Available online at https://asric.africa/social-sciences
ASRIC Journal on Social Sciences and Humanities Vol 4(1) (2023) 235-245

Leveraging Science, Technology and Innovation for Africa's Development: The Role of Africans in Diaspora

Severus Ifeanyi Odoziobodo[1*]

[1]Department of Political Science, Enugu State University of science and Technology, Enugu

*Corresponding author: ifeanyi.odoziobodo@esut.edu.ng

Abstract
Today as never before, humanity is faced with the challenge of contending with the ravages of endemic threats to man's life such as terrorism, climate change, and overpopulation, etc. Africa in addition, is specifically encumbered by a multitude of development challenges ranging from lack of capital and technical know-how to deficits in political leadership. This paper interrogates the utility of science, technology and innovation as means through which Africa can achieve sustainable development. Using survey research design, the paper employs qualitative method of data collection and analysis. The paper notes that African leaders are aware of the continent's development deficits and are out to do the needful in order for Africa to develop. It is the discovery of the study that science, technology and innovation are veritable tools with which the development of Africa can be engendered and that Africans in the Diaspora are catalysts to the promotion of science, technology and innovation in Africa. The study recommends that leaders of Africa should mobilize the Diaspora to assist the homeland in the promotion and deployment of science, technology and innovation for Africa's development.
Keywords: Africa, Diaspora, development, science, technology, innovation.

Introduction
Africa is encumbered by enormous development challenges and there is a celebrated case of poverty in the continent to the extent that half of its population lives on less than US $1 per day. The rate at which children less than 5 years of age die (UNICEF, 2019) is lamentable and life expectancy at birth is only 54 years, an indication that Africa does not have any reliable healthcare system, (Oleribe, 2019). People die daily in their numbers of avoidable diseases. Most of the population has no access to safe water. The rate of illiteracy and conservatism for a greater percentage of the people over 15 years is high. There is acute shortage of food and the people are really suffering. The worse is that political leaders in Africa are wicked and myopic. They embezzle money meant for the welfare of the people (Transparency International, 2019) and yet the people defend them and clap for them.

Upon this dismal reality of the standard of living of people of African descent, the economic growth in Sub-Saharan Africa dropped from 4.1 percent in 2021 to 3.6 percent in 2022 and is expected to further drop by 3.1 percent by the close of 2023 (Beegle, 2016). By the end of the 21st century, Africa will host 40 percent of the global population, a remarkable rise from 9 percent in the 1950s, (UN, 2015) and the population of Africa is estimated to reach an outrageous level by 2050. This situation portends more poverty and suffering for the people.

The picture painted above speaks volumes of the development crises rocking Africa. African development deficit is not without a root cause. Africans were disorganized by slavery and colonialism, (Amin 1972; Rodney 1972; Daron Acemoglu, Simon Johnson and James A. Robinson, 2001; 2002). By the trappings of slavery and colonialism, Africans were deprived the privilege of being masters of their own destiny. All

their actions were dictated to them and they were made to abandon their original ways of life, both politically, socially, economically, religiously and otherwise. The implication was that they were no longer themselves having been forced to abandon whatever they were known for. They then started learning everything about development anew. They were forced to discard their economic systems and to become part of the international economic system which was a capitalist system. They were neither prepared for this nor did they have the means to compete favorably with other nations in the world capitalist economy. Other nations of the world had the ability to produce refined goods and services which they marketed in the world market while Africa had only raw materials and labour which the western nations bought cheaply; refined and brought back to sell to Africans at exorbitant prices. This was tantamount to the draining of Africa's resources rather than their use for the continent's development. Today, Africa the most richly endowed region of the world remains the poorest continent.

Unfortunately, when Africans incidentally got their independence, colonialism was resurrected in the form of neocolonialism to continue the subjugation of the people and their way of life. The consequences of slavery, colonialism and neocolonialism as well as Africa's joining the world economic system at a time they were not prepared and at a value they were disadvantaged among other things include, the wanton disorganization and disarticulation of Africa with the ripple effect of abandoning their traditional modes of production to sheepishly following, copying and imitating the developed world. It was a costly mistake of their life that will hunt their generations yet unborn. Western scholars and practitioners capitalized on these lapses to dictate and prescribe development strategies for Africa; most of which were favourable to the Western world but had been the Achilles heel of Africa's development.

