



TECHNOPOLICY

AFRICA

This is the official newsletter of the African Technology Policy Studies Network (ATPS)



Highlights:

ATPS signs a Protocol of Agreement with the African Development Bank

Transforming Africa's Education Sector through Technology

Politics of Innovation: Why some Countries are Better than others at Science and Technology

ATPS Vision:

To become the leading international centre of excellence and reference in science, technology and innovation systems research, training and capacity building, communication and sensitization, knowledge brokerage, policy advocacy and outreach in Africa.

ATPS Mission:

To improve the quality of science, technology and innovation systems research and policy making in Africa by strengthening capacity for science and technology knowledge generation, communication and dissemination, use and mastery for sustainable development in Africa.

Overall Objective:

To develop Africa's STI capacity (knowledge basis & infrastructure, knowledge circulation & networks, knowledge conditions & policies) today for sustainable African development tomorrow.

ATPS Motto:

Building Africa's capabilities in science, technology and innovation policy research, policymaking and policy implementation for sustainable development.

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CHAIRMAN'S MESSAGE

Last year in July, the ATPS held its annual stakeholders' forum with an aim to review its current Phase VII Strategic Plan (2013-2018) and align it with the African Union's Agenda 2063, the Science, Technology and Innovation Strategy for Africa (STISA 2024), and the UN Sustainable Development Goals (SDGs) so as to serve its numerous stakeholders better. In the proposed new Strategic Plan Phase VIII (2017-2022), ATPS has shifted its focus from the usual programmatic approach to emphasize on a sectoral approach by identifying Africa's priorities for sustainable development. Based on this, the stakeholders identified four key sectoral areas including Agriculture, Food and nutrition; Energy; Climate change and environmental management; and Health innovations.

Under the Climate change and environmental management sector, ATPS will continue with its work in building climate change resilient capacities at individual, institutional and systematic levels on the continent. We will also continue to promote the Climate Sense Program (CSP) which ATPS launched in 2008 in partnership with the United Nations Environment Program (UNEP) which aims to make sense of climate science through effective science communication, make sense of climate economics through policy analyses, make sense of climate innovation through investment portfolio analyses and innovation incubation programs, and make sense of climate politics and policymaking through scenario analyses and training programs.

ATPS in its proposed new strategic plan will identify and promote technologies and innovations for improving productivity and resilience, reducing waste and improving value addition along the agricultural food chain from the farm to the table. One of such technologies for building resilience capacities of farmers while improving their productivity is the award winning LandInfo mobile app. The app was developed by the United States Department of Agriculture (USDA-ARS) in partnership with the ATPS and other global actors and launched in 2015.

ATPS is currently out-scaling the LandInfo mobile technology across Africa and among farmers, extension agents and land-use planners to build their resilience capacities to the impacts of climate change and improve productivity as well. The app enables users to deepen their knowledge on the biophysical characteristics of soils and be able to target investments on land for specific purposes such as crop choices for specific soils. With knowledge on annual average rainfall and temperature, average water retention capacity, aridity index, and name of the soils at point-given locations among other variables produced by the app, farmers are able to plan their farming enterprises adequately to avoid losses due to climate



Prof. Shaukat Abdulrazak

variability hence improving agricultural productivity and climate change resilience. We continue to solicit for support from development agencies so that we can out-scale the use of the app across Africa. The app has been successfully deployed in Samburu, Baringo, Kisumu, and Meru counties in Kenya and in Namibia where ATPS has received supports to out-scale the technology.

Thank you for your continued supports for the ATPS programmes. We welcome more supports as we commence the implementation of our new Phase VIII ATPS Strategic Plan 2017-2022.

**Prof. Shaukat Abdulrazak, PhD, FKIM, FAAS FASI, FTWAS, MBS
Director, Division for Africa, Department of Technical Coop.
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Chair, ATPS Board of Directors**

EXECUTIVE DIRECTOR'S MESSAGE

I welcome you to read this new edition of the ATPS *Technopolicy Africa Newsletter* which has very many exciting news and information. Overall, the ATPS continues to contribute significantly in promoting science, technology and innovation (STI) Agenda in Africa. This agenda envisions STI as a means for achieving the sustainable development goals, the African Union's Agenda 2063 (including STISA 2024) and various national development priorities.

ATPS has witnessed lots of activities during the last three months that confirms our strength and contributions to the overall STI Agenda in Africa. For instance as an implementing partner to the Science Granting Councils Initiative (SGCI) in Africa responsible for providing platforms for networking over 15 African Science Granting Councils (SGCs) in 15 countries, we have in partnership with our donors and partners identified the theme for this year's SGCI Annual Forum scheduled to hold in Livingstone, Zambia from 22-23 November 2017. The theme tagged "Towards Effective Public-Private Partnerships in Research and Innovation in Africa" was carefully selected based on necessity and demand.

As Africa articulates its vision for socio-economic transformation by improving its research and innovation systems for the implementation of STISA-2024, discussions on strengthening partnerships between the public and private sector have been reignited. African governments have pledged their supports for partnerships as a vehicle for achieving sustainable transformation and committed to "the development, coordination and sustenance of networks and partnerships at national, regional, continental and global levels". Effective public-private partnerships have the potential to address societal development challenges through the combination of skills, competencies and expertise to overcome individual limitations. Flourishing public-private partnerships can increase public sectors' responsiveness to the transformation of innovation processes and associated private sector needs and strategies, as well as enhance the translation of research results and outputs into innovations.

The motivations for pursuing public-private partnerships however differ depending on each actor's interests. Such motivations may include: access to knowledge, expertise, skills, networks and contacts; access to funding; improved stakeholder relations; improved reputation and credibility; increased operational efficiencies and effectiveness; creation of more appropriate services and products; access to and/or knowledge of new (future) markets; access to and more insight into business operations, current markets and supply chains; and increased leverages/impacts. The Science Granting Councils as government intermediaries have a crucial role to play in catalyzing and facilitating public-private partnerships



Dr. Nicholas Ozor

to stimulate private and public investments in research and innovation.

As we plan to hold this very important event in November this year, we urge all STI stakeholders, actors and development practitioners to become part of the agenda and contribute their own quota towards fostering effective public-private partnerships in research and innovation in Africa. The SGCI is funded by the International Development Research Centre (IDRC), Canada; the National Research Foundation (NRF); South Africa; and the Department for International Development (DFID), UK. It is a 5 year initiative that aims to strengthen capacities of Science Granting Councils to support research and evidence-based policies that contribute to economic and social development on the continent. The SGCI theme on *Networking Africa's SGCs* is being implemented by the African Technology Policy Studies Network (ATPS) in partnership with the Scinnovent Centre.

Thank you all for your continued supports that have enabled us implement ATPS programs.

**Dr. Nicholas Ozor,
Executive Director, ATPS**

ATPS SIGNS A PROTOCOL OF AGREEMENT WITH THE AFRICAN DEVELOPMENT BANK



From Left: Dr. Olufunso Somorin- Senior Policy Officer(AfDB), Dr. Nicholas Ozor -ATPS Executive Director and Mr. Onesmus Maina -Senior Agricultural Expert, EARC/OSAN (AfDB) during the signing of a protocol of agreement between ATPS and AfDB.

By Dr. Nicholas Ozor

The African Technology Policy Studies Network (ATPS) has signed a Protocol of Agreement (POA) with the African Development Bank (AfDB) for the implementation of the Bank's Clim-Dev Special Fund (CDSF) Project tagged *"Bridging climate information gap to strengthen capacities for climate informed decision-making in Africa"*. The CDSF is a multi-donor fund established by the African Development Bank under a tripartite partnership with the African Union Commission (AUC) and the Economic Commission for Africa (ECA). It is currently capitalized to Euro 33 million with contributions from the Nordic Development Fund, Swedish International Development Agency and the European Union.

