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Promoting National Development in China Through TVET: Lessons for Nigeria

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Abstract
Prior to the commencement of the economic reforms in China in the late 70s, China's economy was beleaguered by policies that kept it poor, stagnant, unitarily rigid and isolated from the rest of the world. However, the country has, in recent years, emerged a global economic power, the second largest economy in the world and the global leader in manufacturing, merchandising and impressive foreign exchange reserves. The country's rise to global economic limelight within a period of three decades, which has been generally described by global economic analysts as one of the greatest economic success stories in modern age, has continued to be a subject of puzzle to the developed world and a source of inspiration to the developing countries of the world. Although more attention has been paid to economic factors, such as large-scale capital investment and rapid productivity growth as factors responsible for the rapid economic growth of China, but behind these economic factors is the national strategic skills training system adopted and maintained by the Chinese government to complement the economic measures. The strategies adopted in the design and administration of TVET delivery as part of the country's development programme complemented the various measures taken towards the realization of the economic reform embarked upon by the Chinese government. This paper explores the context of Chinese TVET delivery system and identifies the key reforms and strategies employed by authorities in China to promote national development through TVET and the relevant inspiration from the experience for the development of skills training system in Nigeria, the largest economy in Africa, which has been entangled in continuous struggle with under-development, low productivity, unemployment, under-employment, as well as the vulnerability of youths to sponsors of violent extremism due to unemployment-triggered poverty.
Keywords: TVET, China, Nigeria, Unemployment, Development

1. Introduction

With an estimated population of over 1.3 billion, China has the largest population in the world. Over three decades back, under the leadership of Deng Xiaoping, the country embarked on the policy of reform and opening up to the world which ushered the country into the phase of rapid economic growth. The rapid economic growth has also translated into considerable progress in the social development and improved living standards for the massive population, significantly reducing the numbers of the population hitherto living in poverty. The development reform policy kept the country consistently on the growth path which has seen the country ranked ninth in nominal gross domestic product (GDP) with USD 214 billion; 35 years later it jumped up to second place with a nominal GDP of USD 9.2 trillion (ILO, 2016). Few countries' economy developed as fast and maintained steady growth as that of China in the last three decades, having leapt from poverty-stricken rural society to become the second largest economy in the world; in fact, if the Gross Domestic Product (GDP) is adjusted for Purchasing Power Parity (PPP), the country is said to have become the largest economy in the world ahead of the United States in 2014 (German Federal Ministry of Education and Research, 2015).

The country became a strong manufacturing hub with strategic structural changes that brought about great transformations from traditional primary sector: agriculture, to the secondary and tertiary sectors backed up by sustained and strong policy supports for the nurturing of a higher value added, high technology driven economy and a corresponding skilled work force (ILO, 2016). In over two decades, more than 500 million citizens moved into the middle class compared to the pervading poverty in the country just a decade before the reforms. The cultural revolution embarked on by the earlier administration during Mao Zedong's era saw the closing down of schools, despatching of teachers as well as educated people to countryside, thereby utterly truncating the critical growth of the country's education system. The question worth asking is how China garnered the resources; especially, the skills to power the economic milestone? China's emergence as a global leader is closely connected to the strategic interplay of the national economic development plan and a planned, deliberate and consistent skills training system. The Chinese experience lends voice to the assertion that the provision of training and the level of skills of the human capital of a country is crucial to the competitiveness of the country in the global community(AFDB & OECD, 2008). Unarguably, skills and knowledge are engines of economic growth and social development of any nation as quality education and skills not only empower the recipients for access to economically and socially rewarding jobs, but also empower them to create jobs, remove the cycle of limitations surrounding the unskilled members of the society (AFDB & OECD, 2008).

