Issue No 20, March 2023

TECHNOPOLICY AFRICA

The Official Newsletter of the African Technology Policy Studies Network (ATPS) ISBN 978-9966-124-75-3

Cover Articles

Editorial Team

Editor in Chief:
Dr. Nicholas Ozor

Editor:
Sheila Wanjeri Obi

Contributors:
- Mr. Mamadou Youssouf Thiam
- Wilhelmina Quaye
- Gordon Akon Yamga
- Abiodun Egbetokun
- Dr. Kingsley Ukoba
- Engr. Prof. Chinenye C Anyadike
- Nicholas Mwaura Kinyanjui

Design and Layout:
Sheila Wanjeri Obi
Ian Njuguna

ATPS Vision:
To use Science, Technology and Innovation (STI) as a means for achieving sustainable development in Africa

ATPS Mission :
To improve the quality of Science, Technology and Innovation (STI) systems research, policy and practice by strengthening capacity for STI knowledge generation, dissemination, and use for sustainable development in Africa

Overall Objective:
To build Africa's capability in Science, Technology and Innovation for sustainable development

ATPS Motto:
Building Africa' s capabilities in Science, Technology and Innovation policy research, policymaking and policy implementation for sustainable development

Inside. . .

Chairman's Message

Prof. Crispus Kiamba,
Chairman, ATPS Board of Directors

It is my pleasure to welcome you to this latest edition of our Organization's newsletter. As we close this first quarter of the year 2023, we are optimistic that we will have a good year and remain true to our mission to improve the quality of Science, Technology and Innovation systems, research, policy, and practice by strengthening capacity for STI knowledge generation, dissemination, and use for sustainable development in Africa.

We look forward to releasing the Phase IX Strategic Plan that will present our priority sector guide for the next five years as we look to improve our work while strengthening our engagements with our donor organizations, development partners and networks.

On behalf of the board and the management of ATPS, I wish you the best in all your endeavors and success through out the year 2023.

Dr. Nicholas Ozor,
Executive Director, ATPS

I am honored to invite you to the 20th edition of the *Technopolicy Africa* Newsletter. We are delighted at the progress and strides that we have made in the year 2023 thus far and aim to continually adapt and innovate to better serve in the Science, Technology, and Innovation space in Africa and beyond.

This year, we have successfully launched new programs and initiatives, expanded our outreach efforts, and strengthened our partnerships with key stakeholders in the STI ecosystem.

Not oblivious to the climate change, drought and famine, among other societal challenges being faced in Africa and beyond, we remain committed to engaging and implementing impactful projects that will bring about change and improve people's lives and livelihoods.

Thank you for your ongoing support and we look forward to continued partnership and collaboration at different levels.

Using Technology for Transforming Waste to Energy in Developing Countries

By Mr. Mamadou Youssouf Thiam, Managing Director FASO KA NU BE NE LA GROUP

Waste management is one of the modern times problems all over the world. Developing countries are especially at the forefront in facing this problem.

With increasing urbanization and a lack of proper planning for waste management, growing waste accumulation is becoming a serious environmental challenge in developing countries. Undoubtedly, developed countries also face this issue, but their application of circular economy models that turn waste into a valuable form of energy is offering them a veritable means for sustainable development. Waste management requires infrastructure, resources, and industry to convert municipal waste into energy. Developing countries like Kenya, Mali, Pakistan, Bangladesh, etc., need proper places and planning for waste management, since traditional waste management methods lead to pollution, diseases, and unhygienic conditions in such countries.

Technology can play a similarly vital role in waste management in developing countries as it plays in developed nations. This article explores how technology can be used to transform waste into energy in developing countries.

Importance of Energy

Developed nations have paved roads, established industries, cleanliness, and rich hospital facilities due to sufficient production and energy utilization. How have developed nations made this happen? They have a proper plan in place, and the regulations are ensured by efficiently utilizing resources to produce energy. Apart from other sources of producing energy, developed nations use technology to convert waste into energy. By using modern waste management techniques, they have ample energy available to run their industries and homes and ensure a hygienic and disease-free environment.

How Developing Countries Manage waste

Developing countries are facing a severe challenge of managing municipal waste and various methods have been used to try and curb this challenge but the following are common:

a) Waste Management in Open Dumps

Most of the time, they manage waste by filling the open dumps at the cost of damaging the environment. The waste in these dumps releases potent greenhouse gases such as methane and carbon dioxide which pollute the environment and significantly contribute to global warming.

b) Trash Management through Burning

If not open dumps, most of the authorities or general public burn waste in open areas which releases toxic gases into the environment leading to dangerous health issues such as respiratory illnesses, eye irritation and stomach related ailments.

Benefits of Using Technology for Transforming Waste into Energy:

One solution to the waste problem in developing countries is to transform it into energy. This involves using waste-to-energy (WTE) technologies such as incineration, gasification, or anaerobic digestion that is discussed below. These technologies convert waste into heat, electricity, or other forms of energy. Some benefits of this approach are:

- Decreasing the dose of waste sent to landfills or open dumps.
- Reducing greenhouse gas emissions
- Generating renewable energy
- Creating jobs and economic opportunities
- Reducing dependence on fossil fuels

Some Waste to Energy Solutions

Incineration

A standard method used for waste management is incineration. This method burns the waste in a grate boiler at a high temperature, which converts it into steam. The steam is used to drive the turbine that generates electricity or heat.

After completing the process, there are generally three by-products: ash, heat, and flue gases. It is important to set up systems to purify the flue gases before they are released into the atmosphere.

According to experts, this method is the least favourite as it is costly to operate and emits too many gases.

Developing countries will have to do a cost-benefit analysis before adopting this method.

Gasification

Gasification WTE plants are helpful compared to incineration, as they are not toxic to the environment. In this method, the feedstock is not used as a fuel but converted into syngas at high temperatures. Developing countries can use syngas as an alternative to natural gas and can also use it for fertilizer. However, this method also requires the careful sorting and pre-treatment of municipal waste, as not all materials are suitable for conversion.

Anaerobic Digestion (AD)

Anaerobic Digestion (AD) is a natural process in which organic wastes are converted into biogas. Biogas is then used in the production of renewable energy. This process occurs without oxygen and is carried out by many microorganisms, including bacteria and archaea. These microorganisms convert the organic matter in the waste and produce biogas.

Biogas is useful in some of the following ways:

- It is used in place of electricity and heat, and vehicle fuel
- It is helpful in the industrial process
- If purified, this biogas is converted into natural gas, which can be used in the natural gas grid

Anaerobic Digestion is a promising technology that can help solve the dual challenges facing developing countries, including waste management and energy production. However, one of the drawbacks of this technology is the high maintenance cost of such plants, the proper handling of the biogas, and ensuring that no harmful waste seeps into the air.

Conclusion

Undoubtedly, developing countries are facing waste management challenges. With each passing day, the environment is getting polluted, people are getting ill, and municipal waste is compounding in public places.

Technology is for our ease and developing countries can use it to their advantage by managing waste and fulfilling the energy shortfalls by converting waste into energy.

Although challenging, converting waste to energy is possible for developing countries to borrow from or replicate the waste disposal methods used in developed countries with consideration of their capacities, finances, values and culture, and regulatory compliance. Technology-based methods can help developing countries transform waste into energy.