However, Africans seeing the deepening of their poverty even after implementation of several development strategies recommended for them by Western scholars and policy makers, most especially the Structural Adjustment Program (SAP) have no option than to look for home grown strategies of development. They felt they needed to work together as a people and with other peoples of the world in order to move Africa forward. They adopted the New Partnership for Africa's Development, NEPAD as a development strategy. This partnership is there but Africa is yet to achieve sustainable development.

Be that as it may, in recent years, African leaders have come to grips with the reality of their existence and appear committed to a new African continent anchored on robust governance, inclusivity, accountability and transparency in governance and the need to maintain peace and security on the continent. This paradigm shift in development thinking has been the basis for the change in the nomenclature of the defunct Organization of African Unity (OAU) to the African Union; it has also been the basis for the formation of New Partnership for Africa's Development (NEPAD), creation of Peer Review Mechanisms as well as other initiatives. In 2015, the AU adopted the UN Global Agenda 2030 and 2063 as strategic frameworks for the transformation of the African continent. Agenda 2030 covers about 17 sustainable development goals and emphasizes such indicators as inclusive socio-economic development, accountable institutions, peaceful and secured societies, environmental sustainability, respect for human rights and rule of law, and continental integration amongst other indicators (AUC, 2015). Agenda 2063 hosts 7 aspirations covering inclusive growth and sustainable development, continental integration and Africa becoming an influential partner and global player (AUC, 2015).

Above all, Africans have discovered a missing link in all the strategies for development which they have been propounding and implementing. They discovered that without science, technology and innovation, all their efforts will come to naught; hence, all development efforts are now geared towards the African scientific revolution. Today the African Union places science, technology and innovation at the epicentre of Africa's socio-economic development and growth, (AUC, 2014).

But how can Africa leverage science, technology and innovation for her development? This paper explores the roles which Africans in the Diaspora can play towards the success of this important agenda.

The Utility of Science, Technology and Innovation in Development

The importance of science, technology and innovation in the development of any nation cannot be overemphasized. No wonder, today as ever, every discourse on development centres on science and technology and more recently; innovation; which has been added to the duo. It is often difficult to separate science from technology, hence, whenever the word, science is used, technology invariably comes in; it is always science and technology. Science and technology are therefore, words used interchangeably.

The impact of science cannot be felt without the corresponding role of technology. They complement each other. However, while science aims at the pursuit of knowledge for knowledge sake, technology aims to create products that solve man's problems and improve human life. Technology as a matter of fact is the practical application of scientific knowledge to the solution of societal problems. It is from technology that man invents and produces all the good things that have made the life of man on earth easy, better and comfortable but it is also from technology that man invents and produces all the things that have been deployed to destroy man's life sometimes.

Innovation on the other hand means to bring out a new idea. It means to improve upon or replace something already in existence. It means applying one's knowledge in doing anything differently from the ways it was done before. Just as science and technology are related and complement each other, innovation is the deployment of science and technology in the invention and production of goods and services for the good of humanity.

No nation can move forward in today's world without the utilization of science, technology and innovation as they hold the key to the present and future development of the world. Technology plays a fundamental role in wealth creation and in the improvement of the quality of life and real economic growth and transformation in any society, (Anaeto, et. al., 2016). For nations in Africa to escape from poverty and underdevelopment, they must invest in science and technology, Egbogah (2012). Essentially, technology unlocks the keys to the wonders of nature. It is only through technology that man can overcome nature. It is through technology that man can mow down mountains to harvest goodies down the soil, It is through technology that man can dive deeper into the ocean to harvest the gifts that nature bequeath to humanity. Most breakthroughs in the world are products of science, technology and innovation,

In science, technology and innovation lies the engine of economic growth, poverty reduction and human development (Anaeto, et.al, 2016). This is because science and technology convert raw materials to finished products which invariably improve the economy. In technology lies the key to the production of goods and services for the good of mankind. Production means converting raw materials to finished products. When they are produced, they are sold and money comes into the coffers of a nation and the economy improves. Science and technology are the essential ingredients needed for the development, advancement or growth of any society because it is through their deployment that the problems of the society are solved. Lack of knowledge of science and technology is tantamount to poverty. The difference between the levels of development of nations in the world is occasioned by their levels of acquisition of scientific and technological knowledge. It is because of lack of adequate knowledge of science and technology that almost all nations in the African continent are classified as underdeveloped.

