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Infrastructure Development For Sustainable Industrialisation In Africa: Implication For Job Creation And Poverty Reduction

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Abstract: ***Infrastructure development and industrialisation are interlinked; and investing in infrastructure development is critical for sustainable industrialisation. However, in Africa, infrastructure development and industrialisation are lagging behind. Thus, this paper is undertaken to assess the challenges to infrastructure development for industrialisation in Africa and to find out the way forward. This paper suggests that the main challenges to infrastructure development for industrialisation in Africa have been weak private sector involvement; capacity building; high costs and inadequate financing; and the Structural Adjustment Programme (SAP) policies. It also suggests that developing industrial parks and special economic zones (SEZs); establishing public-private forum; and promoting ICT are among the best strategies by which African countries can develop infrastructure to sustain industrialisation for job creation and poverty reduction.***

Keywords: infrastructure development, industrialisation, job creation and poverty reduction.

I. INTRODUCTION

All over the world, infrastructure development is a matter of critical concern for sustainable development. Due to critical and multiple roles played by the infrastructure in the economic growth and development processes, infrastructure development can be seen as the foundation for any economic activity including industrialisation.

However, in the context of Africa, across all countries, there is a remarkable shortage of all types of infrastructure. According to United Nations—Office of Special Adviser on Africa (2015b), Africa's infrastructure has been lagging behind others in developing world. Approximately 60% of the continent's population lacks access to modern infrastructure, which isolates communities, prevents access to health care, education and jobs, and impedes economic growth. Only 38% of the continent's population has access to electricity and there is less than 10% internet penetration rate. Additionally, 75% of Africa's road network is unpaved and poor port facilities add 30-40% to intra African trading costs and FDI.

The fact that Africa has had troubled history, it has affected the infrastructure development in the continent; and this, in turn, has tremendously affected and still affecting the industrialisation process in the continent. As noted by UNECOSC, UNECA and AUC (2013), following independence in the early 1960s, industrialisation was seen as a central part of Africa's development agenda, which was expected to facilitate the transformation of the economic structure into modern industrial economies. However, according to United Nations—Office of Special Adviser on Africa (2015b), infrastructure deficit, hard and soft, has been undermining all the efforts towards achieving sustainable development and structural transformation in Africa. The infrastructure deficit is one of the reasons why industrialisation in Africa is lagging behind. This is because the transformation, diversification and industrialisation have to go with the infrastructure development. In other words, without good quality infrastructure, it might be difficult to industrialise.

Additionally, being resource rich, Africa has potential to achieve rapid structural transformation by manufacturing its vast natural/raw materials (primary products) into finished products for export as noted by UNECOSOC, UNECA and AUC (2013). However, such resources continue to be exported at cheap prices as primary products to industrialised economies for transformation into finished products which are further imported by Africans at high prices. This continues to impede, to a large extent, the African industrialisation as well as the intra-African trade. Therefore, without addressing this problem, it will still be difficult to embrace sustainable industrialisation in the continent. For this reason, as admitted by UNECOSOC, UNECA and AUC (2013), the continent needs to make use of its comparative advantage, using its natural resources as the cornerstone of industrial development; and the development of infrastructure, therefore, has to be made a priority at the national, regional and continental levels.

Many efforts and initiatives from different actors across the continent to enhance the continental infrastructure and industrial development to improve on continental transformational capacity towards job creation and poverty reduction have been adopted. Recent initiatives include but not limited to the launch of New Partnership for Africa's Development (NEPAD) in 2001; the African Productive Capacity Initiative (APCI) in 2004; and the Plan of Action for the Accelerated Industrial Development for Africa (AIDA) in 2008; the launch of the Programme for Infrastructure Development in Africa (PIDA) in 2012 which is recognised as the integrated strategic blueprint for continental infrastructure transformation for the period 2012-2040; the adoption of Agenda 2063 which is an African Union agenda expected of developing world class infrastructure and integrative infrastructure that criss-crosses the continent to support Africa's accelerated integration, growth, technological transformation, trade and development.