Socio-cultural Barriers and Challenges to Gender and Productive Uses of Energy

By Wilhelmina Quaye and Gordon Akon Yamga, CSIR-Science and Technology Policy Research Institute, Ghana

Closing the energy access gap to meet the universal energy access target by 2030 is one of the priority areas under the Sustainable Development Goals. This cannot be achieved without considering Mini grids and Stand-alone Photovoltaic Systems as reliable options for rural but commercial communities and areas with high population densities. Mini grids have positive environmental impact and contribute significantly to reduction in carbon dioxide emissions globally. In the energy sector, mini grids offer opportunities for productive uses for income generation activities and creation of jobs for diverse groups of people including the vulnerable and marginalised in society.

Productive uses of energy facilitate income generating activities and improve overall business climate and livelihoods. Mobile payment infrastructure, customer-driven affordable payment systems and new entrant business models are all playing a part in a new bottom-up energy access that can complement the traditional top-down planning of national grid extensions. Productive uses of energy can be defined as agricultural, commercial/services and industrial activities involving electricity services as a direct input to the production of goods or provision of services (GIZ, 2019). At the household level, gendered access to renewable energy services play critical role in facilitating access to clean water, sanitation and health care and advance development through the provision of reliable and efficient lighting, heating and cooking. Because women and girls are responsible for the bulk of household work, provision of electricity through mini-grids and Stand-alone PV systems relieve them of drudgery and provide them more time to care for themselves and engage in more productive activities. Opportunities also exist for gender Productive Uses of Energy (PUE) for mini grids and stand-alone electrification beyond the basic lighting, entertainment and other domestic uses (Baruah, 2015). For commercial purposes, energy services play a key role in facilitating access to mechanical power, transport and telecommunication services for enhanced business opportunities. Energy poverty leads to drudgery, greater health risks and lack of time to focus on income-generating, educational and capacity building activities.

Despite the numerous advantages associated with PUE, there are some socio-cultural barriers and challenges, which are discussed in this article. Gender roles in the households constrain some women from participating in productive uses of energy. For example, in some rural fishing communities in Ghana, women are involved in unpaid work such as fixing nets, cooking for the men, processing their husbands' fish catch and supporting them with the marketing of fish and fish products. The young men are involved in paid labour while the young women are mostly involved in support roles and unpaid labour. Gender roles in the communities are defined by gender norms, which are societal expectations of how men and women or young adults should behave in the communities. Some of these norms and gender roles limit women from tapping into their fullest potential in the world of work particularly in the productive use of energy. Incomes of women involved in fish processing activities where quality losses exists due to lack of storage facilities such as refrigerators and no access to electricity are negatively affected.

Gender equality is central to realising the potential of increasing the productive use of energy which in-turn helps to increase income generating opportunities for women and to improve livelihoods, food and nutrition security particularly in Island communities. Improving the incomes of women for them to become economically empowered is likely to enhance their influence in household decisions and also contribute to community level decision making processes.

Gender equality is central to realising the potential of increasing the productive use of energy which in-turn helps to increase income generating opportunities for women and to improve livelihoods, food and nutrition security particularly in Island communities. Improving the incomes of women for them to become economically empowered is likely to enhance their influence in household decisions and also contribute to community level decision making processes.
Another source of development concern relates to time and labour burdens. At the community level, women are seen as having the primary responsibility for managing the household in terms of care giving by looking after aging or sick relatives, child bearing and taking care of the household chores. This can limit women's time available for paid work and this means that they may not be able to travel far from their homes. From literature, women workers are generally not covered by public or private sector social protection schemes, and may be characterized by various forms of insecurity. The demands and strain on women's time, energy and health have been a source of concern, a barrier to technology uptake and livelihood opportunities that need to be addressed. Gender-sensitive energy programmes can ease the double burden of lack of sufficient energy and poverty that women endure as they perform traditional household and community roles (Clancy et al 2002). Gender-sensitive energy programmes can also provide opportunities for education and income generation that will allow women to improve their social and economic status and raise the living standards of their families and communities. However, if energy policies are to become more gender sensitive, not only will women themselves have to become more empowered to make choices about energy, but the energy sector will also have to become more responsive to women's energy needs (Dutta, 2003; Pueyo,2019).

Africa Moving Towards Industrialisation: A Call for Smart Policy Choices and Entrepreneurial States

By Abiodun Egbetokun (Faculty of Business and Law, De Montfort University, Leicester, UK/National Centre for Technology Management, Ile-Ife, Nigeria)

Africa's paradox

Africa is considered the world's richest continent with vast natural resources, the second largest landmass, and the youngest population. The continent has everything required for industry-based wealth. It possesses the world's largest or second largest reserves of bauxite, cobalt, industrial diamonds, and phosphate rock. It is the second largest continent in terms of land area, covering 11.73 million square miles and holding 60% of the world's arable land. Furthermore, Africa has the youngest population globally, with 60% of its residents under the age of 25. With a population of 1.3 billion and a combined GDP of USD 6.7 trillion Public-private partnership in 2019, it is considered as one of the largest markets in the world.
However, Africa remains the poorest continent in the world with an average per capita GDP of only USD1,970 in 2020 and most of the world's poorest countries located there. Africa is currently the world's least industrialised, lagging behind in terms of fixed investment, manufacturing contribution to GDP, and manufactured exports. The average share of manufacturing in GDP in sub-Saharan Africa was only 10.6% in 2019 and industry accounted for only 10% of employment in sub-Saharan Africa. The continent is also a marginal player in global trade, with declining exports, a reliance on commodity exports, and a persistent negative balance of trade.
Literature suggests that there are factors that have largely shaped the global distribution of industry, including; infrastructure, human capital, institutions, manufactured exports, industrial agglomerations, and foreign direct investments. Africa has underperformed in these areas, facing an acute infrastructure deficit and lacking investment in human capital and institutions. The continent also faces challenges in attracting foreign direct investment and promoting industrial agglomerations.

Innovative industrial policies can turn things around

Industrial policies aim to boost structural transformation by accelerating the accumulation of improved production capabilities and innovation under conditions of dynamic increasing returns. Encouragingly, manufacturing is already at the centre of African industrialization strategies due to its potential for improvements in innovation, productivity, and welfare gains. Existing evidence suggests that when manufacturing value added per capita increases by 1% annually, poverty decreases by almost 2% and violent conflict fatalities decrease by over 4%.

However, manufacturing-led industrialisation brings environmental pollution and sustainability concerns. Moreover, the harsh economic environment in Africa, limited infrastructure, human capital and institutions, and the rapid technological advances of the Fourth Industrial Revolution all pose challenges to industrialisation in Africa.

To overcome these challenges, Africa needs an innovative industrialisation strategy with manufacturing as its heart and a broad-based strategic approach as its arteries. Indeed, several opportunities exist that could complement traditional manufacturing. Sectors such as tradable services and digital technologies offer opportunities for increased economic growth, innovation, employment, and wealth creation. These sectors also offer opportunities for Africa to integrate within itself and into global production value chains, and they are attractive to Africa's youthful population. The African Continental Free Trade Agreement (AfCFTA) offers a significant step towards a coordinated African market and represents a growing appetite for intra-African trade. With a market of 1.2 billion people and a combined GDP of over USD3 trillion, the AfCFTA provides a unique opportunity for African countries to upgrade domestic industry and upskill in value-added production.

A call for smart policy choices

Africa is a continent with immense potential for growth and development. However, to fully realize its potential, Africa needs to implement effective industrial policies that, at their core, promote:

- exports,
- industrial clusters, and
- industrial financing, including foreign direct investment and infrastructure investments.