The Director General, East Africa Regional Development and Business Delivery Office of the African Development Bank, Mr. Gabriel Negatu signed the POA on behalf of the AfDB while Dr Nicholas Ozor, Executive Director, African Technology Policy Studies Network signed on behalf of the ATPS. The ceremony took place at the AfDB Regional Offices in Nairobi, Kenya on 16 June 2017 marking the commencement of implementation of the two year project.

The overall goal of the ATPS's CDSF project is to strengthen the capacities of relevant stakeholders in five countries (Cameroon, Kenya, Malawi, Nigeria, and Tunisia) to understand and deploy appropriate climate information and best practices to inform decision-making. It aims to support development planning to reduce vulnerability and foster a food-secure Africa. Specifically, the project will:

1. Identify and analyze climate information needs and provide support for climate information synthesis and use;
2. Build the capacities and knowledge of government agencies, research institutions, extension agents, and contact famers to utilize high quality, demand-driven climate information for adaptation planning and decision-making;
3. Facilitate the mainstreaming of climate change issues in regional policy dialogue aimed at raising awareness on climate change issues to strengthen understanding, use and mastery of climate information.

The project will strengthen the capacity of national governments in the selected countries to understand and deploy appropriate climate information and best practices for effective



Dr. Olufunso Somorin (Left) congratulates the ATPS for receiving a grant award to implement the AfDB project on “Bridging climate information gap to strengthen capacities for climate informed decision-making in Africa.”

climate-proof policymaking and practices. Relevant national institutions and organizations will benefit from their involvements in the project and the use of climate information database for long-term development and adaptation planning. Through the climate information that will be made available and accessible in this project, there will be increased awareness and sensitization on climate change issues that can promote the integration of climate information into national development agenda. The project will contribute to enhancing the capacity of extension agents and contact farmers using the LandInfo mobile app technology to collect climate information and use it to make informed decision for improving agricultural productivity, land-use management and climate resilience. Finally, the project will provide platforms to improve the working relationships between and amongst responsible national institutions to use and share relevant and unified climate information services and products.

The project will be implemented in partnership with other like-minded organizations in Africa including; the Stockholm Environment Institute (SEI) Africa Centre; the IGAD Climate Prediction and Applications Centre (ICPAC); the Observatoire du Sahara et du Sahel (OSS); the AGRHYMET Regional Centre (ARS); and the Regional Centre for Mapping Resource for Development (RCMRD). ATPS leads this consortium of partners and holds the fiduciary responsibility for the implementation of the project. The project also falls under the current ATPS Phase VIII Strategic Plan 2017-2022 that identified climate change and environmental management as one of the thematic priority areas of emphasis for our work in the next five years. We sincerely appreciate the support from the AfDB on this project and welcome more supports from other development partners and donors to enable us actualize the objectives of our new Phase VIII Strategic Plan.

The main outcomes expected from the project include:

- Improved national and regional level data collection systems and synthesis for better deployment in decision making and practice in Africa;
- Improved capacity of policymakers, scientists, extension agents and farmers to use climate information and technology tools for adaptation planning and decision making; and
- Strengthened information exchange and improved networking among stakeholders working on climate change adaptation in selected countries.

AFRICA'S ENERGY CRISIS: TIME TO LOOK INWARD



By Kingsley Ukoba,
Doctoral Student, Mechanical Engineering,
University of Kwazulu, South Africa

Energy at the nucleus is 50% of the grand challenges in the 21st Century. Provision of affordable and efficient energy is a major human challenge. Electricity is non-existence in 20% of world population with developing countries having 99.8% of that figure.

Sub-Saharan Africa is home to about 85% of the 1.3 billion people in developing countries without access to electricity with an estimated electrification rate of 32%. Several countries in Africa and South Asia lack access to electricity while the rest have high disruption with less than four hours of power supply. Developed countries like Germany have turned their fortune around in terms of electricity generation by harnessing the power of renewable energy. Asia seems to be making headways in electricity generation as several renewable firms are flocking there.

Africa still lags behind in provision of affordable, clean and stable electricity to her populace; countries like Nigeria are still struggling to provide uninterrupted electricity for four hours a day to its citizens. Apart from unstable supply of electricity, other problems which still exists in such regions include; a relatively high cost of electricity, undeveloped infrastructure especially in remote areas, and uneven billing of electricity. This has made most of her citizens to resort to alternate source of electricity supply.

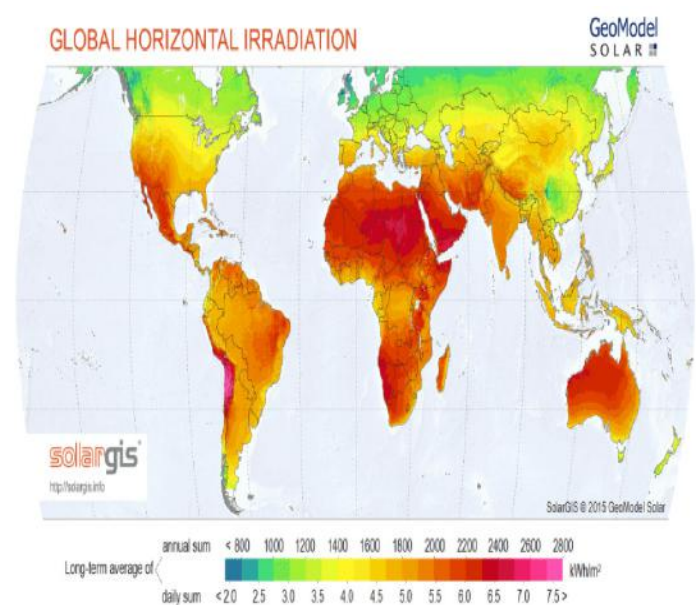
Renewable energy is a viable solution to ending global electricity problem as it exceeds world energy demand. Renewable energy is energy source that can be renewed indefinitely like; solar, wind, geothermal, oceanic, hydro, biomass and

other sources. They are used as electricity, thermal energy, fuels, mechanical force and hydrogen. They are energy source that are derived from non-fossil and non-nuclear sources. They are sustainable and not harmful to the environment.

Key Statistics from Renewable Energy Sources

The global horizontal irradiation map gives the solar energy potential of various regions around the world. Areas close to the equator have more solar potential than those in the south or north while regions of South America and Africa have potentials above 7.5 kWh/M2. Russia, Northern Canada and Scandinavia all have potentials below 2.0 kWh/M2 per day.

Solar Energy



Global Horizontal Irradiation map

(source: solargis)

Despite the fact that the odd of solar energy does not favour European countries, their total electricity from solar energy was 94,570 MW in 2015.

Germany, Italy, UK, France, and Spain occupy position 2, 5, 6, 7, and 8 in the top 10 installed solar capacity globally. Asia continent is also not left out, they are investing big time in solar technology and equipment. Central, South America and Africa share similar stories despite their huge solar potential, there is little installed capacity in the continents.

More countries such as Denmark, Uruguay, Portugal, Ireland, Spain, Cyprus and Germany are embracing wind power technology. The global wind energy council forecast gave 60 GW of new wind installations in 2017, rising to an annual market of about 75 GW by 2021, to bring cumulative installed capacity of over 800 GW by the end of 2021. China leads the cumulative capacity with over 34.7% while the rest of the world have 15.5%. Asia leads the rest of the world in wind power installed capacity annually unfortunately, Africa, Middle East and pacific region are yet to harness their huge wind potentials.

Africa is endowed with most of the renewable energy sources due to her geographical positioning hence, the solution to ending Africa energy crisis lies within. Major challenges to harnessing wind power include:

- Development of the adequate technology to transform and harness such renewable energy sources. The sun needs a photovoltaic (PV) cells to convert it to electricity and water needs hydro-turbine to convert it to electricity. The continent boast of best brains that can develop some of these technologies but others factors militate against it.
- High cost of importing existing equipment or technology to harness such renewable energy sources and lack of political goodwill to drive the technology.

The solution to the above enumerated challenges is development of in-continent technology with cost, maintenance and efficiency as major focus. Renewable energy production time is very short when compared to other sources of energy.