Particularly, PIDA envisages the development of 37,200km of highways, 30,200km of railways and 16,500km of interconnected power lines by 2040. It also plans to add 54,150 megawatt of hydroelectric power generation capacity and an extra 1.3 billion tons throughput capacity at the ports (United Nations—Office of Special Adviser on Africa, 2015b). Furthermore, according to the African Union agenda 2063, the necessary infrastructure will be in place by 2063; and this will be catalyst for manufacturing, skills development, technology, research and development, integration and intra-African trade, investments and tourism and it is expected that world-class infrastructure accompanied by trade facilitation will see intra-African trade growing from less than 2% to approaching 50% by 2045. The African share of global trade shall rise from 2% to 12%. It is also expected that this will enhance employment creation and contribute to a large extent to the poverty reduction in the continent through economic structural transformation.

However, despite such various ambitious initiatives, the performance on the ground in this area is still lagging behind. For instance, World Bank Group (2014) noted that progress on the ground on improving connectivity (via better regional infrastructure and integration) has been and continues to be grossly inadequate. All of the key stakeholders – the African leaders, countries and donor agencies have grappled with this challenge, all with limited success. Thus, this paper is intended to provide a contribution on how African countries can close the infrastructure gap for sustaining the industrialisation by answering these questions: "what are the practical solutions to practical problems hampering infrastructure development in the African continent? And, what can be done for developing infrastructure necessary to sustain industrialisation for job creation and poverty reduction in Africa?"

II. LITERATURE REVIEW

This section reviews in brief review the existing literature on the main concepts underpinning the subject matter of this paper. This was done in respect of various definitions of such concepts by different authors and scholars and potential benefits of infrastructure development in the economic progress. The review of literature was also done by taking into considerations the implication of infrastructure development and industrialisation in job creation and poverty reduction.

A. POTENTIAL BENEFITS OF INFRASTRUCTURE DEVELOPMENT

According to Estache & Garsous (2012), infrastructure is defined as electricity, gas, telecoms, transport and water supply, sanitation and sewerage. There exist different types of infrastructure which include amongst others transport infrastructure such as roads, railways, highways, ports and airports; information and communication infrastructure; power generation infrastructure; water and sanitation infrastructure; and agricultural infrastructure like irrigation infrastructure. Similarly, there are hard and soft infrastructure. United Nations—Office of Special Adviser on Africa (2015a) distinguishes hard from soft infrastructure by arguing that the former is reflected in physical investments (for example, roads, power plants, ICT networks, irrigation networks, water treatment plants), whilst the latter refers to the institutions in which the hard infrastructure is embedded (for example, customs clearance procedures and sanitation system design). The role played by all these types of infrastructure complement each other in order to contribute towards development.

Infrastructure in its various forms plays a critical role in growth and development in Africa and elsewhere. Some types of infrastructure are important because they contribute growth process (United Nations Office of Special Adviser on Africa, 2015a). As a result, there will be increased investments, innovation and ultimately, the productivity. This is because, as noted by Kingombe and Velde (2013), growth involves attracting more investment (factor accumulation) and promoting innovation (factor productivity) using innovation and technology policy, industrial policy, trade policy, infrastructure, skills and competitiveness policy and streamlining the administrative procedures.

The provision and development of adequate infrastructure is essential for the human productivity, development and wellbeing of the whole society. According to Estache and Garsous (2012), better quantity and quality of infrastructure can directly raise the productivity of human and physical capital and hence growth (e.g. by providing access, roads can:

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(i) improve education and markets for farmers' outputs and others by cutting costs, (ii) facilitate private investment, (iii) improve jobs and income levels for many). Investment in infrastructure development generates a number of economic dynamics at national, regional and continental levels. Public infrastructure development drives economic growth: for every dollar spent on public infrastructure development, the gross domestic product of a country rises between US$ 0.05 and US$ 0.25.1 (World Economic Forum, 2012). Infrastructure investment has the effects of contributing to increase the productivity and it is expected to contribute to future economic growth in developing countries where infrastructure is still insufficient (Byoungki, 2006).