The cases of East Asian countries and others like Indonesia serve as examples of what can be achieved with smart industrial policies. In contrast, the experience of African countries like Nigeria illustrates the dangers of poor policy choices. After realizing a windfall of up to 20% of its GDP from oil by 1981, Nigeria invested heavily in low-performance capital projects, including a new capital city and an integrated steel plant. When oil prices fell, the government had to adopt austerity measures, destabilizing the country. On the other hand, Indonesia, which passed a law prohibiting a budget deficit, balanced its investments between physical infrastructure, education, agriculture, and capital-intensive projects. As a result, Indonesia's manufacturing value added grew at an average of 6.2% annually between 1982 and 2020, while Nigeria's grew at only 0.8%.

A call for entrepreneurial states

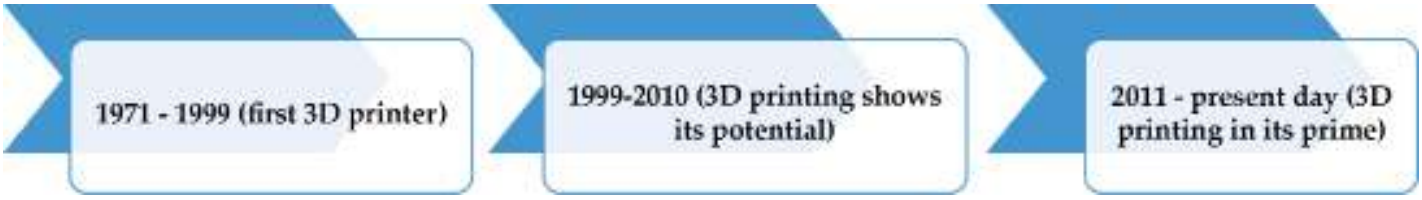
To make the recommended policy choices and create the necessary framework conditions for their implementation, Africa needs entrepreneurial states that are willing to experiment, build capacity, and invest. Today's global industrial landscape is characterized by increasing returns, which often emerge from knowledge accumulation or network externalities. These returns create short-lived windows of opportunity that require timely and proactive industrial policies to seize. It has been said that "…as the knowledge economy accelerates, those who wait to see how things play out will be left behind. By the time they know what is next, early adopters will be atop mountains of knowledge that will be even harder to climb." It is time for Africa to take bold and smart action to create a thriving industrial sector and realize its full potential.

3D Printing and the Global South

By Dr. Kingsley Ukoba

The COVID-19 pandemic affected the lives of millions of people globally with an estimated fatality of 1.8 million according to the World Health Organization. Due to the travel and movement restrictions that had been put in place, movement came to a standstill and this heavily affected businesses. With a decrease in infections and fatalities caused by Covid-19, the world is gradually moving on and developing strategies and innovations to aid in combating similar future occurrences. One of the ways in which this is being done is through the use of emerging technologies such as 3D printing. 3D printing is the technology of creating an object from the ground up by successive deposition of material layer by layer from a 3D model of the object. This article discusses 3D printing and how it can be leverage to develop the global south especially Africa.

3D printing technology has been around for decades but recently started gaining ground as shown in the chart below.



The acceptance and wide application are connected to the great advantage of the technology. It reduces material wastage; it gives cost benefit of up to 100 percent to parts. It can also be customized with little or limited technical ability. Recently, it is becoming affordable as there are 3D printers that cost less than USD250 for filament and USD300 for resin 3D printer. 3D printers can now use different materials from metals, polymer, rubber, resins, ceramics, cement, among others.

3D printing is becoming widely adapted hence finding application in different spheres of human endeavors. It is changing the way things are done and produced as it has made it easy to create things that hitherto seemed impossible. A 3D printing machine has been used to print an organ from a human own cell though experts estimate that it may be a number of years before fully functioning bio printed organs can be implanted into humans. It has been used to produce different items such as retrofit for turbine in the energy sector, bullet proof vests for warfare, cancer tissues for health research, jet engine for aerospace, toys, houses among others. 3D printing has also been used to produce edibles biscuits (cookies). The technology is very adaptable and can be used anywhere and everywhere including outer space.

3D printer and the Global South

The term global south refers to the countries in the regions of Africa, Latin America, and developing parts of Asia and the Middle East. They are home to emerging economies, developing, and low-income economies. It emerged in part to help the regions collaborate and pull resources politically, economically, socially, and otherwise to fast-track sustainable development of the regions.

The key needs of these regions centre around electricity, water, health, pollution, sanitation, and affordable housing.

The African region and most global south continues to grapple with epileptic and expensive power supply despite avalanche of water body for hydro turbine, availability of more than 6 hours of sunlight for solar energy, presence of high tides for tidal energy, huge waste generated, among others. Some of these countries have the equipment but they are moribund and it takes time and huge costs to maintain them. 3D printing is capable of replacing some of the equipment as well as reducing the huge initial and equipment cost associated with electricity in the global south. It is also capable of improving the efficiency of the equipment. The technology is advantageous to electricity owing to its ability to streamline product development, reducing material wastage, increasing time to market, manufacture of lighter and efficient parts, greater design flexibility. Also, consolidating previously separate parts into a single unit, and optimizing inventory and supply chain management.

A report by Oak Ridge National Laboratory, in collaboration with the National Renewable Energy Laboratory (NREL) and industry partner Vestas Wind Systems, published in 2021 comparing additive manufacturing—or 3-D printing—processes to produce a component that connects structural beams in the enclosure containing a wind turbine's energy-generating components (the nacelle). Co-funded by Wind Energy Technologies Office (WETO) and Department of Energy (DOE)Advanced Manufacturing Office, the study concluded that additive manufacturing could have promise based on future economics and technology advances. In Canada, the government and some companies are currently using 3D printing to improve the efficiency of wind and tidal turbine using a retrofit with success being recorded. 3D printing is assisting in fast-tracking of energy transition from fossil-based to renewable energy. In comparison to the automotive, aerospace, and healthcare industries, the adoption of 3D printing in the energy sector is rather modest. Instead of producing finished items, energy businesses mostly employ the technology for rapid prototyping and modeling.

The technology of 3D printing is helping to shape the accommodation industry; accelerating the construction time, material usage, cost among others. Portland company sponsored the first adaptation of 3D printing in construction. Today, there are 3D printers that use cementitious mixture to construct building and structures. In Africa, companies and Universities are now using it for construction and teaching. The University of Johannesburg, South Africa launched a 6-room constructed using a 3D printer for learning and research. The United States' fight against homelessness is being aided by these 3D-printed houses. 14Trees is a joint venture company between Holcim, a global leader in sustainable construction solutions, and British International Investment, the UK Government's impact investor. 14Trees that operates in Kenya and Malawi pioneered in the introduction of construction 3D printing in Africa. For less than $10,000, it can construct a 3D-printed house in just 12 hours. Dubai's Department of Islamic Affairs and Charitable Activities (IACAD) unveiled its plan to build the world's first 3D printed mosque. Construction of the 2,000-square-meter mosque will start in October 2023 with a proprietary robotic 3D printer and plan to accommodate up to 600 worshippers upon completion in 2025. In Malawi the world's first 3D-printed school, constructed by 14Trees, has encouraged students to resume learning. The Swiss-British group says the fast construction of schools could help alleviate a shortage of classrooms in countries like Malawi. "Our estimate is that with conventional construction methods, it would take more than 70 years to build so many classrooms and we think that 3D printing can speed up the construction process and reduce time needed to build those schools to 10 years or less." said Francois Perrot, managing director for 14Trees. This can also help bring learning to internally displaced persons and refugee camps.

The US's first fully 3D printed two-story house located in Houston (Source: Hannah)

Xtreee built France's first five 3D printed houses in Reims (Source: Xtreee)

A 3D printed home in India by start-up Tvasta Manufacturing Solutions (Source: Tvasta)

Conclusion

The global south needs to leverage on technologies in addition to the vast human resources to fast track the development of the region. The regions already have the natural endowment to birth the development. The technology of 3D printing can help speed things up. It however, needs support and acceptance. More stakeholders need to engage with it, create awareness and encourage its adoption.