Solar Energy

A blend of nanotechnology and metal oxide using “non-pressure” deposition equipment may be the solution the continent needs. Non-pressured equipment such as spray technology, chemical bath and low cost deposition methods will help in ensuring thinfilms solar cells research thrive in Africa’s laboratory. This is because they do not require long hour of electricity supply for deposition of thinfilms. Nanostructured transparent conducting oxide are affordable when compared to silicon. This will encourage production of solar panel in the continent at reduced price.

Hydropower

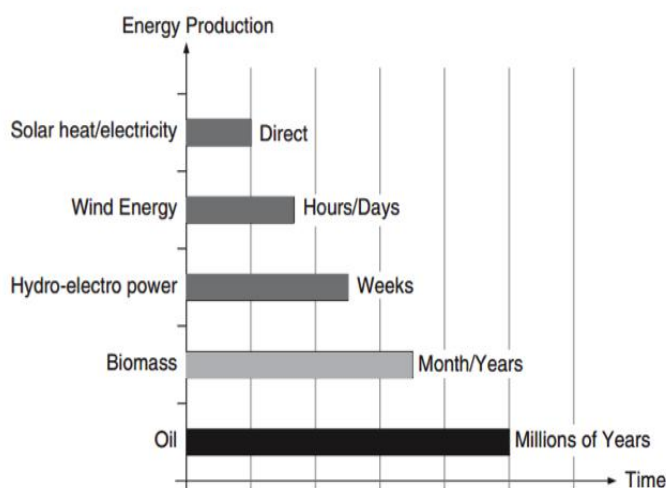
Research into using large water body available in Africa can be encouraged in several ways. Kinetic turbine or Damless hydro can help solve the problem of electricity access to remote areas in Africa. Most of the remote areas have rivers and streams yet not connected to the grid. Low head hydropower such as kinetic can be used to generate electricity using rivers and stream of 20 metres (66 ft) head or less without creating a dam. Annually, an average of 120,000 to 250,000 kWh of electricity can be produced from rivers and streams. A river with a minimum depth of 150cm at low flow with average flow rate of 2metres per second and average flow condition of 50m³ per second are all that is needed. Use of local materials and scrap can also increase deployment of hydropower in Africa at reduced rate.

Biomass

It is a form of renewable energy used for converting organic materials into electricity. It accounted for 4 percent of the energy used in United States in 2010. However, the major challenge associated with it, is a steady supply of fuel and creation of emissions and ash that may be toxic to the environment. Improvement on this technology to reduce the above will speed the rate of its usage in Africa.

Others

Development of in-continent capacity and use of indigenous materials and technology will play vital role in speedy and accelerated electrification for the continent.



Energy production versus time for various energy resources.

ATPS PARTICIPATES AT THE SOLAR RADIATION MANAGEMENT GOVERNANCE INITIATIVE WORKSHOP



Dr. Nicholas Ozor, ATPS Executive Director addressing the audience during the Solar Radiation Management Initiative Workshop at Hilton Hotel, Nairobi Kenya.

By Sharon Anyango

ATPS in partnership with the African Academy of Sciences, Stockholm Environment Institute and African Centre for Technology Studies organized an introductory Solar Radiation Management Governance Initiative (SRMGI) workshop on 6th June at the Hilton Hotel, Nairobi Kenya. Dr. Nicholas Ozor, ATPS Executive Director welcomed participants into the workshop and noted that there are still uncertainties surrounding the Solar Radiation Management (SRM) because there are potential advantages and risks which needs to be analyzed carefully before being adopted or rejected because of the effects it has on climate.

The SRMGI is an international project that seeks to broaden the discussion in developing countries so that they can contribute to the ongoing global conversation about SRM. The African continent produces negligible amount of greenhouse gases (920,000t which is less 4% of the global production) ironically, Africa bears most effect on climate change.

SRM also known as solar geoengineering is a theoretical approach which aims to reduce the impacts of climate change by reflecting a small amount of inbound sunlight back into space. SRM can be used to stop or reverse the rise in temperatures from global warming hence achieving the 1.5C temperature target agreed in the Paris Climate talks however, there are still uncertainties which could prove worse than the climate change it is seeking to address. The SRM process if approved will involve brightening marine clouds by spraying sea water into the lower atmosphere or replicating the cooling effect of volcanoes by spraying reflective sulphate particles

into the stratosphere. The other way will be through aerosol injection in the stratosphere through the use of aeroplanes or balloons to inject reflective aerosol particles in the air hence it will reflect away some sunlight and cool the planet for almost two years. SRM is still an ongoing conversation however, it is not a solution to global warming and does not represent a substitute for mitigation of greenhouse gases but it can reduce some risks like halting the rise in global temperatures.

ATPS interest on the SRM project are on the research interventions required to ensure greater understanding among various stakeholders, governance issues required to engage policymakers, Intellectual Property Rights, how awareness can be done to reach more people to understand the system and lastly, it is the expected impact. Dr. Ozor also emphasized on the importance of collaborations as no institution can do it alone.

Some of the concerns raised by participants at the workshop about the SRM is on the need for more analysis on ethical issues which may be a distraught to the process, others encouraged more research on SRM saying that it may start with a small momentum and gain more support while others were of the opinion inadequate data and cost may hamper the progress hence there is need for advocacy to be done in terms of local context. If SRM is the only solution what then is the minimum threshold required to make it a reality and can SRM be integrated into the curriculum so that the public can advance knowledge of this new technology? Those are some of the critical questions raised during the workshop. The conversation is still ongoing and various stakeholders are being encouraged to contribute to the discussion.

THE ROLE OF INCLUSIVE PARTNERSHIP ARRANGEMENTS IN AGRO-FOOD CHAINS IN GHANA: BENEFITS FOR PRIVATE ACTORS AND IMPLICATIONS



Farmers collecting coffee from the farm.

Photo: Sustainability at Coop

By Alexander Nuer, Liesbeth Dries, Felix Asante, Stefano Pascucci, & Aneemarie van Paassen

A team of researchers from Wageningen University-Netherlands, Institute of Statistical, Social and Economic Research (ISSER) University of Ghana, Science and Technology Policy Research Institute of the Council for Scientific and Industrial Research- Ghana, Crop Research Institute of the Council for Scientific and Industrial Research-Ghana, Dissemination of New Agricultural Technology in Africa (DONATA)- Ghana, Cocoa Research Institute- Ghana, SOLIDARIDAD West Africa's coordinated Cocoa Rehabilitation and Improvement Program (CORIP), Royal Netherlands Embassy Accra Ghana, International Fertilizer Development Center -2Scale Project in Ghana, and a Dutch international development organization (SNV) in Ghana, undertook a partnership project termed 'Agriculture Partnerships'. The project focused on the role of inclusive partnership for development within agro-food chains and how participation of private actors such as private companies, Farmer Based Organizations (FBOs) and processors involvement in partnership activities induced changes in Ghana's agricultural value chains. The project was sponsored by Dutch Research Organization (NOW-WOTRO). The team worked hand in hand with field technical staff and smallholder farmers along cocoa, cassava and soybean value chains between 2014 and 2017.

In its findings, the team noted that private actors such as companies, buyers and processors did not participate in inclusive partnership arrangements along agro-foods

value chains due to lack of trust relationships and lack of invitations to participate in such initiatives. Private actors play important roles in the success of partnership arrangements. This is because they provide inputs, credit and market opportunities in value chains they are connected with. They further provide competition and co-operation behavior that helps to ensure that value chains become sustainable and successful. This was a general findings from the three partnership project covered in this study.

Most private companies do not participate in partnerships arrangement due to uncertainty of benefits they could gain. The development of mechanism on knowledge and experience sharing within the business arena will help to build trust relationships among such strategic actors. This was more evident in the 2Scale partnership, where many actors formed a knowledge and information base to link (FBOs) and processors as strategic partners to improve on the local soya value chain in Ghana. Business support service provider's coordinators and FBOs periodically meet to discuss and look for options to improve production, yield, sales and marketing of soya in the operational areas. Private companies therefore stand to gain a lot in participating in inclusive partnership arrangements.

