreneurship and proffer sustainable solutions to the continent's problems, stating that the book could serve as an excellent guide for navigating the terrain.

In her closing remarks, Ify Umunna, the program lead for Nourishing Africa and primary researcher for the book, celebrated Ndidi Nwuneli's commitment to innovation, knowledge sharing, and impact. She expressed optimism and excitement about the book's impact on youth, aspiring and emerging entrepreneurs and policymakers, and in ensuring the transformation of the food and agriculture sector on the African continent!

Copies of the book can be purchased here: https://sahelconsult.com/feia/

SAHEL CONSULTING, IN PARTNERSHIP WITH A CONSORTIUM OF IMPLEMENTING PARTNERS, LAUNCHES PROGRAMME ON BEHALF OF THE NIGERIA-NETHERLANDS SEED PARTNERSHIP TO BOOST FOOD SECURITY IN NIGERIA WITH QUALITY SEEDS

A consortium of implementing partners – Sahel Consulting Agriculture and Nutrition Limited (SCANL), Wageningen Centre for Development Innovation (WCDI), National Agricultural Seeds Council (NASC) – launched the Collaborative Seed Programme (CSP) on behalf of the Nigeria-Netherlands Seed Partnership (NNSP).

Over the next four years (2021 – 2025), the CSP will bring together over twenty-two (22) seed sector stakeholders and experts from Nigeria and Netherlands to transform the Nigerian seed sector. Funded by the Ministry of Foreign Affairs of the Netherlands, represented by the Embassy of the Kingdom of the Netherlands in Abuja, CSP contributes to the vision of the Nigerian Seed Road Map (NSRM). The programme will sustainably increase agricultural productivity, income, food, and nutrition security of rural households in Nigeria by improving farmers' access to and use of quality seeds of new and improved varieties.

The programme was officially launched by the Minister of Agriculture, Alhaji Sabo Nanono, represented by Mrs. Karima Babangida, Director of Federal Department of Agriculture Extension, Federal Ministry of Agriculture and Rural Development. The event was hosted on a virtual platform and was attended by over 140 Nigerian and Dutch seed sector stakeholders. Mrs. Babangida stated that a functional and robust seed sector is critical to attaining food and nutrition security in Nigeria. In her words, "the role of quality seed in the agricultural development of any nation is not in doubt; quality seeds are the fuel for agricultural development." In addition, she acknowledged that the CSP is another giant step in the right direction and is welcome wholeheartedly by the Federal Ministry of Agriculture and Rural Development.

Ambassador Harry Van Dijk, Embassy of the Kingdom of the Netherlands (EKN) in Abuja, in his remarks, stated that Nigeria needs to address the rising state of food insecurity given the growing population and climatic pressures. He noted that the use of high-quality seeds is vital to increasing food production and that this informed the decision of the Minister of Foreign Affairs of the Netherlands to invest in the CSP. He expressed the commitment of Dutch partners to sharing their wealth of experience with Nigerian seed sector stakeholders to develop a high-performing seed sector.

In his remarks, Dr. Phillip Ojo, the Director-General of the NASC, affirmed that CSP is well-fitted to the National Agriculture Agenda of Nigeria. He enjoined implementing partners and seed sector stakeholders to bring their knowledge and expertise and work assiduously to achieve the single goal of a revitalized and purposeful Nigerian seed sector as envisioned in the Nigerian Seed Road Map. Ending his remarks, he expressed confidence that the strategic alliance of stakeholders in the CSP will engender the much-needed realignment of the Nigerian seed industry.

In her address, Ndidi Nwuneli, Managing Partner of Sahel Consulting, highlighted the challenges facing Nigeria, including the probable food crises projected by the World Food Programme (WFP). According to her, the transformation of the Nigerian seed sector, which the CSP will contribute to, will serve to close yield gaps, increase food production, and fully unlock the potentials of the Agricultural sector as a catalyst for economic growth and development. Ending her address by citing the African proverb, "If you want to go fast, go

alone, but if you want to go far, go together," she enjoined all stakeholders to work together to achieve the ambition of the CSP.

Hedwig Bruggeman, Director of Wageningen Centre for Development Innovation, in her remarks, described the CSP as a game-changer for the Nigerian seed sector. She expressed her excitement at the inauguration of the CSP following an extended period of careful planning and collaboration with Sahel Consulting and NASC. In addition, she stated that WCDI will be bringing its expertise and experiences from Asia and several African countries to ensure the success of the CSP and Nigerian Seed Road Map in the long run.