Improving Technology Adoption and Use by Women and Marginalized Communities in Agriculture: Options for Gender Equality and Social Inclusion.

By Engr. Prof. Chinenye C Anyadike
Contribution from AI4AFS Innovation Network Grantees sponsored by IDRC and Sida

Nigeria, like many other countries in the world, is grappling with the challenge of ensuring equitable access to technology for all its citizens, especially women and the marginalized. The digital divide is a major barrier to economic and social development, as it limits access to information and communication technologies (ICTs) that can drive growth, create employment opportunities, and improve livelihoods. This article examines the barriers that prevent women and marginalized communities in Nigeria from adopting and using technology and explores the options available for improving their access to technology.

The digital divide in Nigeria is characterized by significant disparities in access to technology and ICTs between urban and rural areas, as well as between men and women. According to a 2020 report by the World Economic Forum, only 41.8 percent of Nigerians have access to the internet, with a significant gender gap in internet usage. While 49.3 percent of men in Nigeria have access to the internet, only 34.1 percent of women do.

The reasons for the digital divide in Nigeria are numerous, and they include; lack of infrastructure, limited affordability, and lack of digital literacy. For women and marginalized communities, the digital divide is exacerbated by social and cultural factors that limit their access to technology. These factors include gender stereotypes, patriarchal attitudes, and limited access to education and resources.

To address the digital divide in Nigeria and improve technology adoption and use by women and marginalized communities, several options are available:

1. Promoting digital literacy and skills development

One of the most effective ways to improve technology adoption and use by women and marginalized communities in Nigeria is to promote digital literacy and skills development. This involves providing training and resources to help individuals understand how to use technology and its application in their daily lives.

Digital literacy programs can be delivered through community centers, schools, and other public institutions, and can be tailored to the specific needs and interests of women and marginalized communities. These programs can cover a range of topics, including computer basics, internet navigation, and online safety and security.

2. Increasing access to affordable and relevant technology

Another key option for improving technology adoption and use by women and marginalized communities in Nigeria is to increase access to affordable and relevant technology. This can be achieved by providing subsidies, tax breaks, or other incentives for the development and deployment of technology that is accessible and affordable to these communities.

Additionally, there is a need to ensure that technology is designed with the specific needs and preferences of women and marginalized communities in mind. This can involve engaging with these communities to understand their needs and developing technology that addresses these needs.

3. Addressing cultural and social barriers

To improve technology adoption and use by women and marginalized communities in Nigeria, it is also important to address cultural and social barriers that prevent these communities from accessing technology. This can involve advocating for changes in cultural attitudes and stereotypes, such as promoting gender equality and challenging patriarchal norms.

It can also involve creating safe spaces and supportive environments where women and marginalized communities can learn and interact with technology without fear of discrimination or harassment. This can be achieved through the development of community technology centers, women groups, and other initiatives that promote social inclusion and equity.

4. Partnering with private sector and civil society organizations

Finally, partnering with private sector and civil society organizations can also help improve technology adoption and use by women and marginalized communities in Nigeria. Private sector organizations can provide resources and expertise in technology development and deployment, while civil society organizations can provide advocacy and

outreach to these communities.
Through these partnerships, it is possible to develop and implement programs and initiatives that are tailored to the specific needs and preferences of women and marginalized communities, and that promote equitable access to technology and ICTs.
In conclusion, improving technology adoption and use by women and marginalized communities in Nigeria is essential for promoting economic and social development and reducing inequality.

Advancing Entrepreneurship in Higher Education Institutes in Kenya

Interview

1. Can you tell us a little about yourself and what you do?

My name is Nicholas Mwaura Kinyanjui, the Dean of Students and Director of Quality Assurance at Riara University, Kenya. I am also the Principal Investigator of The Accelerating Entrepreneurship Support in Kenya (AESU) Project.

2. Kindly tell us more about the AESU project?

The Accelerating Entrepreneurship Support in Univerities in Kenya (AESU) Project, is an educational partnership that initially constituted The Open University (UK), Riara University and an ecosystem Partner, Ashoka East Africa. However, the dynamic nature of the grant saw the introduction of ATPS who came in as additional ecosystem partners focusing on the aspect of policy in the building community grant. The partnership is funded by the British Council through the inaugural Innovation for African Universities (IAU) Programme.

3. What inspired or brought about the AESU project?

When the British Council put out a call for proposals for this project, we felt that it perfectly aligned with one of the things that Riara University stands for which is to collaboratively solve social problems with opportunities for employment. We therefore responded with the AESU proposal which we managed to get the grant.

4. How does the AESU training programme run?

The process begins at the conceptualization stage all the way to establishing a working business. Part of the training involves developing the business ideas and proposals, establishment of the goods and services that those involved want to offer, the legal framework, sourcing for funds and management as well as statutory mandates such as filing returns. Part of the outcomes of the project was to establish a virtual accelerator; this means that the training is self-paced and allows us to work with the students' pace as it is majorly online and requires very few physical meetings.

5. How has the progress been since the partnership began? Tell us a little about that.

The progress has been nothing short of amazing. We have been able to see a tremendous amount of growth in the students. The first cohort ran between January and September 2022. For that round, we received 46 applications from which 12 were selected and funded. Of the 12, 11 have businesses that are currently up and running.

6. How are you collaboratively working with the government to ensure that they offer the support that they can?

The main contact with the government has been through The Kenya National Innovation Agency (KENIA). During the most recent Kenya Innovation Week (KIW); which is their flagship innovation forum, we were able to showcase products of the AESU graduates. The Kenyan Government, has for the last 15 years or so, incrementally rallied for innovation and entrepreneurship to create and increase opportunities for employment and wealth creation. This is in line with Kenya's development blueprint, Vision 2030. In the future, we look at working with other government

bodies such as Kenya Bureau of Standards (KEBS) which is committed to providing Standardization and Conformity Assessment services that consistently meet its customers 'requirements and endeavor to exceed their expectations. We believe that they will offer valuable insights to the student entrepreneurs.

7. How do you follow through to ensure that the work that you began with your grantees continues to be successful and impactful?

We are proud that the concept of enterprises is well established within the institution and well embraced by the students and alumni body. We constantly keep in touch with the grantees and follow up; we have often interviewed them and shared their success stories on our social media platforms. This has also offered a source of inspiration for other students. It is also very encouraging to see that we have a student driven initiative called "Hustle Yangu" which means "My hustle". Through this initiative, students run a market day towards the end of the month where they are able to showcase and sell their goods and services. Through this, we have testimony of dozens of successful businesses that have been able to create employment as well.

8. How do you ensure that your support is accessible to a diverse range of students, regardless of their background, academic discipline and abilities?

You will be pleasantly surprised to know that out of the grantees selected for the previous cohort, only one or two students were from business related courses; the rest were from diverse disciplines such as journalism, law and education. This just speaks to the fact that entrepreneurship has nothing to do with the course that one is studying but the individual. It is also worth noting that despite the field one chooses to be in, it is important to be enterprising. We constantly encourage students to tap into that and for them to have ventures on the side that enable them to make some money.

We are keen to ensure that there is no discrimination and that the students access the support despite their diverse abilities.

9. What are some of the future plans and goals of the Accelerating Entrepreneurship Support program in Kenya, and how do you see it evolving over time?

With the systems that we have in place and what we learnt with the first cohort, we have decided to take up 100% of those that will apply for the second cohort. We intend to bring alumni grantees to be mentors as they have been through the process and could offer insight and advise to the students through this journey. We are also keen to work with a wider range of partners in the industry as well as in the development space.