The major problem of Africa is that Africans are mainly consumers and not producers; they have not been producing much goods and services and this is because they lack the requisite knowledge that is acquired through science and because they lack this knowledge, they cannot make use of technology because technological knowledge comes from scientific knowledge and because they lack the knowledge occasioned by science and technology, they cannot innovate. When there is no technological knowledge, there is no production of goods and services which comes from the conversion of natural resources to material resources needed and used by man.

Deployment of science and technology brings about great transformation in the economic performance and social well-being of any nation. Also, the ability to create, distribute and exploit knowledge which is the after effect of science and technology is a major source of competitive advantage, wealth creation and improvements in the quality of life of citizens of a nation (OECD, 2000).Today, there is a growing impact of information and communications technologies (ICT) on the economies and lives of people in the society; there is rapid application of recent scientific advances in new products and processes; there is a high rate of innovation across countries of the world and there is a shift to more knowledge-intensive industries and services; and rising skill requirements for overcoming nature (OECD, 2000). All these are transformations engendered by the impact of science, technology and innovation.

However, much as science, technology and innovation are keys to the improvement of economic performance and social well-being of a people, government has to create the enabling environment for fostering scientific and technological progress through the formulation of relevant policies and implementation strategies (OECD, 2000). Therefore, a major means of transforming Africa for the future is the deployment of scientific and technological knowledge to the management of natural resources like forests, rivers, and lakes; climate change threats; and health quandaries (Agoro, 2018).

Nonetheless, Africans have always known their development problems and have always planned for their solution but the problem has been the adoption of adequate development strategies. Currently, the African Union (AU) has a fifty-year plan which aims at transformation of Africa from dependence on natural resources to durable economies driven by manufacturing, effective participation in the global value chain, and science and technology leadership. In particular, the agenda calls for expertise in areas such as biotechnology, genetic engineering, space exploration, and deep-sea mining (Agoro, 2018). These are areas meant for the conquering of nature for the positive transformation of society and these are knowledge based areas that require the deployment of science, technology and innovation.

Africa's Response to Science, Technology and Innovation

A combination of science, Technology and Innovation (STI) has proven to be the cornerstone of developed economies in the world and this explains why the UN Agenda 2030 and 2063 focused extensively on maximizing STI for bridging the gap between the developed economies and under-developed economies of the world. Throughout history, STI have been the major drivers of development and economic growth and industrialization. Africa is composed of fragile states on account of conflicts, wars and governance deficits but she is now awake from her existential slumber and has been able to establish a response framework to address the issue of STI. In 2013, the African leaders came together to create the AU Agenda 2063 as a response to establishing long term goals for stimulating STI on the continent (AU, 2014).

This is contained in the AU Document on STI Strategy for Africa (2024), which places STI at the center of the continent's socio-economic development and progress. The STISA-2024 is the first of ten-year incremental phasing strategies designed to meet the demand for science, technology, and innovation to have an impact on vital industries such as water, mining, agriculture, energy, the environment, and other key sectors. The approach also outlines four inter-connected pillars that should exist in order for the agenda to succeed. The expansion of research infrastructures, the improvement of professional and technical skills, the encouragement of entrepreneurship and innovation, and the creation of favorable conditions for STI growth on the African continent comprise these pillars.