Following the official remarks and keynote address, the Dutch and Nigerian Programme Leads of the CSP, Marja Thijssen of WCDI and Chinedu Agbara of Sahel Consulting, provided an introductory overview of the CSP. According to the programme leads, the CSP will address eight (8) of the twenty-two (22) topics detailed by the Nigerian Seed Road Map (NSRM) to achieve a robust seed sector. The topics to be addressed include Decentralization of Seed Quality Assurance, Sector Governance and Co-ordination, Extension on Seed and Cultivation Practices, Plant Variety Protection, Seed Company Marketing and Promotion, Variety Release, Alignment of Donor Interventions, and Institutional Markets

CSP will be implemented by eight (8) topic teams comprising relevant Nigerian and Dutch seed sector experts. Topic team members will include representatives of NASC, National Agricultural Quarantine Service (NAQS), Seed Entrepreneurs Association of Nigeria (SEEDAN), National Agricultural Research Institutes (NARIs), Consultative Group for International Agricultural Research (CGIAR), The Institute of Agricultural Research of Ahmadu Bello University (ABU-IAR), National Agricultural Extension and Research Liaison Services (NAERLS), National Center for Genetic Resources and Biotechnology (NACGRAB) for the Nigerian stakeholders and WCDI, Wageningen Plant Research (WPR), Plantum, Naktuinbouw for Dutch stakeholders.

The Folarin Okelola of NASC, Nigerian Topic Lead for Plant Variety Protection, gave the closing remarks where he expressed his sincere gratitude to the partners and team members of the CSP. He acknowledged that the CSP, a strong partnership between the Netherlands and Nigeria, will deliver maximum impacts in the Nigerian seed sector. In closing, he enjoined all stakeholders to work cohesively and diligently to ensure the achievement of the programme goals.

SAHEL CONSULTING PROVIDES CAPACITY SUPPORT TO THE FEDERAL MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT IN NIGERIA

Sahel Consulting, with support from the Bill and Melinda Gates Foundation, is implementing a 3-year project which aims to provide technical assistance to strengthen the capacity of the Federal Ministry of Agriculture and Rural Development (FMARD) to implement the Nigerian Government's Agricultural Development Strategy. The project, which commenced in January 2021, will run until 2023.

Through this project, Sahel Consulting is providing oversight and support to FMARD via two key interventions:

- Talent support through embedded technical staff within the Ministry
- Support for targeted training and attendance of key staff of FMARD at specific convenings and programs to build specific technical skills within the Ministry and ensure effective knowledge transfer across the Ministry.

In the first half of 2021, Sahel Consulting conducted a series of bespoke training to address the individual and institutional capacity gaps identified by a comprehensive and in-depth needs assessment exercise of FMARD, conducted in November 2020.

The introductory training on **Effective Communication & Policy Making** was conducted at the Agricultural & Rural Management Training Institute (ARMTI) Abuja from April 12 – 15, 2021, with 48 participants selected from various FMARD Departments and state offices. The training was designed to enable participants to develop critical and relevant writing skills and embraced tailored templates for effective and efficient communications within FMARD and with external stakeholders.

From May 3 – 5, 2021, another set of 42 FMARD staff were trained on **Value Chain Transformation from Farm to Fork**. This training focused on broadening trainees' understanding and appreciation of the advances in Nigeria's most critical agribusiness value chains and developing clear strategic responses for strengthening Nigeria's priority value chains.

The first national training on **Agribusiness Offtaker and Smallholder Farmer Relationships** was conducted at the International Institute of Tropical Agriculture (IITA) Ibadan from June 7 – 8, 2021, with 33 participants in attendance. Participants expressed that the training helped them further understand the significance of smallholder farmers and agribusiness off-takers in the Nigerian agricultural sector and their prospects in achieving sustainable food systems. Participants also examined possible solutions to food losses that occur in rural smallholder farms due to market linkage restrictions.

In addition to capacity-building activities on the project, Sahel Consulting is working to cultivate a knowledge-sharing culture between and within departments in FMARD via cascade training. By facilitating close collaboration between key departments of the Ministry, including Human Resources and the Information Technology (IT) departments, the project also aims to establish a digital knowledge management portal to aid knowledge storage and dissemination within FMARD.

SAHEL CONSULTING SPEAKS

Independent United Nations Food Systems Summit Dialogue on Fostering Resilient, Inclusive, and Equitable Food Systems in Nigeria.

Sahel Consulting, in collaboration with the Nigerian Economic Summit Group (NESG), successfully convened an independent food systems summit dialogue on January 20, 2021, as part of the efforts to contribute to the United Nations (UN) #SummitDialogues. The dialogue provided an opportunity for participants to contribute and propose specific strategies, practices, and policies to foster resilient food systems in Nigeria. Additional information on the dialogue, including the feedback notes to the UN, are available here.