Bougheas, Demetriades, and Morgenrot (2003), a large part of government investment allocated to improving and expanding communication and transportation networks is aimed to reduce trade costs and facilitate trade of goods. Consequently, "infrastructure spill-overs" originate, meaning that such a transportation cost reduction favours trade of goods both within and across national borders. Therefore, both home and foreign producers and consumers are likely to profit from any infrastructure investment by the domestic country; thus, such "infrastructure spill-overs" influence economic integration. Moreover, according to UNECA (2016), when regional infrastructure works better, business costs fall as transport corridors speed goods across boundaries and more customers' access services as mobile phone roaming expand.

B. INFRASTRUCTURE DEVELOPMENT AND INDUSTRIALISATION FOR JOB CREATION AND POVERTY REDUCTION

Infrastructure development and industrialisation are interlinked and they all play a critical role in the development and economic growth. The provision of adequate infrastructure is essential to stimulate and promote industrialisation process. This is because investing in infrastructure development such as roads, airports, railways, energy, and telecommunication facilities amongst others lowers production costs and improves productivity; and it becomes easier to attract small and large investors from both domestic and foreign sources. As a result, this has a far-reaching impact on the industrialisation; and this, in return, has an impact on the economy through job creation and poverty reduction.

According to UNECOSOC (2017), achieving industrialisation requires an enabling environment which includes among other things sustainable infrastructure and services in energy, transport, water, sanitation, and information communication technologies. It also requires soft infrastructure such as institutions, adequate skills and technology, as well as peace and stability. Besides, investing massively in infrastructure, including energy, will create an enabling environment for industrialisation to take place on the continent (UNECOSOC, UNECA and AUC, 2013). An effective technology infrastructure is invaluable for upgrading the competitive capabilities of industry (UNECA, 2011). Building new infrastructure could support industrialisation if coordinated (UNECOSOC, 2017). Building a railroad is especially important because it interacts so closely with industrialisation (Murphy, *et al.*, 1989).

In contrast, lack of appropriate infrastructure (both hard and soft) hinders the industrialisation process. This is particularly evident in Africa. According to UNECA (2017), infrastructure deficits underlie the weak performance of both African industries and cities. The low quality infrastructure experienced in many parts of the continent has impacted on productivity and Gross Domestic Product (GDP). Additionally, UNECOSOC (2017) notes that Africa's poor level of infrastructure development, especially in information and communications technologies, energy and transport, contributes directly to its low level of productivity and industry's low contribution to GDP.

On the other hand, the industrialisation is expected of many benefits in the economy including job creation, poverty reduction, economic diversification, attracting investments and reducing the cost of production amongst many others. Industry development has the potential to sustain job creation and economic prosperity (UNECOSOC, 2017). Improvements to the industrialisation process have a critical role to play in tapping into the productive power of cities (UNECA, 2017). Industrialisation helps countries diversify their economies and reduces exposure to external global shocks (UNECOSOC, UNECA and AUC, 2013). The industrialisation has the effect of giving up current income for future income because the benefits of current investment in cost reduction are realised over a long period of time (Murphy, *et al.*, 1989).

Furthermore, both infrastructure development and industrialisation have the potential to contribute to a large extent to the job creation and poverty reduction in the economy. This is because as highlighted by UNECOSOC (2017), infrastructure development and industrialisation are both capital and labour-intensive sectors, thus providing an opportunity to absorb the growing labour force. By providing people with job opportunity, they earn income and contribute to the economy of their countries and that of the continent as a whole. Similarly, by creating job opportunities, the government collect more revenues and support various programmes including poverty reduction, construction and rehabilitation of infrastructure amongst other things which in return positively affect the economic activity in the nation.