2. TVET in China's Leap to Economic Development

The discernible trends and issues in TVET in China over the years has become object of interest to developed and developing countries worldwide; especially with the former seeing China as a rising global competitor and the latter seeing China as a model of development in their aspiration to occupy some space in the global development sphere (IAMR, 2013; Morrison, 2014). The development of technical, vocational, and other work-related skills is important to prepare people for available jobs and to maintain and raise worker productivity (Asian Development Bank, 2009). Development of vocational education in China before the 1949 era was marked by the study of Western technology and practical skills training for the workforce; especially at the later phase of the Qing Dynasty (Shizhou, 2015). Vocational education development was hampered by the slow economic progress and lack of industrial development during the period (CERNIC & CERNET, 2001). At the establishment of the Peoples' republic of China in 1949, the new nation critically needed the services of mid-level technical personnel and the government adopted technical and vocational education as means of achieving this and emphasis was on training for specific industries (Guo & Lamb, 2010). The period witnessed the development of heavy industries as national development strategy of the government, and technical and vocational education was key instrument of providing the needed personnel. The cultural revolution however truncated the bourgeoning development of vocational education (Dai, 2011).

At the dawn of Deng Xiaoping's administration, China was at least forty years behind the world's most advanced countries (Stewart, 2015). The country witnessed a bold thrust through major a reform aimed at transforming the economy, lift the country out of poverty and backwardness by learning from the more advanced countries like the United States, Japan and the European nations. The reform, which has been aptly described as a " real revolution" (Guoyou, 2015), was anchored on what was described as the "Four Modernizations", which are: agriculture, defence, industry and science and technology. Following the reform, technical and vocational education was rejuvenated with the 1980 "Report on the Structural Reform of Secondary Education" of the Ministry of Education, which emphasized the reform of secondary education structure to meet the existing economic realities of that time. This was followed by another government policy document in 1985 "Decision on the Structural Reform of Education" made by the Central Committee of the Communist Party, which provided the framework for the reform of the education system and gave shape to the structure of vocational education from the junior to the senior level to match the need in the industrial sector and set up a close link between the delivery of vocational education and the industries (Sun, 2010). In three decades, commencing from 1978, authorities in China promulgated and implemented more than thirty strategic policies and key resolutions for the development technical and vocational education in the country.

China's entrance into the World Trade Organization in late 2001 witnessed a continued rigorous implementation of economic reforms closely backed up with legal framework for the implementation of effective technical and vocational education system. Prior to this time, authorities in China had promulgated the "Vocational Education Law" (1996) in line with the strategy of the government to promote national development through science, technology and education through the platform of vocational and adult education in diverse form (CERNIC & CERNET, 2001). The law, which established the legal foundation for technical and vocational education reform in the country, triggered the vigorous development of vocational education at the secondary education phase. Following the promulgation of the "Vocational Education Law", several regular secondary schools were converted to technical and vocational senior high schools especially in the rural areas. Also, it became mandatory for employers of labour to comply with the regulation of "training before employment" in their employment of workers. This ensures that priorities are given to graduates of technical and vocational colleges in employment. Furthermore, to ensure the training of high-quality technical and vocational education teachers, 12 technical and vocational normal universities were established in different parts of the country (Sun, 2010). The policies and regulations made and implemented by the government provided conducive environment for the development of TVET as well as direction for the reform of TVET to meet the country's manpower needs in national development.

Subsequent administrations embarked on continuation of the laid down reform plan, promoting social welfare closing income gaps between the coastal cities and the countryside; rapid increase of investment and manufacturing activities complemented by thriving export. Underpinning these developmental programmes of the government is the consistent adherence to the policy of human capital development through the strengthening of skills and training system (Shizhou, 2015). In 2005, the State Council issued the "Resolution to Develop Vocational Education". A policy document that target the improvement of the employment rate via promotion of vocational education, which will create a skilled workforce to meet market demand. The document provided for private vocational schools to enjoy the same treatment as public vocational schools in areas such as student recruitment and teaching resources (The State Council, 2005).