Nigeria National UN Food Systems Summit Dialogue

Ndidi Nwuneli delivered a presentation on "Building the Resilience of Food Systems in Nigeria to Withstand Vulnerabilities, Shocks and Stresses" at the Nigeria National UN Food Systems Summit Dialogue convened on February 23, 2021.

African Leadership for Agribusiness

Temitope Adegoroye spoke on Africans Leading Agribusiness, a webinar hosted by the African Leadership Academy on March 18, 2021.

Wider Stakeholders Engagement on National Dairy Policy

Sahel Consulting, through its Advancing Local Dairy Development in Nigeria (ALDDN) program, partnered with the Commercial Dairy Ranchers Association of Nigeria (CODARAN) and the Federal Ministries of Agriculture and Rural Development and Industry, Trade and Investment to develop the National Dairy Policy and convene a stakeholder's engagement on March 30 and 31, 2021, to review the policy towards unlocking the potentials of the dairy sector and foster its development.

Global Forum on Food Security and Nutrition Webinar

Ndidi Nwuneli spoke on "Transforming Food Systems for Affordable Healthy Diets and Addressing Key Drivers of Food Insecurity and Malnutrition" at a Food Security and Nutrition Webinar hosted by the FAO and FSN Forum on April 12, 2021.

Cornell Cals Spring 2021 Seminar Series

Ndidi Nwuneli spoke on "Food Entrepreneurs in Africa: Scaling Resilient Agriculture Businesses," a Spring 2021 Seminar Series hosted by Cornell Global Development on April 14, 2021.

Impact Capital Forum Webinar Series

Ndidi Nwuneli spoke on "Opportunities in Investing in African Agriculture," a webinar series hosted by Impact Capital Forum on April 21, 2021.

Africa Innovate Conference 2021

Temitope Adegoroye was a panelist on the "Beyond the Pandemic: Using Innovation to Drive Sustainable Impact" agriculture panel at the Africa Innovate Conference on April 24, 2021.

World IP Day 2021

Ndidi Nwuneli was a panelist on the "Innovation, IP and SMEs: Opportunities and Challenges for SMEs in Driving Nigeria's Economic Recovery" panel hosted by WIPO Nigeria on April 26, 2021.

Collaborative Seed Programme (CSP) Launch

Falaq Tidjani moderated the official launch of the Collaborative Seed Program on April 28, 2021.

Chinedu Agbara moderated a panel session on the Strategic Pathways of the Collaborative Seed Program at the official launch event on April 28, 2021.

Review of the Plant Variety Protection Bill

Ndidi Nwuneli delivered the welcome address at the "Experts Review of the Plant Variety Protection Bill" hosted by the Nigerian Economic Summit Group (NESG) on April 28, 2021.

Ndidi Nwuneli made a presentation on the project title "Experts Review of the Plant Variety Protection Bill" hosted by the Nigerian Economic Summit Group (NESG) on April 28, 2021.

Food Systems Summit - Action Track 1 Public Forum

Ndidi Nwuneli moderated the "Ensure Access to Safe and Nutritious Food for All" public forum, an action track for the United Nations (UN) Food Systems Summit 2021 on May 4, 2021.

Cassava Seed Business Summit 2021

Sahel Consulting convened a virtual Cassava Seed Business Summit on May 11, 2021, in collaboration with other partners on the Building an Economically Sustainable and Integrated Cassava Seed System, Phase II (BASICS-II) project. Over ninety-two (92) cassava seed sector stakeholders participated at the Summit with the theme "The Critical Roles of Stakeholders in Promoting Access to Quality Cassava Stems."

Temitope Adegoroye moderated the Cassava Seed Business Summit and delivered a presentation on the Processor-Led Model (PLM) component of the BASICS-II project at the Summit.

Chinedu Agbara presented on "Private Sector Seed Production Business Case – Key Factors to Consider and Areas of Opportunity" at the Cassava Seed Business Summit.

World Milk Day Conference 2021

Ndidi Nwuneli was a panelist at the "Strengthening the Local Dairy Sector in Nigeria: Addressing the Pain-Points for Sustainable impact" conference organized by Commercial Diary Ranchers Association of Nigeria (CODARAN) with support from Sahel Consulting/ALDDN on June 1, 2021.

Guiding Seed Sector Transformation in Africa Conference

Falaq Tidjani was a panelist on the "Seed Sector Transformation for Food System Outcomes" panel at the Guiding Seed Sector Transformation in Africa Conference on June 1, 2021.

Global Landscape Forum

Ndidi Nwuneli spoke at the "Restoring Africa's Drylands" digital conference hosted by the Global Landscape Forum (GLF) Africa on June 2, 2021.

Food Systems 4 Health

Ndidi Nwuneli spoke at "Women Nutrition: Resilience and Recovery in the Road 2030" forum hosted by Healthy Mothers Healthy Babies (HMHB) Consortium on June 8, 2021.