III. METHODOLOGY

In this section, we describe the methods and techniques adopted for gathering and analysing data. It also presents the nature of data collected. Concerning research design, a descriptive research design was adopted for answering the research questions as highlighted in the introductory part of this paper. The choice of this design was dictated by the nature of the paper itself. Data were collected from secondary sources; and this was done through a detailed documentation of the phenomenon of interest by consulting the already existing sources through content analysis. Such sources include reports, policy papers and journal articles amongst others. Besides, data were analysed through content analysis.

IV. DISCUSSIONS

This section deals with discussions which are aimed at answering the following questions: "What are the practical solutions to practical problems hampering infrastructure development for industrialisation in the Africa?" and "What can be done for developing infrastructure necessary to sustain industrialisation for job creation and poverty reduction in Africa?"

A. WHAT ARE THE PRACTICAL SOLUTIONS TO PRACTICAL PROBLEMS HAMPERING INFRASTRUCTURE DEVELOPMENT FOR INDUSTRIALISATION IN THE AFRICA?

In order to address infrastructure development issues in line with sustaining the industrialisation in Africa, it is necessary to think about and provide practical solutions. However, in order to come up with such solutions, it is, first and foremost, imperative to identify the problems hampering infrastructure development for industrialisation in Africa to allow the diversification and transformation of its various resources.

This is particularly important because while sustained growth has contributed significantly to rapid economic transformation in other parts of the world, in Africa it has been observed that the relatively good growth performance has not been inclusive, as millions of Africans are still caught in the poverty trap, largely because failure to diversify sources of growth continued over-reliance on primary commodity exports (UNECOSOC, UNECA and AUC, 2013). From this, one can ask: what have been the challenges to the infrastructure development for the industrialisation and economic transformation and diversification in Africa? Through content analysis, we have so far identified various challenges to infrastructure development and industrialisation in Africa. However, most of them are associated with the weak private sector involvement; capacity; high costs and inadequate financing or funding; and the Structural Adjustment Programme (SAP) policies as discussed in details in the following paragraphs.

a. WEAK PRIVATE SECTOR INVOLVEMENT

Generally, the private sector play catalyst role not only in the infrastructure development but also in the industrialisation process in the developed economies and in the East Asian developing countries. Particularly, in the context of East Asian developing countries who share the similar history with most of African countries, the role played by private sector in infrastructure development and industrialisation is especially significant. Most of the East Asian developing countries who have been successful in infrastructure development and industrialisation have simultaneously implemented the import substitution and the export promotion policies by upholding strong dialogue and involvement of the private sector. Contrary to this, however, the involvement of private sector in infrastructure development and industrialisation in Africa has been very little at the expense of public sector who played a dominant role in this area. The situation which did not lead to expected results but rather which led to over-dependence on imports by eroding the industrialisation in most of African countries.

b. CAPACITY

Another challenge to African infrastructure development and industrialisation in Africa is associated with human resource capacity. Even if the African continent is rich in terms of population, particularly young population in working age, there is a problem of human resource quality and the scarcity of human resources with specific capacities and competences. According to the African Capacity Building Foundation, for instance, it is estimated that 4 million engineers and 70,000 agricultural scientists are needed to support Africa's industrial development. It is evident that there is a gap in terms of capacity needed to analyse, plan, prepare, and execute infrastructure development and industrialisation long-term projects.

To this end, the educational reform is needed to match the curriculum with the African needs. National education and training systems have to emphasize on the quality education to equip youth with needed technical, vocational, innovative and transformative skills that are responsive to African technical and engineering needs. Besides, as evidenced by UNECOSOC, UNECA and AUC (2013), given the high skill level required for industrialisation, African countries need to develop their human capital, which is a key contributor to the continent's lagging industrial development. Education and skills acquisition are thus essential for improving the productive capacities of countries.