Current partnership initiatives passively involve private actors' in the design, implementation and review processes of their projects. It will be prudent for private actors to take active interest in the participation in partnership arrangements to ensure sustainable sourcing. The participation of private actors in CORIP, as an example, created many insights in the

role of private actors in value chains such as cocoa. Engagement in partnerships formulation in an early stage enables private companies' actors to influence the discussions and formulation of partnership policies, to make them fit in their company's interests and organizational culture. It was evident from the CORIP partnership that private companies for instance contributed a fifty percent matching grant, as well as engaged its field staff to implement the partnership project.

Private actor participation in agro-food value chain partnerships will improve and strengthen efficient, effective communication as well as create a feedback stream to productivity, haulage, and entire value chain governance. Farmers' voice also needs to be considered when it comes to negotiations in partnership arrangements that cover their activities and livelihoods. This is further noted in the DONATA partnership whereby smallholder farmers participated through the setting up of Innovative Platforms (IPs). Farmers and other partners shared,

learned, discussed and reviewed outcomes of activities of the partnership project. This created trust, formal and informal relationships that ensured the success of the initiative.

Policy Implications

Participation of private actors in partnership arrangements could bring about needed expertise, enhance, and to a large extent ensure the sustainability of agro-food value chain partnerships. Participation in partnerships serves as opportunities for other actors to know which private actors are working within and along the value chains, and vice versa. Value chain actors learn from the international market expertise of companies; they also learn how to live up to the standards set up by companies. Knowledge gained from private actors' participation in partnerships may help to make informed corporate decisions, hence partnership initiatives should be able to create synergies that will take into account the interests of private companies.

ATPS PARTICIPATES AT THE INNOVATIVE STRATEGIES FOR ADDRESSING AFRICA'S STRUCTURAL DEVELOPMENTAL CHALLENGES WORKSHOP



Dr. Nicholas Ozor (Right), ATPS Executive Director at IRES during the Innovative Strategies for addressing Africa's Structural Developmental Challenges Workshop in Morocco.

By Sharon Anyango

ATPS participated at the "Innovative Strategies for Addressing Africa's Structural Developmental Challenges" workshop which was held on 15th May at the Royal Institute for Strategic Studies (IRES) in Morocco. The meeting was held under the framework of IRES 2018 Strategic report which is devoted to an autonomous development of Africa. In attendance were senior officials from African Think Tanks. Dr. Nicholas Ozor, ATPS Executive Director made a presentation on addressing Africa's Developmental Challenges through Science, Technology and Innova-

tion Research, Policy and Practice. He outlined the importance of STI as a key gateway to Africa's development. STI is the main driver to socio-economic growth, it lays foundations and mechanisms to identify and tackle challenges for the future, leads to environmental sustainability and it plays a central role in achieving the global Sustainable Development Goals (SDGs).

"Research in STI leads to inventions and technologies for increasing agricultural productivity, improving health, quality of manufacturing and building resilience capacity to climate change impacts," said Dr. Ozor

On the state of STI policy in Africa, Dr. Ozor noted African countries have invested low on STI and have been unable to realize the 1% of their GDP on R&D, there are a few number of researchers and most countries do not have an STI Policy. Africa accounts for 2% of the world's publication and has the lowest scientific productivity.

In his concluding remarks, he emphasized on the need to increase domestic STI investments by establishing a national and regional fund, integrating STI programmes into donor development programmes so that they are African-led and sensitive to social and cultural diversities, and national STI policies should be enhanced and aligned with Agenda 2024, Agenda 2063 and SDGs. Other presentations by participants at the workshop focused on Africa's economic, social and environmental development processes and security threat affecting the stability of African countries.

TRANSFORMING AFRICA'S EDUCATION SECTOR THROUGH TECHNOLOGY



Ms. Hindu Nabulumba, the innovator of the Yaaka Digital Network takes students through the platform which aims to bring education closer to those who cannot physically access learning institutions.

By Sharon Anyango

"For every one of us that succeeds, it is because there is somebody there to show you the way out. The light does not always necessarily have to be in your family; for me it was teachers and school." Oprah Winfrey.

Education today, is very competitive and many parents are working hard to ensure their children are in school and access quality education. Government(s) too have not been left out, this is evidenced during national budget announcement where a huge share is dedicated towards improving the education sector. According to a report by the UN Educational, Scientific and Cultural Organisation (UNESCO) public spending on education increased by more than 6% each year. Increased investment led to spectacular results. South Africa is the only country in Africa whose education budget is more than USA and UK.

Africa is already a tech hub, this is evidenced by the number of big companies like IBM, Microsoft, who are investing in Africa. The continent is embracing technology and STEM education so as to keep up with developed nations and reinforce its development. Education experts have for a long time urged teachers to embrace technology to improve teaching and learning in Africa.

Many governments have committed themselves to support ICT in education; this has been done through the development of interactive textbooks, digital curriculum and educational games in schools so as to create an environment like an online digital classroom. The challenges faced by governments and various stakeholders is the inability to reach some

students due to lack of electricity especially in rural areas however, in order to curb the challenges majority of schools have begun to invest on solar power and stakeholders are distributing computers/tablets that require upto 15 watts of power for operation.

For the first time this year, education apps emerged tops in the finals of the Africa Prize for Engineering Innovation which was organized by the Royal Academy of Engineering. Mr. Godwin Benson from Nigeria won \$25,000 cash prize for developing tuteria, an online platform that links students to qualified tutors in their area and within their budget. The app enables students to gain knowledge in any subject, it has expanded its horizons to those who want to expand their skills in various fields like baking cakes and sewing clothes. Other short-listed candidates who made it to the finals of the Africa Prize for Engineering Innovation were Ms. Hindu Nabulumba from Uganda who developed the Yaaka Digital Learning Network which is an interactive social network where teachers and students can share academic knowledge and materials, Mr. Kelvin Gacheru from Kenya developed mobiwater, a smart solar-powered monitoring system and Mr. Andre Nel from South Africa developed the GreenTower Microgrid that reduces the amount of energy used to heat water by 90%. The shortlisted candidates received a six month training and mentoring sessions in which they were taught how develop business plans and market their innovations.

The Africa Prize for Engineering Innovation aims to encourage talented sub-Saharan engineers from all disciplines to develop solutions and challenges in their communities. Other educational apps that have been developed by African innovators are Khan Academy, Safari tales, Toca lab, Duolingo, W hizApp,

and Yoruba101. There is still need for political leadership and stakeholders to support upcoming innovators, ICT incubation and also its adoption in schools because it enables students access information anytime online and also enables them de-

velop life skills essential for the future like critical thinking, creating presentations, maintaining proper online etiquette and also they are able to learn on how to differentiate unreliable sources of information in the internet.

Ms. Hindu Nabulumba 25 from Uganda, is the first woman to be shortlisted for the Africa Innovation Prize which is usually organized by the Royal Academy of Engineering. The award aims to support upcoming innovators who are positively transforming their society through technology. Ms. Nabulumba developed the Yaaka Digital Learning Network which has made education in Uganda more affordable and accessible.



Ms. Hindu Nabulumba (Second from Right) receives her award from the judges for emerging runners-up at the Africa Innovation Prize 2017.

Interview by Sharon Anyango

1. What is the overall purpose of Yaaka Digital Learning Network?

Yaaka's purpose is to provide a platform, tools and application where people can find relevant academic content based on Ugandan syllabus. Teachers are able to share information with the learners and content is in multimedia format.

2. What is the niche you realized in terms of the education status in Uganda that inspired you to come up with the app?

Well, it was in the University where we were piled up with a lot of reading materials that did not make sense to us and also the teacher was not going to set it in the final exam. Reading materials were too expensive and that is when I came up with the thought of creating a platform where teachers would provide content relevant to a students' understanding and they would not have to study to pass exams but actually understand what they are learning.