3. Key TVET Reforms in China

The reforms in TVET system in China can be described as having happened in two phases. The emphasis of

phase one was essentially on expanding vocational education and increasing the proportion of students joining the vocational stream. These reforms typically focused on school-based vocational education, particularly at the senior secondary level. The second phase reforms align the Chinese education system with the demands of transition to the market economy. The growth in labour force coupled with layoffs on account of industrial restructuring of the state-owned enterprises which required the need for retraining of the laid-off workers in the stream of vocational training and to create a skilled workforce able to meet the needs of an economically developing society (Keating, Medrich, Volkoff, & Perry, 2002). The massive rural-urban migration of workers also triggered the need to train them for productive engagement in the non-agricultural sectors. The reforms entailed diversified vocational education and training providers, education and training levels, forms, which led to a large number of new job training centres and higher vocational institutes being set up in the late 1990s.

The 1991《Resolution to Vigorously Develop Vocational and Technical Education》stressed the need to strengthen the standardization of existing vocational and technical schools and concentrate on the establishment of several schools to serve as models and provide backbone roles. The policy document also make provision for short term pre-employment skills training programme for young people who could not be promoted academically, and actively carry out career guidance in regular education as well as focus on appropriately introducing the vocational aspect of education. One other important feature of the 1991 policy document is development of adult vocational and technical training for in-service personnel. To support the development of technical and vocational education, emphasis was placed on the holding of "dual certificates" as condition of merit-based promotion and salary.

The 《Outline on Reform and Development of Education in China》, 1993 policy document mandated governments at various levels to attach great importance to vocational education, make overall plans and vigorously develop vocational education. Sequel to rapid industrial development and advancement in technology, there was new demand for highly skilled technical manpower that could only be nurtured by post-secondary (tertiary) level TVET. This brought the attention to developing higher vocational education (HVE) as well as secondary vocational education (SVE). The National Education Conference of 1994 emphasized the need to develop higher vocational education (HVE) to meet this growing need. As a follow up to the National Conference, in October 1994, October 1995 and December 1995, three different circulars were issued by the State Education Commission on the provision of experimental higher vocational education (HVE) within ten secondary specialized schools with emphasis on training objective based on analyzing the economic development and employment, development of teaching plan and syllabus based on analysis of labour market requirement.

The 1996 Vocational Education Law of the People's Republic of China was a landmark initiative by the government. The Law was enacted with the vision to implement a strategy for reviving China's industrial growth through promotion of science and education, with important thrust towards vocational education to improve the quality of the workforce. According to the Law, TVET is seen as an important component of China's education system. The Law provides the legal framework for the implementation of the vocational education and training system in the country. The Law clearly indicates the roles and responsibilities of the Ministry of Education and Ministry of Human Resources and Social Security (formerly Ministry of Labour), two main ministries responsible for TVET, on the one hand, and local governments, vocational training providers and industry and private participation on the other. The 1996 Vocational Education Law make provisions for 20% of the annual education budget to be allocated to vocational education and training. Also, in 1996, the 《Ninth Five-Year Plan for Educational Development and the Year 2010 Long-Term Development Program》 identified the goals of educational development as moderately expanding the scale of higher education and optimizing its structure and further improving the quality and efficiency of educational provision. The policy document emphasized the need for universities and higher vocational institutions to accord priority to the development of applied degrees programs, especially those relating to meeting the manpower needs of rural regions, the small and medium-sized enterprises (SMEs), rural enterprises, and the service sector in urban and rural areas.

In 1998, The 《Action Plan for Reviving Education Towards the 21st Century》policy document was promulgated, and it provided for the vigorous development of higher vocational education as a crucial prerequisite to meeting the pressing demand of national economic development. It also emphasizes the need to improve the flexibility of transition from vocational education and regular higher education, to enable graduates from secondary vocational schools who desire to continue their studies in higher education institutions after passing the qualifying examination achieve their purpose without limitations. This was followed in 1999 by another policy document, the 《Resolution on Deepening Educational Reform and Promoting Quality Education》 which empowered post-secondary technical and vocational colleges to adopt a variety of methods of enrolling graduates from regular middle schools and secondary vocational schools, and also emphasized the strengthening of linkages among the different arms of education enabling secondary vocational education graduates to advance their studies in higher educational institutions after passing the required screening

examinations/tests.