Additionally, contrary to the past experience where in most of the cases, research centres were separated by industry as they were not interested in seeking for solutions to the technical problems of industry, preferring a more isolated existence (UNECA, 2011), the research centres and industries have to work together in order to bring practical solutions to practical problems facing the industrialisation. In this case, it is imperative to invest in research and development to reinforce the research centres in terms of capacity (financially and in terms of skills).

c. HIGH COSTS AND INADEQUATE FINANCING/FUNDING

Generally, the provision and development of infrastructure is associated with enormous costs and long period of time. In the context of Africa, this makes infrastructure development provision and financing for industrialisation very difficult. As noted by UNECOSC, UNECA and AUC (2013), access to finance remains one of the key constraints experienced by African countries in their quest for industrialisation, both at the public and private sector levels. For instance, according to African Union Commission (2015), Africa's infrastructure deficits have been estimated to cost the continent up to 2 percentage points of annual economic growth; and according to the Programme for Infrastructure Development in Africa (PIDA), the total estimated cost of implementing all the projects identified to address projected infrastructure needs by 2040 is US$360 billion. Besides, Estache & Garsous (2012) admitted that for the Sub-Saharan Africa, the infrastructure investment need average 10% of GDP (over 40% for energy and 20% each for water and sanitation and transport) and can reach 25% for the poorest of the region.

This is worsened by the fact that there is a noticeable difference between the available finance and the needed finance to close the infrastructure gap. According to World Economic Forum (2013), of the US$ 93 billion per year the World Bank estimates that Africa needs to invest to close its infrastructure gap, just under half is currently financed. This implies a financing gap of more than half of the needed finance.

This is also exacerbated by the fact that the provision and development of infrastructure particularly transport and power infrastructure is not only associated with financial costs but also by the fact that they require international cooperation and partnerships. As a result, this makes the provision and development of infrastructure financing very complex in Africa. This, in turn, affects industrialisation and manufacturing process with many disadvantages including high costs in the continent. According to the United Nations—Office of Special Adviser on Africa (2015a), typically, costs are two to three times the levels prevailing in other developing regions, with a much greater differential compared to the costs faced by users in high income economies. According to United Nations—Office of Special Adviser on Africa (2015b), the situation worsens for the 16 African Landlocked Developed Countries where trading costs are 50 times higher than in African coastal countries.

d. STRUCTURAL ADJUSTMENT PROGRAMME (SAP) POLICIES

Another challenge to industrialisation in Africa has been trade liberalisation imposed by the International Monetary Fund (IMF) and the World Bank through the Structural Adjustment programme (SAP) to deal with the economic situation which was very difficult in most of African countries in mid 1980s. Existing literature reveals that SAP policies have dramatically changed and negatively affected the industrialisation process in Africa. In the 1950s, African countries started import-substitution strategies, by replacing imports with domestically manufactured goods. In most cases, these strategies failed because of a mixture of internal and external causes (UNECA, 2011). One the major external causes is the adoption of SAP which pushed most of African countries to shift from export oriented strategies to open market.

The SAPs type of adjustment removed inefficient government interventions but did not create the conditions for development. Indeed, SAPs did not solve the numerous market failures present in African economies, characterized by a situation of severe shortage of technical skills and a weak tradition of industrial entrepreneurship (UNECA, 2011). According to Lall (1995), over the period, industrial performance became disappointing and many African countries suffered sustained de-industrialization process - i.e, in the 1980s and 1990s. Ogbu *et al.* (1995) argue that the growing dependence on imported goods eroded the weak industrial base of most African economies. According to Riddell (1990), the structural adjustment policies have been a major force preventing restructuring of industry away from the deep dependent link. Stein (1996) also criticised the structural adjustment policies where he pointed out that the economic reform should have been based on transforming the economy and not retracting the state institutions and policies which he considered necessary in the promotion of industrialisation.