3. What are other pressing challenges facing the education sector in Uganda?

There is lack of relevant academic content, good schools are very expensive, poor remuneration and underqualified teachers and a poor learning environment amongst others.

4. What are the challenges and opportunities that came along while developing the Yaaka Digital Learning App?

Capital and human resource were very limited, we needed people to review content and at first that was hard to find one because they wanted money. On the opportunity side, we met very important people whom we presented our product to and agreed to our idea and most importantly, was being part of this year's engineering awards.

5. How does the Yaaka Digital Learning app work?

It's a web based app, available at www.yaaka.cc and also offline. You can sign in into the app and access material for free but you can't download anything, one will have to incur costs for downloads. One can also interact with friends like in facebook by sending friend requests, joining groups and forums. To be a trainer you will have to apply to be instructor and put a course you will teach, charge for it if you want, expel students, and also awards marks. Students are also able to do assignments and self-mark for themselves.

6. Is there an age limit for people who can use the app? People in pre-school, primary, secondary? And is there any training required for one to use the app?

There is no age limit to use the app and navigation on the site is easy. The only people who may need training are teachers who may not know how to create online and multimedia content.

7. Is it a must for one to buy the Yaaka tablet or one can download it on their phones or other models of computer

and still use the app?

One should buy the tablet especially if they have no laptop. Right now we are trying to make Yaaka light but we have not been able to succeed though we are still pushing. Unfortunately, you cannot download it on mobile phones and for any offline installation one must come to our offices.

8. How does the app cater for students in remote areas who have the thirst of education but cannot access electricity or even data?

We have created an offline version for them and we are looking forward to partner with a solar company so that they do not have battery issues with the tablets.

9. What are the future plans for the Yaaka Digital?

We want to have Yaaka in 21 countries in the next five years and also have at least 4 million people who are actively using the platform and over 4000 teachers as instructors on the platform.

10. It is almost two years since you developed the app and you still work as a team, how have you managed to remain intact?

Management is usually a problem especially for young people who start as a team, and when differences come along, they decide to part ways. Well, just like any family we fight but we never lose respect for one another. We might disagree on some things but at the end of the day as a team we will settle with the better idea also, since we have worked together for a long time we know each others strengths and weaknesses.

11. What is your vision for the education system in Uganda?

We hope our education system will embrace the digital edge and take up Yaaka which has been developed by Ugandans who have been through the education system and understand the hardships it has. I am optimistic with Yaaka we can make our education system better.

12. Are there challenges of copyright while using the app because teachers and students can share information online which is copyrighted?

Copyright is always an issue but we make sure that when content is shared, it must be produced by an individual and not created from other people's work.

13. Is there a criteria you use to verify if an individual sharing information online is a qualified teacher?

Yes! When you apply to be a teacher, we have a set regulations that must be met before one becomes an instructor. We have to protect our brand too and not have fake teachers on our platform.

14. Do booksellers see the Yaaka Digital Learning App as



Ms. Hindu Nabulumba (Right) and Prince Andrew (Left) at the Pitch@Palace event at Duke of York, UK. The event aims to guide and connect entrepreneurs with potential supporters, mentors and business partners.

a threat to their business because many will opt to go online and take advantage of the costs?

I have not met someone who sees it as threat but as an opportunity since they can sell their books through the platform and make money at the end of the day.

15. Is there an expert input to verify that the content that is being shared online is accurate?

Yes there is. The content was even certified by the National Curriculum Development Centre and the Ministry of Education. We also have teachers and parents that help review the content.

16. Congratulations for being the first lady to be ever shortlisted as a finalist for the prestigious Africa Innovation Prize which was held in Nairobi, Kenya. The Royal Academy of Engineering in UK had organized an intensive 6 months training and mentorship on how upcoming innovators can develop their business plans, market their innovations and how to approach potential investors. How has the journey been and what are the major lessons you have learnt?

It was incredible and exciting especially to be the woman to break record, Actually, I should have won to even make it more exciting. The Journey has been great, I met with Africa's great minds and also with Prince Andrew at Pitch at Palace, the trainings by the source team were mind blowing and it has helped me and my team reflect and come up with a better marketing and promotion strategy so as to be able to reach out more people with various educational tools they would find it easy to use.

17. What is your advice to upcoming female innovators?

The only thing that is stopping you (girls) from achieving what you want is you. If you say No then it is you who cannot do it but if you say Yes then you will see doors open, take a step and that step is a milestone after a period of time and you will be proud of yourself.

17. What is your favourite quote?

14 Your only limit is you.

EMERGENCE OF VISION 2035: ATPS CAMEROON

CHAPTER



Prof. Sylvester Ndeso Atanga, ATPS National Coordinator Cameroon giving updates to delegates present about his Chapter during the 2016 Stakeholders' Forum.

By Prof. Sylvester Ndeso Atanga National Coordinator, ATPS Cameroon

In 2012, President Paul Biya announced to the nation in his new year's speech that Cameroon will become an emerging country by 2035. In order for Cameroon to become an emerging country by 2035, it will require the application of science and technology to get solutions for the economic, social and environmental challenges it is currently facing. According to the World Factbook of US Central Intelligence Agency, Cameroon ranked 113th in the World with 1.1 million internet users in 2012 which is 5.5 percent of the total population. The number of internet users had increased from 749,600 in 2009 to 985,565 in 2011. In addition to this, Cameroon had 10,207 internet hosts in 2012 and was ranked 134th in the world. In 2008 the country had the number of internet hosts increased from 69 in 2008 to 10,207 in 2012 placing Cameroon in the 134th ranking worldwide. These figures show a remarkable improvement in the country's internet services.

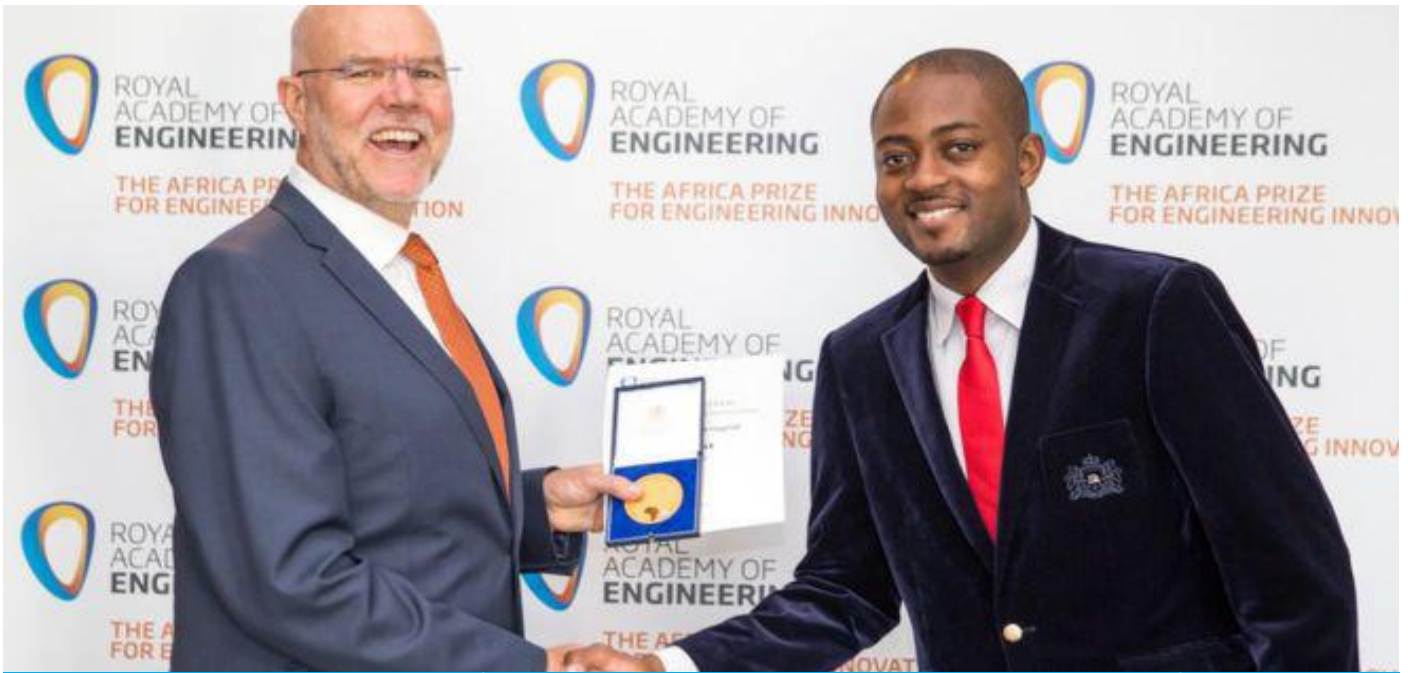
In the Communications sector, there were 737,400 fixed phone lines in use compared to 13.1 million mobile phones according to 2012 figures (CIA World Factbook). Presently, Cameroon has four mobile communication companies against two in 2010. In terms of ICT Infrastructure, there is a SAT-3 marine cable inward with access points in Douala (main one), Limbe (WACS) and Kribi (ACE). There is a national backbone of over 6,000 km of fiber optic cable laid down and financed by the Chinese Government. There is also a fiber optic loop in Douala and a second one is being laid in Yaounde. Cameroon is inked to Chad with a fiber optic cable under the Central African Backbone (CAB) project and VSAT internet is widely used. The