Research and Development (R&D) are the means through which science and technology manifest in any society but unfortunately, in spite of Africa's laudable dreams, continental and country-level investments in STI have been very low, accounting for only 2 percent of global scientific innovations (UNESCO, 2015). This lack of STI infrastructure and investment has driven away African science students and even skilled STI professionals to other developed economies creating the brain-drain syndrome (Agoro, 2018). Africa cannot make the desired leap forward if the requisite STI infrastructures and incentives are not provided for our scientists and intending ones by investing heavily in the areas of research and development (R&D). Again, Africa is reputed to be home to about 15.4 percent of the world population (PRB, 2013); yet despite

this huge population the continent accounts for less than 2 percent of global expenditure on R&D in contrast to other regions of the world. Most countries in Africa spend less than one percent of their GDP on R&D and there is no way this can drive STI and economic growth on the continent. The AU Agenda 2063 envisages that Africa must transition away from reliance on natural resources to resilient economies that are supported by manufacturing, effective involvement in the global value chain, and S&T leadership (Agoro, 2018)..

Moving Africa forward to her desired destination - a break with poverty and underdevelopment, requires that Africa must have a good number of scientists trained specifically in areas of biotechnology, genetic engineering, space exploration, deep-sea mining and artificial intelligence. These are people who together with professionals from other fields, will transform Africa's relationship with nature, reverse her rising inequality and build resilience against the next crisis of conflict, natural disaster or future pandemic, (Agoro, 2018). They will also drive the continent's general growth and power her overall development. This explains the need for Africa to leverage her Diaspora communities in Europe and North America and indeed, all over the world, to drive science, technology and innovation on the African continent.

The African Diaspora

People in their efforts to better their lots in life migrate to countries other their own; to live, work and earn their living. Some live there temporarily; make their fortunes and go back to countries of their origin while others live in such countries permanently and acquire their citizenships. All those who leave their countries of origin for permanent settlement in other countries are classified as the Diaspora. In the case of Africa, many Africans were forced to migrate; while many migrated on their own accord to Europe, America and indeed, other countries of the world and have settled in these countries permanently. We cannot forget in a hurry the slave trade which led to the outright selling of Africans to merchants from Europe and America as if human beings were products for sale. Those Africans sold under the slavery programme never returned to Africa. They got integrated into those countries and became part and parcel of them. However, even though they got integrated, they still united with those in Africa through blood ties, cultural affinity and shared history and to some extent; a common destiny (Akukwe and Jammeh, 2004) and they continue to remember their roots and try to contribute to the development of Africa in one way or the other.

We also know that as a result of underdevelopment of the African continent, many educated Africans on their own migrated to other continents. Some of them no longer return to Africa while many of them even though are residing permanently in these countries have their souls and minds in Africa. They are ever concerned about the happenings in Africa. They are in constant touch with their relatives back home and they send money to them. The bonding is still there. Such people who are obsessed with the problems of their brothers and sisters back home and who contribute to the development of their communities are described as the African Diaspora.

Apart from those who migrated to Europe and America against their will, those who migrated on their own are no mean persons. They can be described as the elites of the African continent. It takes a fortune to migrate to the Western world from Africa and any person who is able to migrate can be described as a resourceful person. The West does not just accept any person to migrate to their countries; they only accept those who will contribute to their development. They do not accept liabilities; rather, they accept only assets. Through migration, Africa lost as well as gained. Migration studies occasioned the brain drain paradigm (Bhagwati and Hamada, 1974; Miyagiwa, 1991; Haque and Kim, 1995) which has been a subject of discourse in development literature before the brain gain era. Some of these people who on their own migrated to these western countries were Africa's very best minds in terms of education and technical knowledge. They migrated in search of greener pastures. If this is the case as it is, then it is obvious that most of them are the scientists and technologists making waves in Europe and America by their contributions to Western development. By virtue of African bonding, it is obvious that if they are well mobilized, they will be handy to contribute to the advancement of science and technology in Africa.

At any rate, even though the meaning and implication of the concept of the African Diaspora is complex, contested and evolving (Kamel 2011; Rahier et al 2010; Zeleza 2010; Okpewho and Nzegwu 2009), the diversity and extent of African Diaspora around the world are enormous and recognized by scholars (Pitts 2019; Alves 2018; Winders 2007; Gilroy 1993). The African Union defines the African Diaspora as "Consisting of people of African origin living outside the continent irrespective of their citizenship and nationality and who are willing to contribute to the development of the continent and the building of the African Union," (ICD, 2020). The UK House of Commons (2006) defines the Diaspora as international migrants who, although dispersed from their homelands, remain in some way part of their community of origin. Dina Ionescu (2006) says this definition captures the following important points: individuals are dispersed, possibly across several countries, but they maintain an interest and an affiliation to their home country, either "real" or "imagined".