The 《Action Plan for Reviving Education 2003-2007》 policy document identified education as strategic priority for achieving the goal of building a modern country and has as its goal the implementation of strategies of "Developing the country through science and education" and "To strengthen the country through talented persons" (Xiao Zhou & Weihui, 2009). The policy document made provisions for technical and vocational education as tool for cultivation and training of urgently needed skills in the manufacturing and modern services industry. The policy document emphasized that based on the existing local realities relating to development and labour requirement, industries and TVET schools should establish training bases for raising the urgently required skilled personnel in the labour market. The Action Plan made provisions for employment oriented TVET delivery to make that curriculum content directly related to the requirements of the world of work. It also made provisions for lifelong learning through corporate learning, learning communities and learning cities as well as distance education.

In 2005, the State Council issued the 《Resolution on making great efforts to develop vocational education》. After the impact of the world-wide financial crisis which critically affected production and exports from China with several millions of workers out jobs, by 2007, China had more than 5 million unemployed workers due to downsizing and another 8 million excess labour in the rural areas. To counter the emerging challenges, in early 2009, the government designated TVET as the next target of education and this culminated in the formal steps taken to boost the status of TVET with the 2010-2020 Master Plan. The policy document mandates the provision of free secondary vocational education and subsidies to students from poor families and provides for dual- certificate system which allows students to earn diploma and professional qualifications concurrently.

Prior to the enactment of the Vocational Education law, the preference of the parents as well as students was on general education. In the rural areas, many households had arable lands but had no requisite skill to increase productivity. Therefore, the government made special provisions for rural workers who choose to stay in agriculture sector by offering them technical training in areas like agriculture production, manufacturing, food production, poultry, fruits, dairy products and so on. There are 386 agriculture schools across the country. The farmers are provided certified training in agriculture and entrepreneurship in a mix of classroom instruction and field training. This singular measure of vocational education training in agriculture related activities made China to successfully achieve two critical issues:

(1) Curbing the rising trend of rural-urban migration; and

(2) Increased productivity for rural farmers as well as increased competitiveness of the local farmers in the global market.

Between 2005-2011, graduates of higher vocational education in China accounted for 50% - 56.5% of the total graduates of higher education institutions and exceeded the number of graduates with regular academic bachelor's degrees. By 2014, there are 11,878 various school-based TVET institutions including specialized secondary schools (3,536), Vocational high schools (4,067), technical schools (2,818), adult specialized secondary schools (1,457). The total student population in the formal TVET institutions was 17.55million, and teacher strength of 1.13million. With close to 130,000 different types of skills training institutions spread all over the country providing services to over 200million persons, China has the largest technical and vocational and training system in the world. In the same year (2014), there were 7.13million graduates of higher education institutions across the country out of which 3.18million (48.3%) were graduates of TVET institutions. In the labour force, there are about 13million new entrants into the labour force in 2014, out of which 6.6million were university graduates (50.8%), the graduates of secondary vocational schools accounted for 6.33million (48.7%) and those with other qualifications accounted for just 5% (Shizhou, 2015).

The《Outline of China's National Plan for Medium and Long-term Education Reform and Development (2010-2020)》has the strategic goals to attain by the year 2020, the basic modernization of education, bring a learning society into shape, and turn China into a human resources-rich country through a holistic and all-round approaches. Under the Outline, the government identified the following as missions to actualize the action plan for technical and vocational education in the country:

a) Intensifying Efforts in Developing Vocational Education.

The policy document identified vocational education as deserving more precedence because it is a major platform to boost economic growth, promote employment, improve the livelihood of citizens and address issues germane to agriculture, rural areas and farmers. Equally, it is seen as pivotal nexus in eradicating structural conflicts between labor supply and demand. The goal was to ensure that by 2020, a modern vocational education system with well-coordinated secondary and higher vocational education would have been realised to meet the requirements of adjusting the economic development mode and restructuring the industries, to embody the philosophy for lifelong education, and to satisfy the demand of the people for vocational education and the needs of the economy and society for high-caliber workers and skilled personnel. The policy document identified

governments' responsibility in this regard to include taking practical steps to expand vocational education, incorporating vocational education in socioeconomic and industrial development programs, and adapt the scale and range of vocational education programs to socioeconomic development needs.