SeedNL Sounding Board Meeting

Chinedu Agbara was a panelist on the "Nigeria-Netherlands Seed Partnership" panel at the SeedNL Sounding Board Meeting on June 9, 2021Corteva Africa Middle East Quarterly.

Roundtable Discussion

Ndidi Nwuneli was a keynote speaker at the quarterly roundtable discussions hosted by Corteva Africa Middle East on June 10, 2021, to discuss the challenges facing women in agriculture.

Guiding Seed Sector Transformation in Africa Conference

Chinedu Agbara was a panelist on the "Seed Sector Transformation for Food System Outcomes" panel at the Guiding Seed Sector Transformation in Africa Conference on June 23, 2021.

West Africa Senior New Voices Fellows Virtual Meet

Ndidi Nwuneli spoke on "Scaling Social Innovation in Africa" in a virtual meet hosted by the ASPEN Institute New Voices Fellowship on June 26, 2021.

SAHEL CAPITAL SPEAKS

Mainstreaming Green Growth Strategy in Ondo State Economic Planning and Budget Workshop

Oladele Shekete facilitated a session on the "Role of Impact Investment Funds in Sustainable Development" at the workshop on Mainstreaming Green Growth Strategy in Ondo State Economic Planning and Budget Processes jointly organized by the Ondo State Ministry of Economic Planning & Budget and The Sustainable Trade Initiative (IDH) on February 17, 2021.

Nourishing Africa Agribusiness Entrepreneur Development Seminar

Oladele Shekete facilitated a session on "Future-Proofing your Agribusiness" at the Nourishing Africa Agribusiness Entrepreneur Development Seminar on April 13, 2021.

African Venture Philanthropy Alliance (AVPA) Deal Share Investor Roundtable

Oladele Shekete was a panelist at the African Venture Philanthropy Alliance (AVPA) Deal Share Investor Roundtable on April 20, 2021.

2021 ScaleUp Lab Agribusiness Accelerator Programme

Olumide Lawson and Funke Okuwobi facilitated a session tagged "Becoming Investor Ready" at the 2021 ScaleUp Lab Agribusiness Accelerator Programme on May 21, 2021.

Lagos Business School Agribusiness Management Programme Alumni Group

Tosin Ojo spoke on "Funding & Opportunities" at the Lagos Business School Agribusiness Management Programme Alumni Group meeting on May 22, 2021.

Higher Impact Club: May 2021 Impact Meeting

Olumide Lawson was the keynote speaker on "Good Money Habits" at the May Impact Meeting on May 29, 2021.

African Venture Philanthropy Alliance (AVPA) and Smallholder and Agri-SME Finance and Investment Network (SAFIN) Dialogue

African Venture Philanthropy Alliance (AVPA) and Smallholder and Agri-SME Finance and Investment Network (SAFIN) Dialogue

Deji Adebusoye spoke on "Propelling Agri-SMEs from Early to Growth Stage Investment at the African Venture Philanthropy Alliance (AVPA) and Smallholder and Agri-SME Finance and Investment Network (SAFIN) Dialogue on June 10, 2021.

African Venture Philanthropy Alliance (AVPA) Covid-19 Impact Consortium

Deji Adebusoye spoke on "Targeted Funding for Inclusive Business and Impact Investing in Nigeria" at the African Venture Philanthropy Alliance (AVPA) Covid-19 Impact Consortium on June 16, 2021.

NOURISHING AFRICA SPEAKS

Covid-19 WEF Alliance

Ify Umunna delivered the keynote address on "COVID-19 WEF ALLIANCE: Insights into Best Practices in the Pandemic Response for Social Entrepreneurs in Africa" at the Sankalp Africa Summit on March 3, 2021.

TVC News

Rahmat Eyinfunjowo served as a guest speaker on TVC's International Women's Day news on March 8, 2021.

Catalyst Change Week Event

Ify Umunna presented on "Catalyst Market: Social Enterprise Collaboration for a Regenerative and Inclusive Economy" at the Catalyzing Change Week event on May 4, 2021.

United Nations Food Systems Summit 2021

Rahmat Eyinfunjowo spoke on the "Action Track One Public Forum at the United Nations Food Systems Summit 2021" on May 4, 2021.

Mbali Nwoko Podcast

Rahmat Eyinfunjowo spoke on "Growing a Network of Agripreneurs with Nourishing Africa" on the 19th Episode of Mbali Nwoko Podcast on May 13, 2021.

UN Food Systems Summit Africa Dialogue

Ify Umunna facilitated a breakout session at the UNFSS Africa Dialogue on "Small Businesses: Good Food for All" on May 26, 2021.

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