A few learnings have also redirected us to the importance of efficient and effective documentation and measurement as well as structure of our activities to share learnings with partners, and strategies for proper commercialization. These are practices that we intend to incorporate during the next phase of the project and ultimately look forward to better results. We hope that in the future, we can reach and offer training to people that run diverse businesses such as the traders in the market as the curriculum is not for cognitive knowledge but for entrepreneurial skills.

10. How would you describe the state and journey of entrepreneurship in Kenya? Why has it taken long for entrepreneurship to be taken seriously?

Entrepreneurship in Kenya has been there over the years. Taking the example of S.K Macharia of Royal Media Services and the Late Chris Kirubi who are icons in the entrepreneurship space. However, white-collar jobs were glorified and therefore more people were inclined to take that route. Increasingly, there has been an emphasis on entrepreneurship in Africa as we are tragically facing increasing unemployment and having the youngest population, there has been need to create opportunities. A lot of key partners are putting in funds to ensuring elimination of poverty and creating a sustainable model of doing so.

11. What advice would you have for students aspiring to be entrepreneurs?

Dare to dream. As Eleanor Roosevelt put it, "The future belongs to those that believe in the beauty of their dreams." If you have an idea that is nudging at you, give it a try as there is nothing to lose by trying. If you fail, you get back and try again. Many of the success stories that we hear are of people that have failed severally but kept trying.

Innovation for Africa Universities Meet and Greet

On 8th February 2023, the Innovation for Africa Universities (IAU) community that the African Technology Policy Studies Network (ATPS) is a partner, held a meet and greet lunch with the British Council delegation led by their Global Chief Operating Officer, Andy Williams. Here, lessons learnt over the past year were shared while catching up with the network partners. During the lunch, modalities of how to start the implementation of the Consolidate Grants Community Building Project; a partnership between Riara University, Open University (UK), Ashoka East Africa and the ATPS were shared. The project will build on the progress made while implementing university-led ecosystems for sustained innovation and entrepreneurship development in Kenya and AESU project.

Meet Our New Staff

Dr. Cynthia Ebere Nwobodo joined the ATPS in February 2023 as a Postdoctoral Research Officer and the Project officer for the Strengthening the National Research and Innovation Funding Agencies in West Africa (SRIFA) project. She got her First Degree in Agricultural Extension from the University of Nigeria, Nsukka with a First Class Honours and obtained her PhD in Agricultural Extension and Rural Livelihood from University of Nigeria, Nsukka and University of Reading, United Kingdom in 2017. She is also a Senior Lecturer in the Department of Agricultural Extension, and a Senior Research Fellow at the Gender and Development Policy Centre of the University. Her research interests include: climate change and rural livelihood, community and value chain resilience, communication for development, and gender issues in agriculture. She has over 10 years' experience in community engagement and development communication. Dr. Cynthia is a Commonwealth scholar, and has won several research grants on climate change, gender issues, and rural livelihoods. She is a pioneer member of the Committee for Building Trans-disciplinary Climate Change Adaptation in the University of Nigeria which metamorphosed into the African Climate Change Adaptation Initiative. She has consulted for development organizations such as the Stockholm Environment Institute. Her PhD thesis won the Vice Chancellor's Postgraduate Prize of the University of Nigeria, Nsukka for the 2016/2017 academic year. Dr Cynthia has over 40 articles published in referred journals and conference proceedings.

NIGERIA

Technology and Innovation Expo 16th to 20th January 2023

Dr. Ifee Olife, an ATPS member of the Raw Material Research and Development Council Abuja, participated in the expo which was under the theme Achieving Effective Diversification in Nigeria through Science Technology and Innovation. It was reported that the Federal Government of Nigeria urged the organised private sector (OPS) to invest in scientific prototypes created by local innovators. The government says investment in scientific research results and prototypes showcased at the January 2023 Technology and Innovation Expo can create jobs and reduce crime. The government applauded the inclusion and collaboration of government, private sectors, academia and research institutions in a platform for all the stakeholders to come together and discuss ways to support innovation and entrepreneurship in the country.

The role of international partnerships in driving innovation and development in Nigeria was acknowledged. Evidence shows how collaborations with other countries have brought new technologies, knowledge, and expertise, and the need to seek these opportunities to support the growth and development of Nigeria.

Ministry Sets to Implement the National Policy for Methanol Fuel Production Technology Strategy

Dr Agoro Olayiwola, a member of ATPS of the Federal Ministry of Science and Technology, Abuja reports that the Federal Ministry of Science, Technology, and Innovation (FMSTI) in collaboration with other partners; Coscharis Technologies Limited, and Dassaults Systems SolidWorks Corporation is set to implement the National Policy for Methanol Fuel Production Technology Strategy Training, Modeling and Management of The Methanol Industrial Components and Prototypes Designs.

Nigeria is regarded as one of the 10 most climate-vulnerable countries globally with multiple sources of greenhouse gas emissions. In order to meet the demands of its large population, which is predicted to increase to about 402 million by 2050, Nigeria is expected to emit more greenhouse gases (GHGs). This, therefore calls for more ambitious future mitigation efforts in keeping with the country's climate commitments to the Paris Agreement and net zero emission by 2050. The Ministry is critical in achieving Nigeria's Nationally Determined Contributions (NDCs) because they are greatly linked to technology to move Nigeria's economy into a more environment-friendly and sustainable path. SolidWorks technology is one path that can help achieve the ministry's goal.

Towards achieving this goal, FMSTI organized a one-day training in Abuja with participants drawn from diverse partners. According to the Permanent Secretary, Federal Ministry of Science, Technology and Innovation (FMSTI), Mrs. Monilola Udoh, the Ministry as part of its responsibilities had installed SolidWorks software on FMSTI designated computers to support design and prototype start-ups to serve commercial clients. FMSTI equally engaged the Services of Coscharis Technologies and SolidWorks Nigerian representatives to train, equip and manage the Methanol Industrial Components design projects for a period of 12 months, while the modeling and management of the Methanol Industrial Components Design and prototype production was done. A total of 50 staff members from different parastatals of FMSTI participated in the training.

According to the Director, of Environmental Science and Technology of the Ministry, Dr. Peter Ekweozoh, the trainees would continue receiving virtual training and other resources such as questions and answers. There are different certification levels following ongoing monitoring by the trainers until the participants get professional certification. The participants will take an online certification mock test and those that get a minimum of 85% will be certified by SolidWorks. He stated that although the oil and gas industry is the backbone of Nigeria's economy, Nigeria needs alternative energy sources, the global shift towards renewable and clean energy resources had made it imperative that Nigeria diversify her energy sources. He further said that when the methanol fuel production comes on s, it would facilitate the efficient and effective use of the country's gas resources, complement the Federal Government's efforts to commercialise flared gas and reduce associated environmental pollution. Therefore, methanol fuel production is a viable option with potential environmental and economic benefits.