However, having enumerated all these practical problems to infrastructure development for industrialisation in Africa, the following section focuses on necessary practical solutions to all these problems to sustain and promote industrialisation process in the continent by taking into account infrastructure development as a sustainable way for industrialisation for job creation and poverty reduction in Africa.

As highlighted by the African Union Commission (2012), trade and competitiveness are not the only considerations when planning Africa's infrastructure future. If Africa won't take its matters in on its own hands, Africa will not be in a position to generate the jobs for its growing population. To this end, it is important to note that it is the responsibility of Africans through their leaders to understand that sustainable solutions to African infrastructure deficit will not come from outside but rather they are within their hands. Africans have first and foremost to take the ownership of their infrastructural problems and think about how to devise the practical solutions. In this regard, it is imperative to take into considerations the argument made by the UNECOSC, UNECA and AUC (2013) who noted that African countries need to mobilize sufficient resources to finance public investments that are crucial to industrial development, including investments in infrastructure, education, and technology.

To this end, one of the sustainable, reliable and predictable way to mobilize resources to address infrastructure development financing gap in Africa is to put in place self-financing mechanism whereby African countries can commit themselves to mobilise financial resources from domestic sources by paying an agreeable percentage of GDP to support infrastructure development in the continent. This will help to close the infrastructure gap and meet the African needs including industrialisation to transform and diversify available local products and ultimately create jobs to fight against unemployment and reduce poverty in the continent.

The fact that the continent is poised as a manpower reservoir for Africa's economic growth as noted by African Union Commission (2012), the industrialisation will not only provide employment to its abundant manpower and reduce poverty but will also accelerate the economic growth and development in the continent by reducing the imports through import substitution strategy and concurrently improve on productivity and exports through diversification. As noted by Felipe (2010), the long-run growth of any modern economy is largely determined by three factors: (i) the levels of productivity across its sectors; (ii) the degree of sophistication and diversification found in its export capabilities; and (iii) the accumulated capacity of its export sector to capitalise on available opportunities in the international export market. To remain competitive in the global economy in the long term, countries must continuously adapt and innovate in these three areas.

Infrastructure development and industrialisation policy in Africa need therefore to be reformed accordingly to focus on the development and promotion of domestic production for local consumption and export diversification and competitiveness. This can be done by putting in place an enabling environment for industrial development which takes into consideration the infrastructure development like roads, railways, airports and irrigation facilities and industrial parks facilities to promote transformation and diversification for value added of locally available resources. As noted by UNECOSOC (2017), infrastructure programmes should be developed to support the industrialisation objective, moving beyond its current structure that mainly benefits the extractive sector. This requires the governments to provide sector-specific support for existing dynamic clusters to boost domestic production and foster export competitiveness and promote future sectors with focus on medium and high-tech industries.

Additionally, the fact that Africa is rich in manpower, infrastructure development and industrialisation policy reforms therefore should capitalise on available opportunities. To this end, the education should be made able to develop human capital with necessary technical and vocational skills for infrastructure and industrial development. This has to go with the investment in sciences, technology, research and innovation and entrepreneurship to build and acquire appropriate knowledge and skills to compete in an increasingly global economy. Capacity building should also focus on finding out the practical solutions to practical problems facing the continent. Besides, since infrastructure development and industrialisation require coordination and collaboration between both the public and private sectors, the public-private partnerships (PPPs) are essential in this process; and the governments have to devise an enabling environment to stimulate private sector to take part in this process.

As a result, this will help to create jobs necessary to reduce unemployment, diversify economy basing on locally available resources and generate wealth for common interest. This will also help to improve on African exports performance by making them more competitive at the global market and improve on the intra-African trade by reducing the imports from outside the continent at the expense of trade among African countries. In order to realise all these, however, the financial sector reform is also found important. This is because as highlighted by UNECOSOC, UNECA and AUC (2013), in the private sector, African firms, many of which are small and medium enterprises (SMEs) face demand- and supply-side difficulties in access to finance; thus, the financial sector reforms will help the private sector particularly SMEs, as an important partner in this process, to easily access the financial services like bank credit and at low cost (interest rate).