feasibility study for establishment of a National Internet Exchange Point (IXP) which was financed by the World Bank has been completed and the Government has established a national IXP. Currently, there are 200 operational telecenters in the country.

Progress

In order to push Cameroon to achieve vision 2035, President Paul Biya in his Economic Emergence Action Plan mentioned two technological aspects which aim to increase the supply of social and telephone communication (fixed-line and mobile) and ensure high-speed internet access and social networks. In 2014, the Cameroonian government obtained 60 percent ownership of the Limbe West Africa Cable System (WACS) that was initially owned by MTN Cameroon. The FCFA 14 billion project is set to increase internet penetration that could be exported to landlocked countries like the Central African Republic by ten percent. Government's acquisition of the Limbe WACS station adds to the Douala landing station, which went operational in 2002 and linked to the SAT-3 submarine cable. Meanwhile, in a drive to make Cameroon a regional ICT connectivity hub, Cameroon's Telecommunication Company (CAMTEL) announced its intention to construct a Kribi (Cameroon) to Fortaleza (Brazil) submarine cable link. These are indeed ambitious projects which will require huge financial investments and cooperation between partner countries.

Apart from leadership, huge investments and giant S&T projects have already been accomplished and some are still ongoing by the government, there has been great input from the private sector which are led by individuals and business



Cameroonian Arthur Zang is the innovator of the cardiopad tablet which enables heart examinations to be performed in remote rural areas and results transferred wirelessly to specialists who can interpret them. Mr. Zang is the winner of 2016 Africa Prize for Engineering Innovation.

magnets. For instance, Mr. Paul Kammogne Fokam, the founder of Afriland First Bank and promoter of the P.K. Fokam International Conference Institute for Excellence in Science and Technology announced the African Science and Technology Award. The purpose of the award is to promote applied research in Africa and innovation in entrepreneurship. According to Fokam, there will be two awards: one will be given to the winner in the category of business innovations which will be through application of applied research outputs and he/she will be awarded upto 10 million FCFA (\$12.000). The second award will be to the best inventor of a product developed as a result of application of scientific research and he/she will go home with 2 million FCFA (or \$2000).

Mr. Fokam says this prize is his contribution to the rise of a generation of Africans who have the ability to support the black continent towards excellence. He noted there is a direct correlation between fundamental research, applied research and the distribution of wealth in the world. Mr. Fokam is also planning to launch a digital research grant.

Inventions by Cameroonians

New information and communications technologies (ICT), in particular high-speed internet have changed the way in which companies do business, transformed public service delivery and democratized innovation. This has improved the working and living conditions of both customers and employees of banking and health sectors. Some of the inventions developed by Cameroonians are:-

- Arthur Zang invented the patented touchscreen Cardio Pad, the first Africa's medical tablet which enables health-

care workers in rural areas to send results of cardiac tests to heart specialists via a mobile-phone connection.

- Alain Nteff developed "GiftedMom" which uses mobile phone technology to remind pregnant women when to come for antenatal care and alert mothers on vaccination schedules for their infants. The app aims to reduce maternal and child deaths in Cameroon.
- "Academia", is a locally designed software to facilitate communication between teachers and students is already gaining ground in secondary schools.

Challenges

Despite all these developments, Cameroon is still missing out in the 21st century technological advances due to poor telephone lines and lack of qualified technicians to run TCP/IP networks. These recent developments need to be coordinated for a better productivity.

The adoption of ICT and scientific innovations are a laudable effort however, much still needs to happen in the area of manufacturing. R&D must take place especially in the agro-industrial sector, as a rich agricultural nation, transformation of this sector from agrarian to industrial production will propel the country towards emergence. The rich mineral resources of the country are an added booster which is still largely unexploited. Transparency in this sector like in the oil sector is needed otherwise western companies will do what they have done in the petroleum sector thereby rendering the country poor and very far from the contemplated emergence in 2035.

RESEARCH AND DEVELOPMENT CREATES NEW KNOWLEDGE: ATPS SUDAN CHAPTER



Mrs. Nadia Hassan, ATPS National Coordinator Sudan addressing delegates during the 2016 stakeholders' forum.

By Nadia Hassan
National Coordinator- ATPS Sudan

Success is a science which if you invest in, you will harvest its fruits. Sudan has not been left out in research and development of Science & Technology (S&T) however, except for medical and health sciences bulk of S&T research is carried out within public research centers and not in universities. The dominant type of public R&D institutions are those connected to ministries in the real economy (production or service) which enjoy financial and administrative autonomy. R&D institutions affiliated to former Ministry of Science & Technology had been taken over by the Ministry of Higher Education and Scientific Research after the last ministerial restructuring.

Sudan occupies a lower competitive position in terms of S&T input-output indicators at the global innovation index; like any other least developed Country, knowledge creation remains to be a function of public institutions that renders scant innovative products and services to private organizations. Knowledge creation processes are operated in a non-conducive environment which lack adequate funding resources, effective linkages, and incentive systems. The National System of Innovation (NSI) is characterized by fragmented and inadequately coordinated agencies. Despite high-quality education in Sudan there is still insufficient skilled human resources devoted to S&T development, national R&D institutions are short of contributing to development of local technologies and to adaptation of imported technologies which has hampered their potential role of contributing towards economic development.

Research programs are either discipline-oriented or commodity-oriented; major challenges that constitute subject area of research priority include: poverty, unemployment, climate change, nutrition and productivity where emphasis is to

streamline with the national agenda. Focus is missed where wide diversified areas of research per individual institution is the dominant feature of S&T planning, this explains problems in communication and coordination. Owing to the patronage mode that shapes R&D link to policy making; policy decisions are rarely based on evidence based analysis. There is need to encourage the private sector to innovate through incentives and proper regulations put in place. Unfortunately, frequent ministerial restructuring obstructed the coordination function assumed to be tackled by the dissolved Ministry of Science and Technology.

In the recent years, Sudan policy makers driven by national and continental movements started to pay attention to the S&T question. Presidential Announcement affirmed alignment of national policies with the African Science Technology and Innovation Indicators Initiative (ASTII) - a program within the African Science and Technology Consolidated Plan of Action (CPA) for pushing up innovation indicators. Another regional initiative that Sudan joined is the Arabic League endeavor to develop a common set of S&T indicators. ATPS Chapter Coordinators had contributed to this effort. Sudan also welcomed an African endeavor to establish a system for national STI statistics which will help to develop policies out of it. Innovations in private firm are rare due to lack of observatory institutions, lack of firms to register Intellectual Property and absence of incentives for firms to innovate. Linkages between R&D and private sector that are assumed to provide ways of collaboration and beneficial interaction between knowledge creator and supposed knowledge user are fairly modest.