SRIFA Project Launch

A virtual Project Launch of the project tagged "Strengthening the National Research and Innovation Funding Agencies in West Africa (SRIFA)" was held on the 14th of February 2023 in the presence of donors, partners; African University of Science and Technology (AUST) and other collaborators including Technical Advisors. The project funded by International Development Research Center (IDRC) and the United Kingdom's Foreign, Commonwealth and Development Office (FCDO) will be implemented in Burkina Faso, Senegal, and Côte d'Ivoire (Francophone) and in Ghana, Nigeria, and Sierra Leone (Anglophone). The overall goal of this project is to provide training and technical support that will strengthen the national research and innovation funding agencies in the aforementioned selected countries. The project that kickstarted on 1st January 2023 aims to; identify the needs for support in the participating countries; improve how science granting councils function in Burkina Faso, Senegal and Côte d'Ivoire by aligning strategy, structure, resources and management processes; and develop organizational frameworks to create science granting councils in Ghana, Nigeria and Sierra Leone.
On 1st March 2023 an inception and planning meeting for the project was held as a side event during the Learning and Consolidation Workshop of the Science Granting Council Initiative (SGCI-2). The meeting that was held in Accra, Ghana and was attended by representatives of the six participating countries as well as Dr. Nicholas Ozor, the ATPS Executive Director who is also the Principal Investigator and Dr. Cynthia Nwobodo the Project Officer.

The ISPRS Geospatial Week 2023 (Egypt GSW' 2023)

Urban spaces have become complex, being shaped by diverse human behaviours. Therefore, the sustainability of development has faced various challenges ranging from pollution to equity in accessibility to activity spaces and opportunities. Using spatial big data and new computing technologies is an effective way to a better understanding of the interaction between individuals and urban environments, which would be beneficial to tackle urban challenges. This workshop focuses on new advanced technologies on spatial data representation and interoperability, geo-computation and -stimulation, and GeoAI, which can harness human behavior related spatial big data, discovering the mechanisms of the interaction between human behaviours and urban environments. Click here https://gsw2023.com/index.php/registration/ for registration and further details.

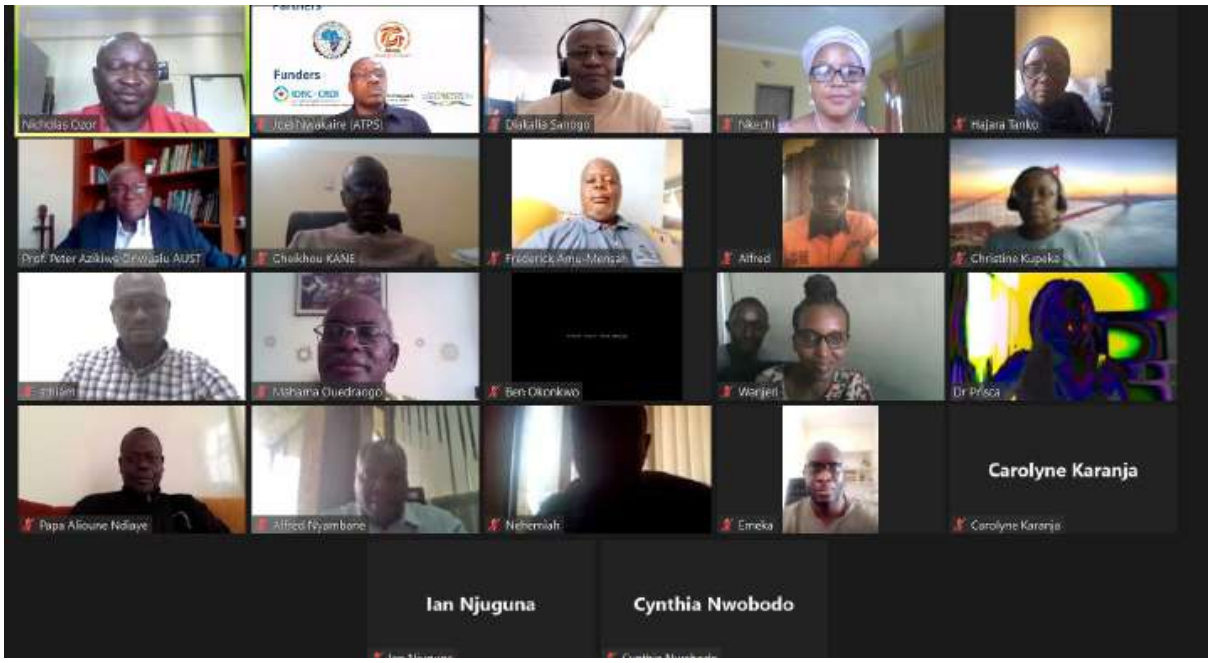
Bayer Foundation Women Empowerment Award

This award will grant 15 female entrepreneurs from the Global South a €25,000 cash prize, tailored coaching as well as a global event and networking opportunities. The goal: Empowering female entrepreneurs to accelerate their social business. Click here to discover the challenge https://bayer-foundation-wea.com/?gclid=EAIaIQobChMIneDUxrrJ_QIVT-jVCh25JwwDEAAYASAAEgLY_vD_BwE#discover

ATPS Call for Proposals

African Technology Policy Studies Network (ATPS) under the Technological Innovation Development in Africa to Enhance Employability, Entrepreneurship and Job Creation (TIDE) project, funded by African Export-Import Bank invites eligible applicants; entrepreneurs and innovators to submit their proposals to use their technologies for scaling or commercialization with the target to create jobs especially for the youth.

Further information on the Call for Proposals is provided here: Call-for-Proposals-for-technological-innovations-in-Africa.pdf (atpsnet.org)



A screenshot of the virtual SRIFA Project Launch

Dr. Cynthia Nwobodo at the Learning and Consolidation Workshop of the Science Granting Council Initiative

Participants of the Innovation for Africa Universities Meet and Greet

Dr. Nicholas Ozor, Executive Director, ATPS at the Learning and Consolidation Workshop of the Science Granting Council Initiative

ATPS NATIONAL CHAPTER COORDINATORS

Australia
Mr. David Doepel
Chair, Africa Research Group, Murdoch University
90 South Street
Murdoch
Western Australia 6150
Tel: +61418912287
Email: d.doepel@murdoch.edu.au

Benin
Dr. Roch L. Mongbo
Senior Lecturer & Researcher
Director of LADyD (Lab for Social Dynamics and Development Studies)
Universite' d'Abomey-Calavi,Benin
02 BP 778 Gbe'gamey
Cotonou, Benin
Tel: +229-21360126
Cell : +229-95966446 / 97374797
Email: rmongbo@intnet.bj or Rochl_mongbo@yahoo.com

Botswana
Mpho Thabang Rapoo
Botswana University of Agriculture and Technology
Plot 10071 Boseja, Palapye,
Botswana
Tel: +267 72 865 060; +267 493 1826
E-mail: mtrapoo@gmail.com; rapoom@biust.ac.bw

Burkina Faso
Dr. Benoit Kabore
Université de Ouagadougou
01 BP 4487
Ouagadougou 01
Burkina Faso
Tel: 226 812008/380715
Email: benkabor2003@yahoo.fr

Cameroon
Prof. Sylvester Ndeso Atanga
Senior Visiting Lecturer, Epidemology & Public Health
Faculty of Health Sciences
University of Buea
P.O. Box 63
South West Province
Republic of Cameroon
Tel: + 237-653774599/ 243094176
Cell: +237-99841433
Email: silawrence2011@gmail.com or ndesoatpscamnet@rocketmail.com

Cote d'Ivore
Prof. Arsène Kouadio,
Associate Professor, University of Abidjan-Cocody ; Researcher, CIRES
Director, Laboratoire de croissance Economique
Executive Director, Institut pour le Développement (IPD),
Coordinator, ATPS Côe d'Ivoire,
Coordinator, RIA Côte d'Ivoire,
Fellow Researcher, AERC, Poverty Economic Policy (PEP),
Cocody, Boulelevard Latrille
08 B.P. 1295 Abidjan 08, Côte d'Ivoire
Tel : +225 22 44 60 99
Fax: +225 22 48 82 84
Mobile : +225 07 98 46 80 /
05 95 97 91
E-mail: arsene.k@ipd-ci.org
arsenekk@yahoo.fr
arsenekouadio@hotmail.com