B. WHAT CAN BE DONE FOR DEVELOPING INFRASTRUCTURE NECESSARY TO SUSTAIN INDUSTRIALISATION FOR JOB CREATION AND POVERTY REDUCTION IN AFRICA?

This paper suggests that it might be difficult for Africa to industrialise if due attention is not paid to the provision and development of necessary infrastructure. This is because infrastructure development and industrialisation are interlinked. The provision and development of good quality infrastructure is catalyst for industrialisation. Investing in infrastructure development is considered the cornerstone, foundation and an enabling environment for industrialisation. Thus, this section presents different ways by which Africa can develop infrastructure to sustain industrialisation for job creation and poverty reduction. Even if there are many of such ways, this paper is limited to the development of industrial parks and special economic zones (SEZs); public-private forum; and ICT promotion.

a. INDUSTRIAL PARKS AND SPECIAL ECONOMIC ZONES (SEZS)

As far as the infrastructure development for structural transformation and industrialisation is concerned, it would be imperative for every African country to develop the industrial parks and special economic zones. As noted by UNECOSOC, UNECA and AUC (2013), Africa's economic emergence and transition from a continent of low-income into middle-income economies, requires changing the economic structure from predominantly agrarian to industrial and making the most of its large reservoir of natural and agricultural resources. Thus, the establishment of industrial and special economic zones will help locating strategically the industries and providing necessary infrastructure to promote the industrialisation which will further help for transforming the economy from agrarian to industrial economy. Additionally as noted by Kingombe and Velde (2013), special economic zones can provide adequate infrastructure and public sector services in a limited area when it is not possible to provide these on an economy wide-basis.

The fact that the establishment of industrial parks and SEZs requires high financial budget, the public-private partnerships (PPPs) are hence essential in locating and developing industrial parks and SEZs and in devising a financing mechanism to cater for the construction of the industries, factories, warehouses and the provision of other facilities including roads in the area to promote manufacturing and diversification. In addition, as admitted by UNECA (2011), the governments should offer improved infrastructure and other incentives to producers to locate in the cluster, and create a policy environment that facilitates business activity (i.e. easing borrowing, reducing bureaucracy, etc.). This, in turn, will promote not only the infrastructure development but also the industrialisation in the continent. Moreover, this will help promoting exports and reducing imports from out of the continent; thus, improving on the terms of trade.

This, however, has to go with a conducive industrialisation policy to take into account the environmental issues. This implies that the establishment of industrial Parks and SEZs has to be environmental friendly by designing an effective industrial waste management system. To achieve this, there is a need of an effective industrial policy with specific and clear lines of accountability to a high-level of political and private ownerships.

b. PUBLIC-PRIVATE FORUM

It is evident that the role played by private sector in economic activities is essential. Particularly, small and medium enterprises (SMEs) are part of the major contributors to job creation. Thus, contrarily to the past where in Africa there was a widespread public ownership of industry: public investment was extensive and a number of firms were nationalized (UNECA, 2011) as opposed to what happened elsewhere, the leading role of private sector should be emphasized if the Africa needs to achieve sustainable infrastructure development and industrialisation. To this end, there is a need for an integrated channel through which the private sector needs and issues can be raised.

The public-private forum can therefore be the best way to handle this issue and this can serve a variety of functions including joint investments and advising the governments through public-private dialogue on certain matters hampering the investments particularly in the area of infrastructure development. This is particularly important because it will engage the private sector in the process and bring incentives which, in turn, will lead to innovations catalytic to industrialisation. This will further promote domestic production and intra-African trade as well as the exports by reducing dependence on imports. Furthermore, the innovation has potential to reduce unemployment by creating new jobs and generating incomes which, in turn, improve on the standards of living and reduce poverty in the economy.