A profile of Africans in the Diaspora especially in the United States of America shows the amazing stock of quality human beings Africa has in other countries of the world. There are 34,658,190 African-Americans in the United States and of the 35 million people that claimed Hispanic heritage in the 2000 US census, (Schmidley, 2001) at least one third are likely to have African ancestry and about 0.6% of all people living in United States (1,781,877) identified themselves as Sub-Saharan Africans, (Akukwe and Jammeh, 2004). Among immigrants living in the United States, at least 50 million individuals have African ancestry and most people in the Caribbean and significant proportions of individuals in Latin America have African ancestry, (Akukwe and Jammeh, 2004). The International Office of Migration (IOM), a United Nations agency, estimates that the African Diaspora population in France is 1,633,142 and another 1.5 million African Diasporas live in other European countries.

According to (Akukwe and Jammeh, 2004), the IOM also provides a picture of an affluent African Diaspora indicating that about 22% of African Diasporas are in the teaching, education and research professions; 20% in finance, investments and economics; 20% in public health; 15% in engineering; 9% in agriculture; 5% in information technology; 5% in legal sciences; 3% in administration, and; 1% in natural sciences. The 2000 US census indicates that foreign-born Sub-Saharan Africans (recent immigrants) have the highest proportion of foreign-born individuals 25 years and over who have bachelor's degrees (49.3%) compared to Europe (32.9%) and Asia (44.9%) and at least 38.2% of Sub-Saharan householders in the US own their own homes, (Schmidley, 2001). The average median household income of foreign-born households headed by Sub-Saharan Africans was $36,371, according to the 2000 US census. For the period 2000 through 2002, the median household income for African Americans was $29,483 according to the US Census. Home-ownership for African Americans was 48% in 2003. Black-owned business in 1997, the latest period for which data is available, employed 718,300 persons and generated US$71 billion in revenues, according to the US Census, (Akukwe and Jammeh, 2004).

Remittances by Africans in the Diaspora to their countries of origin are substantial. According to the IOM, Nigerians in the Diaspora remitted US$1.3 billion in 1999, equivalent to 3.71% of the country's GDP and 55% of overseas development assistance. This increased by 5.2 percent in 2022 with Nigeria alone received the highest portion, $168.33 billion between 2015 and 2022, (World Bank, 2022).

The profile of the African Diaspora above shows that Africa has a good stock of its people of various professions in the Diaspora. Many of these people have undergone a lot of studies and trainings in advanced countries of the world; many are scientists and technologists of first class order. Many of them are working in important offices in the world that have the capacity to change Africa for good and they can leverage their knowledge and connections to change the fortunes of Africa with regard to science, technology and innovation, if well harnessed.

How Can Africa Leverage Her Diasporas' Assistance to Drive Science, Technology and Innovation for Africa's Development?

There is an urgent need to establish African Diaspora Scientists' Federation as suggested by Agoro (Agoro, 2018) in order to mobilize African scientists in the Diaspora to help Africa leverage science, technology

and innovation in her development efforts. Africans in the Diaspora are in very good positions to assist the boosting of science, technology and innovation in Africa. Many of them are scientists and they acquired scientific and technological knowledge in advanced countries of Europe and America where they also work and contribute to their host countries' development. They belong to, and also participate in scientific, technological and innovation networks in the developed countries where they live. The essence of belonging to a network is to avail one of information about happenings in the group's area of competence. Having the African blood, they are always disposed to help Africa; but they must be mobilized by the home governments. They have the opportunity of helping their homelands advance their science, technology and innovation projects; they could look out for opportunities offered by such networks to advance the cause of science, technology and innovation in Africa by disseminating such information. They could specifically be looking out for technology transfer programmes among other things and they would actually be involved in technology transfers in respect of innovations conducive to African development. They must be organized and mobilized in order to play this role.