Furthermore, the policy document stipulates that major efforts shall be focused on the improvement of quality while teaching and learning shall be more service-oriented and employment-oriented in nature. The nurturing of skilled professionals shall involve the integration of work with study, through collaboration between schools and enterprises, and students' placements in industrial work experience. Classroom education shall be developed simultaneously with occupational training, and full-time schools be developed along with part-time schools. A feasible system shall be set up to guarantee the quality of vocational education. Vocational schools shall invite enterprises to join in teaching quality evaluation and hold competitions of occupational skills.

b) Mobilizing the Enthusiasm of Industries and Enterprises in Vocational Education.

School-running mechanisms shall be devised with the government playing the leading role, industries offering guidance, and enterprises participating. Legislation shall be enacted to advance and institutionalize cooperation between vocational schools and enterprises. Industrial associations and enterprises shall be encouraged to run vocational schools or entrust these schools to train their workers. Incentives shall be granted to enterprises to invest more in vocational education, accept students for fieldwork or in-service training, and allow teachers to practice what they teach in the classroom

c) Speeding Up Vocational Education Development to Meet the Needs of Rural Areas

The policy document posited intensive use of vocational education as a major driver of building brand-new rural communities with the coordination of basic education, vocational education and adult education to promote the integration of agriculture, science and education. The responsibilities of provincial and prefecture-level city governments for developing rural vocational education shall be enhanced. Vocational education and training shall be expanded to cover more rural areas. A good job shall be done in running county-level vocational education and occupational training centers according to local needs. Comprehensive arrangements, coordination and multipurpose utilization of vocational education resources shall be stepped up to promote collaboration between urban and rural areas and between regions, and to make vocational education better serve agriculture, rural areas and farmers. Teaching and training programs on agriculture shall be upgraded, and more efforts made in training professionals to meet agricultural and rural development needs. Schools at all levels and of all kinds shall be supported to participate in the training of new types of farmers who are educated, skilled, and can operate their business. We shall conduct training programs for city-bound rural migrant workers, as well as those who have quit farming in favor of new jobs. Governments shall provide free work preparation training progressively for the new rural labors.

d) Making Vocational Education More Appealing

State policy support of vocational education shall be improved, free-of-charge secondary vocational education made available gradually and systematically, and financial aid for students with financial difficulties bolstered up. A "dual certification" system that grants students with both a diploma and a vocational permit upon graduation shall be installed, and the specialized curricular contents of vocational schools and colleges aligned with the professional standards. It is necessary to tighten up the work permits system and carry out the stipulation that graduates must be trained before they become eligible for jobs. The approach of vocational education and training will be developed for retired soldiers. A curricular connectional framework shall be shaped for vocational education. Graduates shall be encouraged to go on with on-the-job studies, and the system for enrolling vocational school graduates in higher schools fine-tuned to open more channels for graduates to continue with their studies. Skilled personnel's status, salaries and benefits shall be raised, and those who have made outstanding contributions shall be publicly recognized to foster an atmosphere in which every trade or occupation can produce its own "top-rated" professionals or leaders.

4. The Output of TVET Development

Between 1990 and 2015, the percentage of the population employed by agriculture declined significantly from 60.1% to 28.3%. On the other hand, the population employed in the manufacturing (secondary sector) and services (tertiary industry) sectors of the economy increased to 29.3% and 42.4% respectively. The gradual drop in the employment proportion in primary industry and steady rise in the employment proportion in the secondary (manufacturing) and tertiary (services) industries signals significant increment in the number of skilled manpower available for employment in the latter two sectors.