Egypt
Ms. Manal Moustafa Samra
Focal Point Coordinator
45 Noubar Street, Bab El-Louk
8th Floor, Apt 29,Cairo
Egypt
Tel: +20105005284
Email: mmsamra@gmail.com

Ethiopia
Mr. Wondwossen Belete,
Ag. National Coordinator
Director of Intellectual Property Protection and Technology Transfer,
Ethiopian Industrial Property Organization (EIPO)
Email: wondwossenbel@yahoo.com

Gambia
Vacant

Ghana
Dr. Fred Amu-Mensah
Senior Research Scientist
CSIR Water Research Institute
P.O. Box M.32
Accra, Ghana
Tel: +233-24-4748197
Fax: +233 21 77 7170
Email: assabil@aim.com or obeyie@gmail.com

Kenya
Dr. Stephen Karimi
Director of Qulity Assurance, National Commission for Science, Technology and Innovation (NACOSTI)
P.O Box 30623, 00100 Nairobi-Kenya
Tel: +254727923357
Email: karimisteve@gmail.com

Lesotho
Mr. Denis Sekoja Phakisi
Acting National Coordinator
Manufacturing Manager
Loti Brick
P.O. Box 8008, Maseru 100, Lesotho
Tel: +266 5885 3389
Fax: +266 22310071
Email: ds.phakisi@lycos.com

Liberia
Dr. Wollor Emmanuel Topor
National Coordinator
Acting Dean
College of Science and Technology
University of Liberia
Tel: + 231-6875802
Email: wollortopor@yahoo.com

Malawi
Dr. Kingdom M. Kwapata
Bunda College, P.O. Box 219,
Lilongwe, Malawi
Tel: +265 999195477
E-mail: kwapata@yahoo.com

Mali
Dr. Sidiki Gabriel Dembele
Agrochimie/Agroforesterie et Fertilité des sols

ATPS NATIONAL CHAPTER COORDINATORS

Bureau Ouest-Africain d'Appui Organisational et de Technologies Appropiées
B.P. E 3730, Bamako, Mali
Tél. : (223) 226 2012
Fax : (223) 226 2504
Cell : (223) 71 3806
Email: sidikigabriel@hotmail.com/ ousmanenia2000@yahoo.fr

Morocco
Prof. Dr. Saïd Boujraf
National Coordinator
Director of the Clinical Neuroscience Laboratory
Department of Biophysics and Clinical MRI Methods

Faculty of Medicine and Pharmacy,
University of Fez
BP. 1893; Km 2.200, Sidi Hrazem Road,
Fez 30000, Morocco
Tel: +212 667 780 442
Fax: +212 535 619 321
E-mail: sboujraf@gmail.com

Mozambique
Eng. Lourino Alberto Chemane
ICT and Planning Advisor
Executive Secretariat, ICT Policy Commission
Bairro da Coop
Rua Particular Dr. Antonio de Almeida
61 R/C Direito, Maputo
Mozambique
Tel: +258 21 309398
Fax: +258 21 302289
Cell : +258 82 3110700
Email: chemane@infopol.gov.mz

Namibia
Surveyor Uzochukwu Okafor
Surveyor- General
Directorate of Survey and Mapping
Ministry of Land Reform
Tel: +264(0)2965036
Mobile: +264811223311
Email: uzo.okafor@mlr.gov.na

Nigeria
Prof. Michael C. Madukwe
Professor, Department of Agricultural Extension
University of Nigeria
Nsukka, Enugu State
Nigeria
Tel: +234 42 771019
Fax: +234 42 771500
Cell: +234 803 700 6968
Email: madukwe@hotmail.com/ madukwemichael@yahoo.com

Prof. Femi Olokesusi
Nigerian Institute for Social and Economic Research (NISER)
P.M.B 5 UI Post Office
Oyo Road, Ojoo, Ibadan, Nigeria
Tel: 234-8023322052/ 8073132917
Fax: +234 2 2413121
Email: femioloke@yahoo.com

Rwanda
Dr. Marie-Christine Gasingirwa,
Director General, Science, Technology and Research,
Ministry of Education, Rwanda.
Email: cgasingirwa@mineduc.gov.rw

Senegal
Dr. Papa Alioune Sarr Ndiaye
ESP BP 15475 DAKAR Fann
Sénégal
Tél : Bureau (221) 864 54 18
Fax : (221) 864 21 43
Domicile (221) 820 23 88
Cellulaire (221) 634 58 88
Email : papaas.ndiaye@ucad.edu.sn or papealiounen@yahoo.fr

Sierra Leone
Dr. Kelleh Gbawuru Mansaray Head-Dean of Faculty, Faculty of Engineering at Fourah Bay College,
University of Sierra Leone
Mount Auroel
PMB Freetown Sierra Leone
Tel: +23278476527
Email: squirechris15@yahoo.com

South Africa
Professor Mark Swilling
Stellenbosch University, Private Bag X1,
Matieland, 7602, South Africa
Cell: +27(0)83-459 7417
Tel: +27(0)21-881 3196
Fax: +27(0)21 - 881 3294
Email: swilling@sun.ac.za

Sudan
Mrs. Nadia Hassan Sidahmed
Economic Studies Department
Industrial Research & Consultancy Centre (IRCC) Sudan
Tel: +249 911449106
Email: nadiahsh@yahoo.co.uk

Swaziland
Prof. Musa Dube
Senior Lecturer
Faculty of Agriculture
University of Swaziland
Luyengo Campus
P. O. Luyengo, Swaziland
Email: madube@uniswa.sz

Tanzania
Dr. Amos Nungu
Director General
Tanzania Commission for Science and Technology
P.O Box 4302, Dar-es-Salaam Tanzania
Tel: +255222774023
Email: hmshinda@costech.or.tz

United Kingdom
Mrs. Martha Ada Ugwu
National Coordinator
59 Highgrove Road
Walderslade, Chatham
Kent, ME5 7SF, UK
Tel: +4401634310389/07985476289
Email: Martha.ugwu@yahoo.co.uk or Martha@ugwu.fsworld.co.uk

Uganda
Dr. Engr. John Okuonzi
National Coordinator
Kyambogo University
Faculty of Engineering, Department of Electrical and Electronic Engineering,
P.O Box 1, Kyambogo, Kampala, Uganda
Tel: +256 782 353034