One major problem of Africa's development is the dearth of research infrastructure, (Fayomi *et al* ,2018) just as increasing research capacity, knowledge production and preparing future generations of scientists are also parts of the problem. Other challenges include limited research and technology infrastructure, shortage of well-trained faculty, inadequate facilities and equipment, as well as lack of financial capital to support and sustain research. Resource constraint is the obvious reason for these challenges. However, one of the best known contributions of the Diasporas to homeland development is remittances as discussed on the section on the African Diaspora above. Even though these remittance payments are usually sent home for necessities like food, healthcare, and educational costs, Africans in the Diaspora can deliberately channel their remittances towards the promotion of science, technology and innovation by providing research infrastructure and sponsoring research, knowledge production and training of future generation of African scientists. The Diasporas could be mobilized to individually use their remittances to sponsor at least one African in any area of science and technology. They could be mobilized to use part of their remittances to fund research or provide equipments for research, etc. By so doing, they will be preparing Africans for the scientific and technological revolution needed for Africa's development.

Again, these remittances can also be deliberately channeled towards human capital development and this can begin with knowledge transfer from the Diasporas back to the home country through collaboration, mentoring and trainings. Africans in the Diaspora can determine what funds they send home in form of remittances should be used for. If they are very well mobilized towards science, technology and innovation promotion, they individually and collectively will give instruction that their remittances should be channeled towards human capital development. When this is done individually, the collective impact on the boosting of science, technology and innovation in Africa will be enormous.

Brain drain, which means the loss of human capital, is a significant issue for African countries; and over the past five years, 450,000 tertiary-educated Africans migrated to OECD countries (UN-DESA & OECD, 2013). This loss has impacted negatively on many areas of Africa's economy and overall development but particularly in areas of health-care, science and technology. Through the phenomenon of brain drain, Africa lost much and is still losing much in funds they invested in the education of the lost diasporas, revenue that would have accrued to her coffers from the lost people and in a skilled labour-force that would have advanced Africa's development through innovations, investments, governance, management of agencies and institutions, and participation in a globalized knowledge-based economy. However, brain drain has today become brain gain since those who were lost to other countries can come home more equipped to contribute from what they have learnt and acquired from their host countries. Therefore, Africans in the Diaspora are called upon to come home in spite of the inconveniences, to help boost and propagate the wonderful import of science, technology and innovation in Africa by taking faculty positions in African universities and other higher institutions of learning, or by working in African science and technology related agencies or by establishing science and technology related enterprises where the youth can be gainfully employed back home in Africa. This is one practical way through which the Diaspora Africans

can help Africa leverage science, technology and innovation in her development efforts. This initiative is a practical demonstration of patriotism by any African Diaspora who decides to do that; and they are called upon to consider this option for the good of the homeland. They would come home to make a difference; they would come home to work where their impacts will be felt more. It may not be easy for any of them but it is an adventure worth taking for the good of the fatherland.

The Diaspora can indeed help Africa leverage science, technology and innovation through strengthening public institutions in Africa. Development experts working in, and with Africa over the past three decades have discovered a lacuna in African development efforts, namely, lack of solid public institutions. It is a truism that poor government and declining institutional capacity are at the core of the African predicament, notes (Richard Joseph, 2004). The problem with Africa is that instead of having strong institutions that are meant to make things happen in Africa, they have strong individuals who work for themselves. Instead of investing in the education and training of the youth in science and technology related programmes, the leadership embezzles funds meant for the advancement of education. Therefore, in order to boost science, technology and innovation in Africa, the African Diaspora can help to strengthen public institutions in Africa by deliberately looking into what is happening with governments in Africa and through science and technology advocacy with African leaders and development partners.

Another way through which the Diaspora can help Africa leverage STI for Africa's development is by building synergies between their home and host countries. There have been regional efforts at diplomatic integration, but it is germane for African countries to become more involved in trans-national, trans-regional, and continental integration, which will ensure free movement of goods and people across borders. This free movement of goods and people will boost STI activities, (Hartzenberg, 2011). No doubt, genuine and thorough-going African integration could have several impacts on STI in Africa by enabling greater mobility of scientists, innovators, technicians and entrepreneurs; promoting collaboration between research institutions, experience-sharing and encouraging a shared trans-national R&D infrastructure. Such integration efforts can also improve public-private partnerships across national boundaries and create financial instruments for innovation and also help in the harmonization of technical standards and research regulations.