Table 1: GDP Contribution and Employment Population Distribution by Industry

	Agriculture		Manufacturing/ Construction		Services/ Tourism	
	Output (%)	Employment share (%)	Output (%)	Employment share (%)	Output (%)	Employment share (%)
1990	27.1	60.1	41.3	21.4	31.6	18.5
1995	19.9	52.2	47.2	23.0	32.9	24.8
2000	15.1	50.0	45.9	22.5	39.0	27.5
2004	13.4	46.9	46.2	22.5	40.4	30.6
2006	11.7	42.6	48.9	25.2	39.4	32.2
2008	11.31	39.6	48.62	27.2	40.07	33.2
2010	10.1	36.7	46.7	28.7	43.2	34.6
2012	10.1	33.6	45.3	30.3	44.6	36.1
2014	9.2	29.5	42.7	29.9	48.1	40.6
2015	9.0	28.3	40.5	29.3	50.5	42.4

Source: (National Bureau of Statistics China, 2016b)

The country experienced clear shift from an agricultural and primary goods-based economy of the pre-reform and opening up period to an industrialized economy combined with highly efficient service economy. This does not mean that China abandoned agriculture, because the industry still employs a large portion of China's active work force with a little over 300 million people employed in 2008. The agricultural sector has witnessed significant improvement and higher productivity than the pre- reform era. The manufacturing sector is the key contributor to the country's employment and GDP, it is the main driving force behind the Chinese economic growth. Therefore, TVET should focus on the development of industry and manufacturing industry.

Furthermore, due to the continued growth in socio-economic development, the living conditions of the general population continues to rise with corresponding increase in the number of residents living in cities (not due to rural -urban migration, but due to the transformation of hitherto rural areas into modern cities). From an urbanization level of less than 20% in 1978 to over 50% in 2015, China has achieved significant transformation of rural areas into modern urban centers with corresponding better living conditions for the citizens.

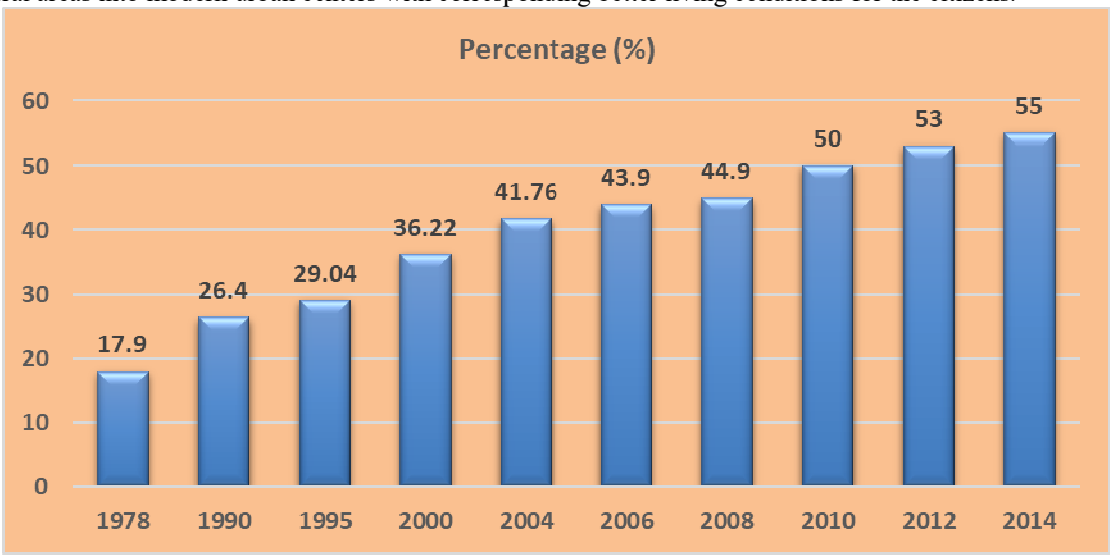

Figure 1: Percentage of Urbanization Level in China

Source: (National Bureau of Statistics China, 2016a)

TVET has not only experienced significant development in China since the time of the key reforms, the country has also succeeded in establishing the largest technical and vocational education system in the world. By 2014, the enrollment in China's secondary and tertiary vocational schools reached a total number of more than 34 million students, more than 14million students in the secondary vocational education level and more than 60 million people took part in training provided by vocational schools or vocational training institutions. The development of TVET over the years has brought about a rapidly increasing number of young people now staying on in upper secondary education (about three quarters) and increasing numbers of young people in tertiary education. As a matter of policy, at upper secondary level about half the cohort enter upper secondary vocational schools (OECD, 2010a, 2010b).