The rising concern about STI situation in Sudan led to extensive discussions on the different level of responsibilities and concern for diagnosing situations and for identifying elements basic to S&T policy. Some of the concerns raised include: knowledge transfer; IPR system and incentives to commercialize research. The academic community is undergoing structural development for establishing quality and sustainability in their research system. Initiatives for reform at organizational level are aimed at maintaining the quality of R&D and ensuring the value of research are formally instituted. The criteria and measures of universities evaluation and accreditation are put in place by the recently created National Commission for Higher Education Quality and Accreditation.

Civil society organizations have actively played a role in brokering knowledge hence filling this critical gap by introducing innovative products and processes in the rural agriculture and industry and enhancing Grassroots Innovation' (GRI). Their aim is to improve and disseminate indigenous innovation from the informal sector by local communities in an

attempt to compensate for lack of development of relevant institutional structures that maintain inclusion of GRI in the National System of Innovation. Additionally, youths and fresh scientists graduates have grouped themselves in entrepreneurial communities and are striving to secure recognition and resources. Unless R&D is adequately managed,

the resources applied for it to create knowledge and innovate for the benefit of the nation will be in vain. ATPS Sudanese Chapter has contributed positively to the ongoing efforts of building quality conditions of S&T by preparing a guide for R&D self-evaluation. ATPS Sudan Chapter is keen in making presence of the activities and events that put STI as its focus.

ATPS STAFF PARTICIPATES AT THE COMMONWEALTH PROFESSIONAL FELLOWSHIP IN LANCASTER UNIVERSITY



Mr. Hillary Ragen (Right), ATPS Research Assistant with other participants at the Commonwealth Professional fellowship in Lancaster University, UK.

By Hillary Ragen

ATPS Research Assistant, Mr. Hillary Ragen participated in a two month Commonwealth Professional Fellowship program at Lancaster Environment Centre in Lancaster University, UK. The program aims to build professional capacity development in managing strategic partnerships and to bridge gaps between academia, industry, government and civil societies in the areas of environmental management. The program also hosted other three African professionals from Nigeria and Ghana, and this was the second group of African Professional Commonwealth fellows with an interest in eco-innovation.

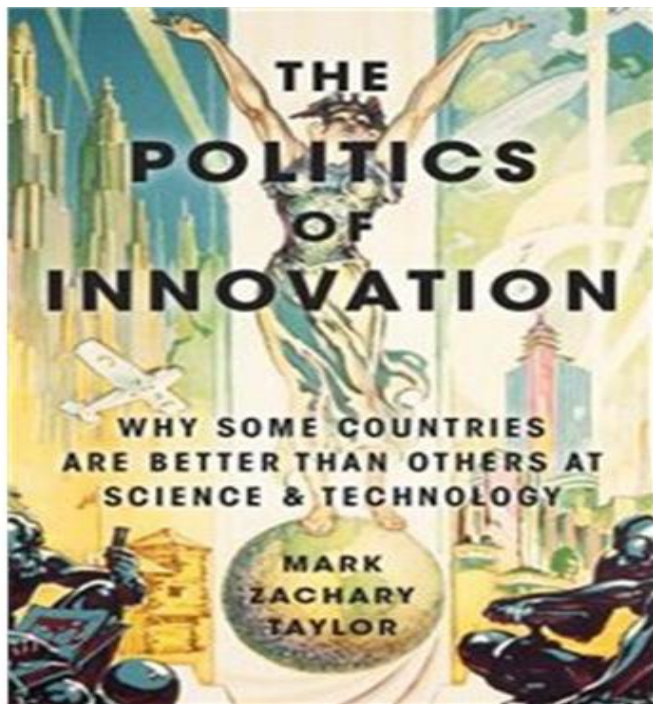
The fellowship was anchored on the existing relationship between Lancaster University and the ATPS. Similarly, other African research institutions and African Universities involved in the programme have close ties with the University. The program builds on a series of Africa Eco-innovation forums which have previously been held in Lancaster, Nigeria and Ghana bringing together academics, business people and policy makers.

Lancaster University has a great track record in eco-innovation; they work with small and medium enterprises (SMEs) and policy makers to develop products, processes and services with socio-economic impact while simultaneously reduc-

ing environmental impact and improving the efficient and responsible use of resources. The University hosts an award-winning Centre for Global Eco-innovation (CGE) domiciled at Lancaster Environment Centre. The CGE serves as a focal point in the promotion of collaboration between academia and industry especially in co-creation of eco-innovative products. It has collaborated with more than 300 small and medium enterprises (SMEs) and created more than 260 jobs in the past four years. The CGE provides a suitable model to understudy linkages between academia, industry and policy makers which is aligned with ATPS's work in environment and climate change.

The fellowship program provided a suitable platform to learn and engage with researchers and private sector actors and to understand these relationships. It is expected that following this programme, the ATPS will be able to contextually replicate some of the success stories in Kenya and Africa towards addressing major environmental and social issues faced in the continent. The program was organized by Professor Kirk Semple, the Director for International Engagement at the Lancaster Environment Centre, and the Centre's Africa Strategy Adviser, Dr. Akanimo Odon. They provided mentorship throughout the program with support from the Lancaster Environment Centre Business Engagement Unit.

POLITICS OF INNOVATION: WHY SOME COUNTRIES ARE BETTER THAN OTHERS AT SCIENCE AND TECHNOLOGY



By Yusuff Utieyineshola,
Senior Research Officer,
NACETEM, Abuja, Nigeria

The book attempts to proffer an answer to the question “Why are some countries better than others at Science and Technology? The question was derived from Cardwell’s Law which states that “Nationality should not matter” in innovation.

Donald Cardwell is a British historian who decided to unravel those “turning points” in the history of Western Technology. In the early 1970s, he studied developments in S&T span over a thousand years in the life of the Western societies. His findings reveal outstanding discoveries and inventions recorded in the history of mankind starting from the medieval horse stirrup to the recent Nuclear power technology today. However, despite this great discovery, Cardwell purposely ignored to mention the Nationality of these great scientists who have achieved what could be termed “the unachievable” in the technological sphere. According to him, as he mentioned at the end of his survey, the intention to omit this vital information was deliberate as “Nationality should not matter” and it was this opinion that formed the core of Cardwell’s Law. He explained further that “No nation has been very creative for more than a historically short period”.

Based on this assertion, the author identifies three classes of S&T players which infer as thus;

- Only a small handful of nations dominate the global creation and production of S&T namely: - United States,

Japan, Germany, Taiwan, Sweden, Korea, Israel and less than a dozen more. Ironically, the majority of these countries lack innovative antecedents as at 1945 stating that some of them were yet to exist as a country then.

- Many countries that have benefitted from long histories of wealth, democracy, industrialisation, and S&T production but are merely relevant in terms of technology at the present as they innovate but at a minimal level when compared to what it used to be known for in the past. Some of these countries include Spain, Italy, and Austria.
- There are countries that, to a great extent, do not innovate explicitly, yet none of them is impoverished. This is due to what the author referred to as “favourable characteristics” that they possess a fairly democratic system, relatively Capitalist and are constituted by well-educated and informed citizens. Such countries in this category include: Argentina, Chile, the Philippines, South Africa, Thailand and Turkey.

It was on the basis of this categorisation that the author then argued in relation to Carwell’s Law. In this twenty first century, national borders and distance should not matter much for innovation. The purpose of this was to solve the puzzle which has remained a “stubborn mystery” to explaining as to why some countries are better than others at S&T despite years of theories and research by great scholars.

Focal Argument

In order to avoid complexities that could becloud understanding the issues at hand, unlike Cardwell’s Law that conflate the “how” and “why” nations innovate together, the author rather separate the “how” from the “why”.