Establishing schools and agencies to advance the cause of science and technology for Africans by the Diaspora is also a potent way of helping the continent leverage science, technology and innovation in her development efforts. The annual African Diaspora Summer School (ADSS) established by the African Development Bank in partnership with other relevant international and regional stakeholders as a channel for the transfer of knowledge, technology and experience have been and would further strengthen the role of the Diaspora in Africa's economic development. Establishing other schools and agencies that promote science, technology and innovation in Africa by the Diaspora will help Africa in her quest for science revolution in the continent.

Again, Africans in the Diaspora can also help in fostering science, technology and innovation by establishing Non Governmental Organizations (NGOs) whose work will be aimed at advancing STI in various ways in their bid to promote science, technology and innovation in Africa. Such ways include mobilizing school children in Africa for science, technology and innovation by awarding scholarships to those who excel in science subjects; by providing scientific and technological equipments to schools and by organizing quiz and debates for school children thereby infusing in them scientific literacy and critical thinking. They can also sponsor workshops and conferences on science and technology related issues.

In order to help Africa leverage science, technology and innovation in her development efforts, the Africa Union and national governments should explore the possibility of Diaspora Science Diplomacy framework through which African scientists in the Diaspora can become advocates for science, technology and innovation in Africa and outside Africa as a means of driving development on the continent. To further make this initiative possible, the AU could create a functional platform for her Diaspora scientists, technologists and innovators which will facilitate or enhance professional networking. An entity that might

emerge from this kind of framework is the African Diaspora Scientist Federation (ADSF) as suggested by Agoro (2018) and which according to him, could include the following elements:

1. An African Diaspora Scientist Rolodex based on a strong professional network, along with a meeting and conference infrastructure and an active promotional wing
2. Clear classification for Diaspora scientists by fields
3. A series of projects rooted in intra- and interdisciplinary collaborations, (Agoro, 2018).

To achieve the objective of fast tracking African development through science, technology and innovation, the ADSF should explore the deployment of diplomacy tools such as collaboration and partnership. The essence of this initiative is to achieve scientific cooperation by African Diaspora scientists and African governments and this might improve intra-African relations and integration toward ensuring safety and security, thereby achieving the needed cooperation and the synergy necessary for African development. As experts in their different science and technology fields, the Diaspora scientists through the ADSF could offer professional counsel at various governmental and societal levels in the context of a globalized world, (Agoro,2018).

Lastly, the African Diaspora scientists could also foster partnerships between African countries and multinational corporations in respect of science, technology and innovation. The African Diaspora scientists, being members of the international science community could serve intermediary roles in creating public-private partnerships to accelerate technology-transfers which is the needed tonic for the African science and technology revolution urgently needed for Africa's development.

Conclusion

This paper contends that for Africa to develop, she must leverage science, technology and innovation as they remain the keys needed to unlock Africa's untapped resources for her development. These are attributes which advanced countries of the world have more than Africa. Africa may have the natural resources in quantum but they lack the technological know-how needed for today's knowledge based economy. An un-cracked palm kernel is as good as nothing until it is cracked; raw material is not very useful until it is converted into finished goods. Africa needs science and technology to convert her raw materials to finished goods which will give her competitive advantage in the global market-place.

In order to acquire the technical know-how needed for success in today's world, Africans in the Diaspora come handy to help Africa in many ways. The greatest asset for which the African Diaspora is known is raking remittances for the African continent; some of these funds must be deliberately channeled towards the promotion of science, technology and innovation based projects.

For Africa to have the needed revolution in science, technology and innovation, it is recommended that African governments must create the enabling environment for that 'untapped pool of oil' - the African Diaspora - (World Bank, 2011) to play their roles in the development of the African continent through promotion of science, technology and innovation in various ways as discussed in this paper.

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