The TVET system in China has evolved over the years into a degree of advancement with its own unique characteristics of seamless combination of skills, certification and employment. Other major achievements of

TVET in the country include the establishment of an all-inclusive legal framework for TVET, which is further enhanced by Education Law of the PRC, Labor Law of the PRC, as well as administrative regulations and local laws. Flexible school-running patterns involving enterprises and trade organizations. On the economy side, TVET has significantly helped in promoting economic development in China with graduates of TVET from different levels contributing to the increase in the labour force of the country. Others include:

a) Enhancing Employment

Employment rate of secondary vocational school graduates has been put at over 90% consistently for many years. The employment rate and starting salaries have continued to be on steady increase over the years for both secondary and higher TVET institutions graduates.

b) Promoting Social Equity

90% of secondary vocational school students and 20% of the tertiary students enjoy state aid. Starting from 2009, students from economically disadvantaged families and agriculture-related majors have gradually been exempted from tuition.

c) Optimized Educational Structure

By the year 2015, the number of students in the Secondary vocational schools have reached over 19.11million. In the higher vocational colleges, the number of students have reached over 13.44million during the same time (Ministry of Education PRC, 2015) pointing to a significant progress in the achievement of the 2020 goal set for vocational education in the country. Secondary vocational schools account for 48.89% of secondary education enrollment, while tertiary vocational schools constitute 47.67% of the enrollment in education on tertiary level, which greatly facilitate universal access to high school education and popularization of higher education.

d) Agriculture and Rural Development:

TVET has significantly served as a tool for the promotion of rural and agricultural development in China (Lumby, 2005). The implementation of 11th five-year national development plan witnessed various levels of technical and vocational education providing job training for 185 million farm laborers looking for urban employment. More than 60% of vocational school graduates find jobs in local areas. China is the largest developing country in the world with one quarter of the world population, with significant portion of the country's population and that of the student residing in the countryside. The government has used sound and smooth development of TVET in China as an effective tool to realize the objectives of a culture of peace, building prosperous communities, social cohesion and stability, and environmentally sound sustainable development. The government's efforts commencing from the early 1980s continued with significant progress in the provision of technical and vocational education in rural areas. The student population in technical and vocational colleges in rural areas has increased as well as significant improvements in the teaching quality. Rural vocational education is mainly conducted by the specialized secondary schools of agriculture and forestry, rural vocational high schools and the cultural & technical schools for peasants.

TVET is socially relevant in the area of equity, such as in terms of access to TVET for vulnerable groups of people, or, more broadly, the role of the system in reducing poverty (Asian Development Bank, 2009). From 1984-1997, the number of specialized secondary schools of agriculture and forestry increased from 406 to 420 with the enrollment increasing from 102,400 to 516,000 students. During the same period, the number of rural vocational high schools increased from 4,217 to 4,900 with the enrollment increasing from 895,100 to 2,194,700 students. The graduates of these schools have since transformed into key economic forces in the country sides, contributing immensely to the economic growth in rural areas of China. The focal point of the reform of rural vocational education is the emphasis on linkages between economic development and reform of education & teaching; and emphasis on integration of agriculture, science, technology and education with the overall planning of basic education, vocational education and adult education.

5. TVET in China: Strategies that Worked

5.1 Strong Policy Thrust

A significant step taken by the Chinese government in developing TVET in the country is the enactment of the 1996 Vocational Education Law of the People's Republic of China. The law provides the legal support for technical and vocational education in the country. The Law encourages students to take up technical and vocational stream in post junior secondary education, clearly stipulates the different roles and responsibilities of the various stakeholders in the TVET system: Ministry of Education, Ministry of Human Resources and Social Security, education and training schools and institutes under the two ministries, local governments, and enterprises. The Law provides for rural economic development through the promotion of technology and rural technical and vocational education.