1. How do nations innovate? Two ways as to how nations innovate, as the author suggests are through *Policies* and *Institutions*. On this premise, are two schools of thought; the first one argues that government plays a vital role in innovation using the instruments of domestic institutions and policies to promote innovation which implies that different countries apply different sets of institutions and policies. But could this be the only reason why some countries are better than others at S&T?

Another school of thought is of a contrary opinion as it suggests a total absence of government interference will foster innovation. This concept is termed “Classic free market hypothesis”. He described the market as “a market is characteris-

ed by a large number of informed rational individuals involved in the free exchange of goods, services, and capital, resulting in economic efficiency and innovation". Therefore, the position tends to favour the free market hypothesis relating it to the context between Communism and Capitalism societal models of the twentieth-century.

The author supported his argument with five (5) pillars as to why some countries outperform others at S&T but quickly added a caveat, that it also leaves unexplained the intricacies associated with its success and failure, which further create gaps. These pillars include; *Property Rights, Research and Development Subsidies, Education, Research Universities, and Trade Policies*. It should be noted that all these five pillars must co-exist as one system to foster the S&T competitiveness of any country.

2. **Why do nations innovate?** The author is of the opinion that countries innovate so as to guide against what he called *"Creative Insecurity"*. This approach is in direct contrast to Joseph Schumpeter's Creative Destruction philosophy which argues that innovation is a "perennial gale" that constantly transforms a nation's economy from within by eroding the old industries and creating a quantum of new ones. So, the author explains the philosophy of *"Creative Insecurity"* as a condition of perceiving more threats from external forces than domestic rivals. This, he sees as "the positive difference between the threats of economic or military competition from abroad and

the dangers of political-economic rivalries at home". He further illustrated this that people tend to stop fighting over how to share their pie when the pie itself is threatened by others. Consequently, he submits that *"countries for which external threats are relatively greater than domestic rivalries should have higher national innovation rate than countries for which domestic rivalries outweigh external threats"*.

Way Forward

What can be derived from author's argument in this book is that

- The best way a nation can guide against Creative Insecurity shock is to optimise its commitment towards S&T.
- A nation's choice of societal model structure-Capitalism, Democracy, and Decentralisation may lead to failure in its S&T adventure.
- Nations that promote innovation through the adoption of systems structures like Networks, Clusters, and Standards tends to succeed at S&T.

The book is written by: Taylor, Mark Zachary, Oxford University Press, United States of America, 2016, Hardcover, 427 Pages, ISBN: 978-0-19-046412-7

GRANTS RECEIVED BY THE ATPS DURING THE QUARTER

S/N	Title of the Project	Donor	Project Description	Grant Amount Received
1	Bridging Climate Information Gaps to Strengthen Capacity for Climate Informed Decision- Making.	African Development Bank (AfDB)	To strengthen the capacities of relevant stakeholders in Cameroon, Kenya, Malawi, Nigeria and Tunisia. The project also aims to collect, understand and deploy appropriate climate information and best practices to inform decision-making, support development planning, reduce the vulnerability of the selected countries and foster a food secure Africa.	Euro 449,360

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Professor Yacob Mulugetta (**Left**), MPA Course Leader, mentors participants at a UCL event in London.

OPPORTUNITIES

The 5th EU-Africa Summit

The 5th EU- Africa Summit will take place on 28-29 November 2017 in Abidjan, Ivory Coast. The central theme for this year's Summit will be 'Youth', which has become a key priority for Europe as well as Africa, in the context of African demographic trends creating major challenges for young people in terms of migration, security and employment. The aim of the Summit in particular is to address stability challenges and the root causes of irregular migration and displaced persons in Africa. It will also identify opportunities for mutual benefits towards sustainable and inclusive development.

For more information about the event please visit: <http://www.rinea.org/en/1040.php>

South Africa Innovation Summit

The SA Innovation Summit is a platform aimed at nurturing, developing and showcasing South African innovation. The Summit offers numerous opportunities for entrepreneurs, innovators, thought-leaders, policymakers, inventors and investors to drive innovation in South Africa and inspire sustained economic growth. The Summit will be held from 6-8 September 2017 in Cape Town, South Africa.

OBJECTIVES

- To collaborate with government, academia and industry to build a South African system for innovation on a practical level.
- To encourage mutually beneficial deal-making between innovators and investors.
- To provide a platform where innovators can participate, grow their know-how and connections, and make their ideas come to life.

For more information about the event please visit: <http://innovationsummit.co.za/>

Symposium on Climate Change and Droughts Resilience in Africa

The Symposium on Climate Change and Droughts Resilience in Africa is being organized by Strathmore University Kenya, Research and Transfer Centre "Applications of Life Sciences" Hamburg University of Applied Sciences (Germany), Manchester Metropolitan University (UK) and the International Climate Change Information Programme (ICCIP).

The "Symposium will focus on "building resilience to climate change and droughts in Africa", meaning that it will serve the purpose of showcasing experiences from research, field projects and best practice to foster climate change adaptation among countries in the region, with a focus on droughts, which may be useful or implemented elsewhere.

DATE: 16-18 October 2017

For more information please visit: <http://www.rinea.org/en/1068.php>

PHOTO GALLERY



From Left: Dr. Olufunso Somorin- Senior Policy Officer(AfDB), Dr. Nicholas Ozor- ATPS Executive Director and Mr. Onesmus Maina -Senior Agricultural Expert, EARC/OSAN (AfDB) during the signing of a protocol of agreement between ATPS and AfDB.



Facial Expressions: It is all smiles after the signing of the protocol of agreement between ATPS and AfDB.



Smiles: ATPS can officially begin to implement the project.



Dr. Nicholas Ozor, ATPS Executive Director (**Left**) moderates the panel discussion on the Solar Radiation Management System.



A cross-section of participants at the Solar Radiation Management Governance Initiative Workshop, Nairobi, Kenya



Participants following the proceedings at the Solar Radiation Management Governance Initiative Workshop.

PHOTO GALLERY



Dr. Ernest Acheampong (**Centre**), ATPS Senior Research Officer during the Solar Radiation Management Governance Initiative Workshop.



From Left: Dr. Kwado Ansong Asante, Dr. Edu Inam, Mr. Osamudiamen Efosa and Mr. Hillary Ragen (ATPS) are the beneficiaries of this year's Commonwealth Professional fellowship Program at Lancaster Environment Centre in Lancaster University.



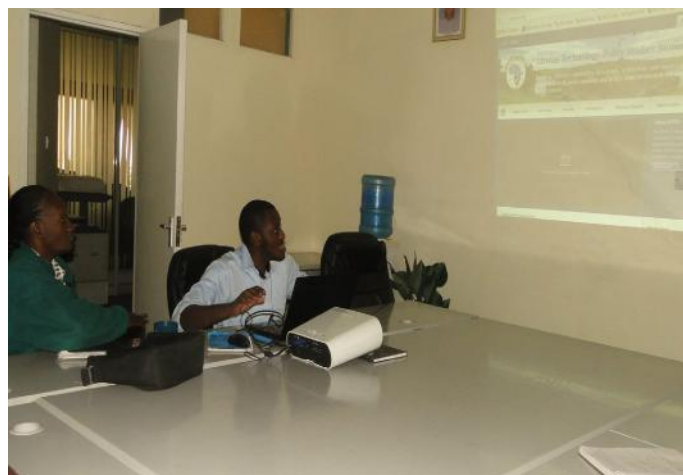
Mr. Hillary Ragen (**Right**) ATPS Research Officer with mentors and Dr. Kwadwo Ansong Asante (Second from Left) during the Commonwealth fellowship program at Lancaster Environment Centre.



Delegates at the Innovative Strategies for addressing Africa's Structural developmental Challenges workshop at IRES, Morocco.



A cross-section of delegates following the proceedings of the Innovative Strategies for addressing Africa's Structural developmental Challenges workshop at IRES, Morocco.



Mr. Raymond Mumo, ATPS IT Expert doing a presentation about the new ATPS website.

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