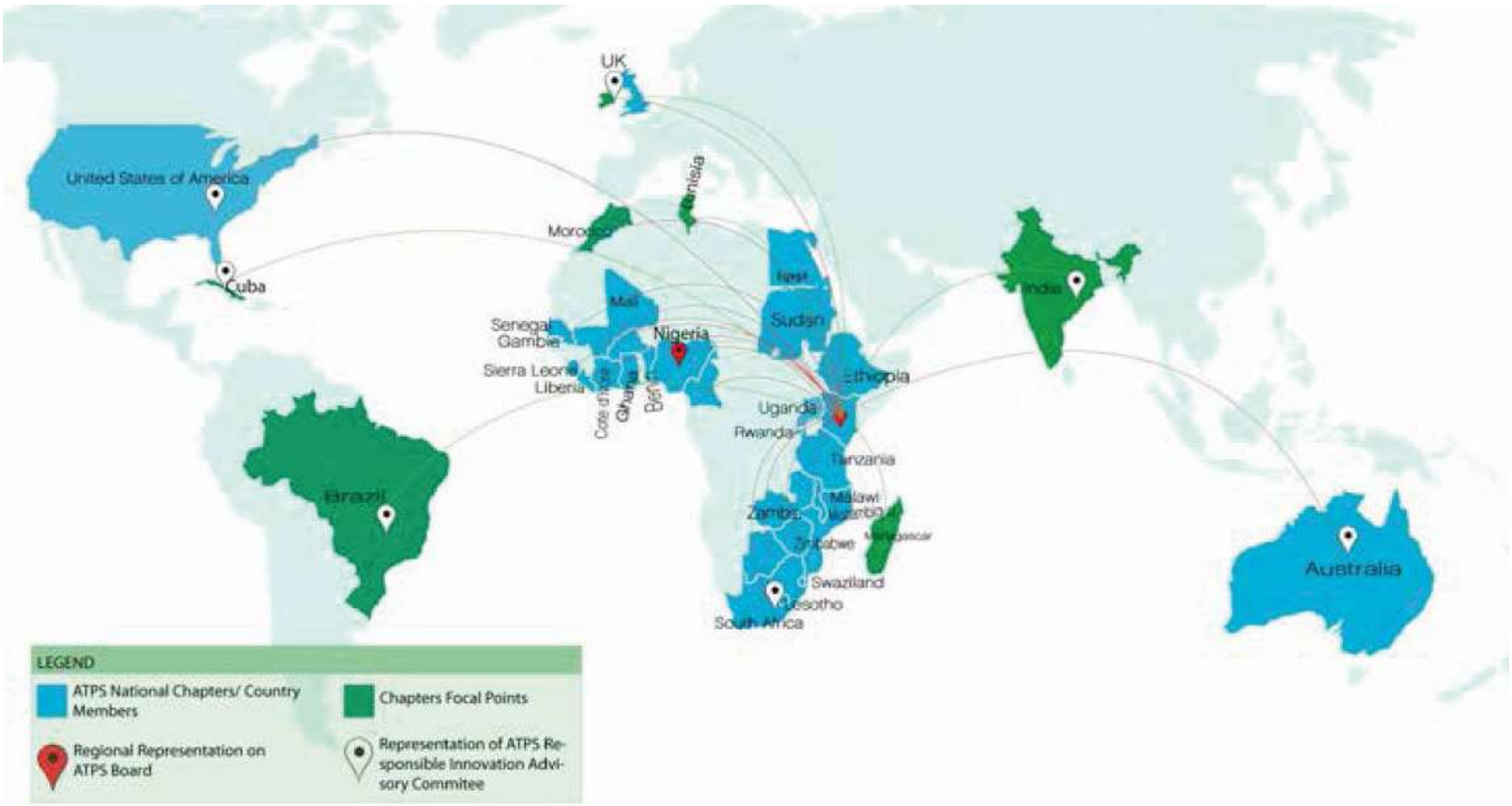
ATPS NATIONAL CHAPTER COORDINATORS

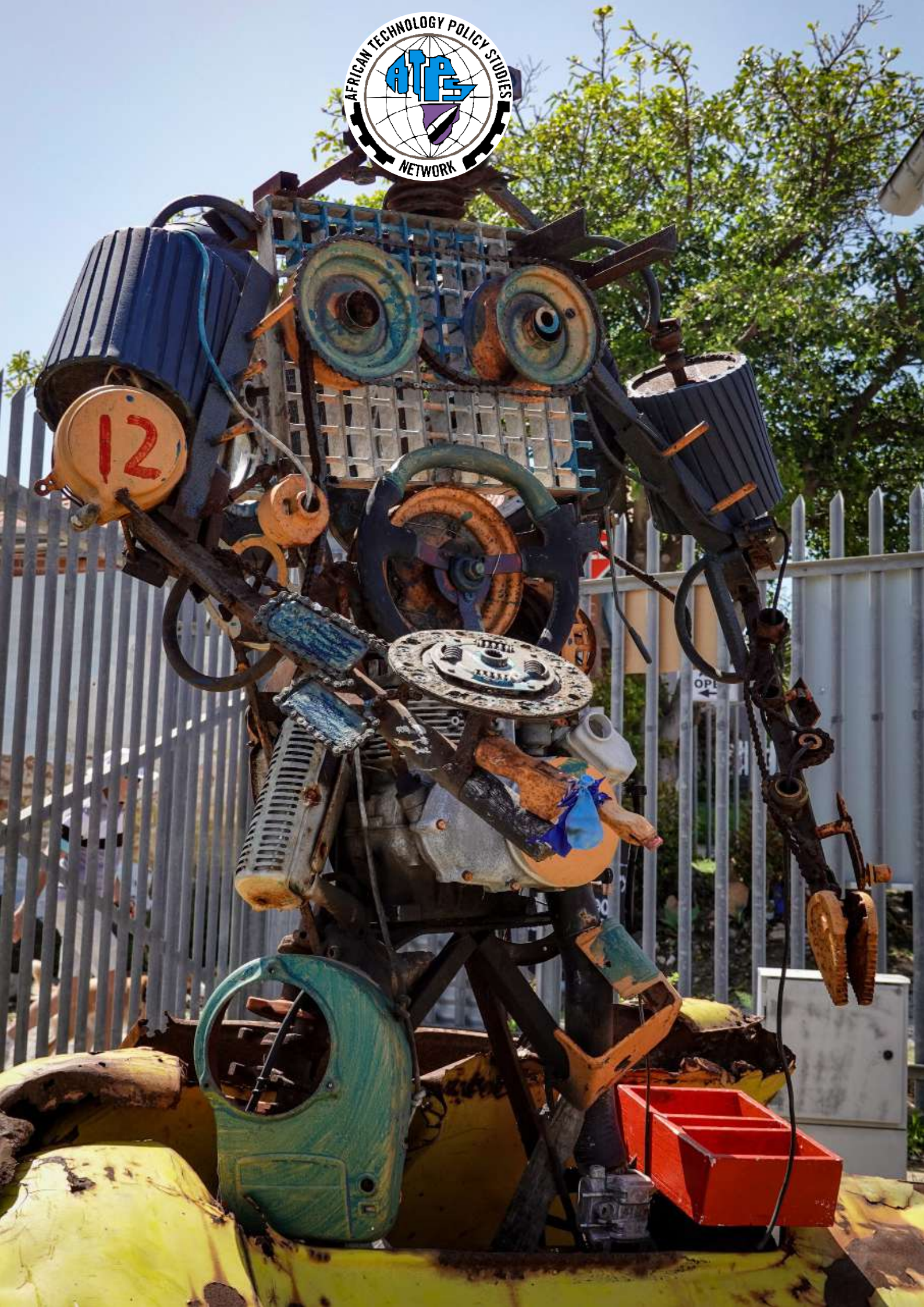
Email: jokuonzi@kyu.ac.ug or okuonzijohnie@yahoo.com

United States of America.
Dr. Anthony C Ikeme
National Coordinator
President & CEO
Clintriad Pharma Services
102 Pickering Way, Suite 200
Exton, PA 19341
Tel: 484.753.3405
Cell: 215.380.9920
Fax: 610.384.5455
Email: aikeme@clintriad.com

Zambia
Prof. Francis Yamba
Director, Centre for Energy Environment and Engineering Zambia (CEEEZ) Ltd,
176 Parirenyatwa Road
Suite B. Fairview, P/B E721
Lusaka, Zambia
Tel/Fax: +260 977856167
Email: ceeez2015@gmail.com

Zimbabwe
Mr. Benson Zwizwai
Economics Department, University of Zimbabwe
P. O. Box 880 Harare, Zimbabwe
Tel: +263 772494902
Fax: +263 4 333345
Cell: +263 912245614
Email: bmutzwizwai@yahoo.com




AFRICAN TECHNOLOGY POLICY STUDIES
NETWORK
12