c. ICT PROMOTION

As far as the infrastructure development and industrialisation are concerned, it is also essential to mobilise the investment in Information, Communication and Technology (ICT) as a key driver. Investment in ICT has potential to improve on productivity and efficiency. Investment in ICT spills over to influence other sectors performance including industrialisation and innovation; and generate many benefits like employment and improved productivity amongst others that might not be generated otherwise. Investing in ICT has also the potential to lead to innovation. The latter is very important in influencing productivity and production system and methods. As highlighted by Goh (2005), once innovation becomes the lifeblood of firms and mainstay of firms' activities, economic upgrading can be sustained continuously by creating highly-skilled jobs, producing world-class exports and fuelling high industry growth.

Additionally, the innovation helps to put in place not only new and efficient methods and techniques of production but also facilitates improving on quality of the existing products and services and introducing new range of products and services. Hence, investing in ICT facilitates the innovation which further allows for diversification of locally available resources. The innovation has also to do with the competitiveness. In other words, investing in ICT makes productive sectors more efficient by cutting down production costs and hence, improve the trade competitiveness. According to UNECOSOC, UNECA and AUC (2013) however, the technologies used in the production process in Africa are not adequate.

Thus, to this end, recognising ICT as a key driver for infrastructure development and industrialisation, the African governments should allocate enough investments in this area to provide adequate technologies. Equally important, the governments should engage other development partners such as private sector by providing a platform for increased private sector participation in ICT investment and development to improve on competitiveness of the continent. Additionally, most of the African countries have made an interesting step toward technology advancement where most of them have in the government the ministry in charge of ICT which is supposed to demonstrate the importance of ICT and promote technology in economic progress. However, UNECA (2011) notes that the ability of government to coordinate and evaluate technology acquisition and use has been very weak. Thus, it is time for the governments to differentiate the technology acquisition from the technology use. This will help not only enhancing production but also to be selective in terms of technologies needed in respect of the needs of the country.

V. CONCLUSION

Infrastructure development and industrialisation are interlinked. Adequate infrastructure is a foundation for sustainable industrialisation. Thus, the provision and development of adequate infrastructure must be put at the forefront of the development agenda of the African countries if they need to achieve sustainable industrialisation. Infrastructure development must be made a priority at all levels (national, regional and continental). Additionally, African countries need to re-evaluate their infrastructure development and industrial policies to create the conditions necessary for improvements of their productive capacity focusing on locally available resources and opportunities and making use of their comparative advantage by using their natural resources as the cornerstone for industrial development. Moreover, the fact that infrastructure development and industrialisation are both capital and labour-intensive sectors, investing in infrastructure development for industrialisation will help Africa to serve its abundant and growing manpower with employment opportunities, and this, in turn, will help for reducing poverty and accelerating economic growth and development of the continent.

VI. RECOMMENDATIONS

The paper made the following recommendations that would help to improve on infrastructure development and accelerate industrialisation in Africa:

- ✓ There should be a clear definition of the role of public sector and that of private sector in the infrastructure development and industrialisation process where the private should play a leading role particularly in manufacturing and the public sector intervene to provide the goods that cannot be provided by the private sector. Additionally, the investment in infrastructure development and industrialisation must focus on the implementation of import substitution and the export promotion strategies by providing the private sector with an opportunity to play a leading role in this process.

- ✓ It might be difficult to improve the infrastructure connectivity in Africa without strong integration among the African countries. Similarly, it seems impossible to accelerate industrial development and improve intra-African trade in case Africa is not connected in terms of modern infrastructure. To this end, the African countries are recommended to strengthen the continental integration and promote continental infrastructure development and industrialisation through the implementation of various initiatives undertaken in this regard at both regional and continental levels.
- ✓ Since one of the major challenges facing most of African countries is related with human capital capacity with growing emigration of scarce skilled nationals. So, long-term efforts concerning human capital capacity building for infrastructure development and industrialisation in Africa must consider incentive structures for skill retention and their impact; otherwise, further efforts may have little or no sustainable impact.

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