5.2 Firm Policy Provisions for TVET Funding

The bulk of financing TVET in China rests with the local government which can be township, county or city government. Only higher education is financed and managed by central and/ or provincial government. In

China, the 1996 Vocational Education Law requires that 20 per cent of the annual education budget should be allocated to vocational education and training. The system of fiscal decentralization in China and autonomy of the local governments significantly enhances the implementation of technical and vocational education, benefits local enterprises, due to the flexible TVET system that responds to local needs, as well as benefits the students in terms of employment. The local governments make appropriations for funding of TVET from locally generated revenue and provide such funds also for rural vocational training. As a matter of policy, local industries are required to utilize 1.5% of their payroll for in-service training. If the industries could not do this, they shall pay the equivalent in tax to the government to be disbursed for adult training. One major feature of the global scale rapid development in Chinese education system (including TVET) is the concept of "Key schools/educational institutions". The concept was applied at all the levels of education: basic, secondary and tertiary. As soon as the objectives were achieved, especially at the basic and secondary education level, the concept no longer operates in the basic and secondary education level because all the basic and secondary schools have become "key schools". The concept is currently still operating at the tertiary education level as the government intends to build more world class universities and train elite skilled manpower to drive the new policy of transforming to "new normal economy" which will see China transforming from a mere manufacturing base into innovation-driven economy, thereby changing the concept of "made in China" to "designed in China".

The concept of "key schools" started from the period of establishment of New China in 1949 and was stopped due to the Cultural Revolution. However, the concept was revived under the new administration of Deng Xiaoping from 1978. The concept was born out of the need to effectively utilize available scarce resources to develop the education sector. Faced with the dire challenges of shortage of skilled manpower to drive the growth of national economy and limited finances, the Chinese government decided to pool together available scarce resources to build key schools/institutions. It is well known that higher education plays significant role in providing highly skilled manpower for the development of any country, but the learners that will be recruited into the universities must be given proper education at the secondary school level. this informed the need to adopt the "key schools" concept at the secondary school level in China. In reviving the "key schools" concept, Deng Xiaoping emphasized the "need to have respect for knowledge and talents" and "if we want to achieve modernization, the key is lifting up science and technology; develop science and technology, it is imperative to firmly grasp education. It is impossible to achieve modernization by playing to the gallery, there must be knowledge and skilled talents. To firmly grasp science and technology, we must start from the primary school, secondary school and then the university. Education need two legs to walk: universality and quality. We must focus on building key primary schools, key secondary schools and key universities. We must gather excellent people into key secondary schools and key universities after going through thorough examination (Guoyou, 2015).

Technical and vocational education is under the control of the local governments and majority of the funding of technical and vocational education is provided by the local governments. The government takes care of about 71% of the entire expenditure on technical and vocational education through annual budgetary appropriations (Chart 1). According to the Vocational Education Law of 1996, the local governments at the village and county levels (i.e. sub-provincial level) have the responsibility to sponsor vocational education in schools and training institutions. Article 30 of the Law mandates the provincial governments, autonomous regions and municipalities to set aside funds for vocational education from the local charges they collect for education under the Education Law. The Law also specifies that the governments may appropriate funds for rural vocational training from the funds earmarked for developing agricultural science and technology. Provision was made in the Law to give tuition waiver for students in vocational education and training with financial difficulties or disability.

The main responsibilities for funding and administering TVET institutions moved from local governments at city levels at the first phase, to provincial/municipal governments at the second phase, to cooperation between local governments at provincial/municipal levels and city levels at the third phase, and now to governments at all levels – local governments at city levels, local government at provincial/municipal levels, and the central government. This indicates a trend of increasing support for TVET by the central government. The central government has emphasized multiple funding sources for TVET, such as government finance at different levels; industries, enterprises and employers; fundraising, tuition, school-run industries, education tax, loans, donations, and overseas funds providing room for multiple funding sources of TVET.

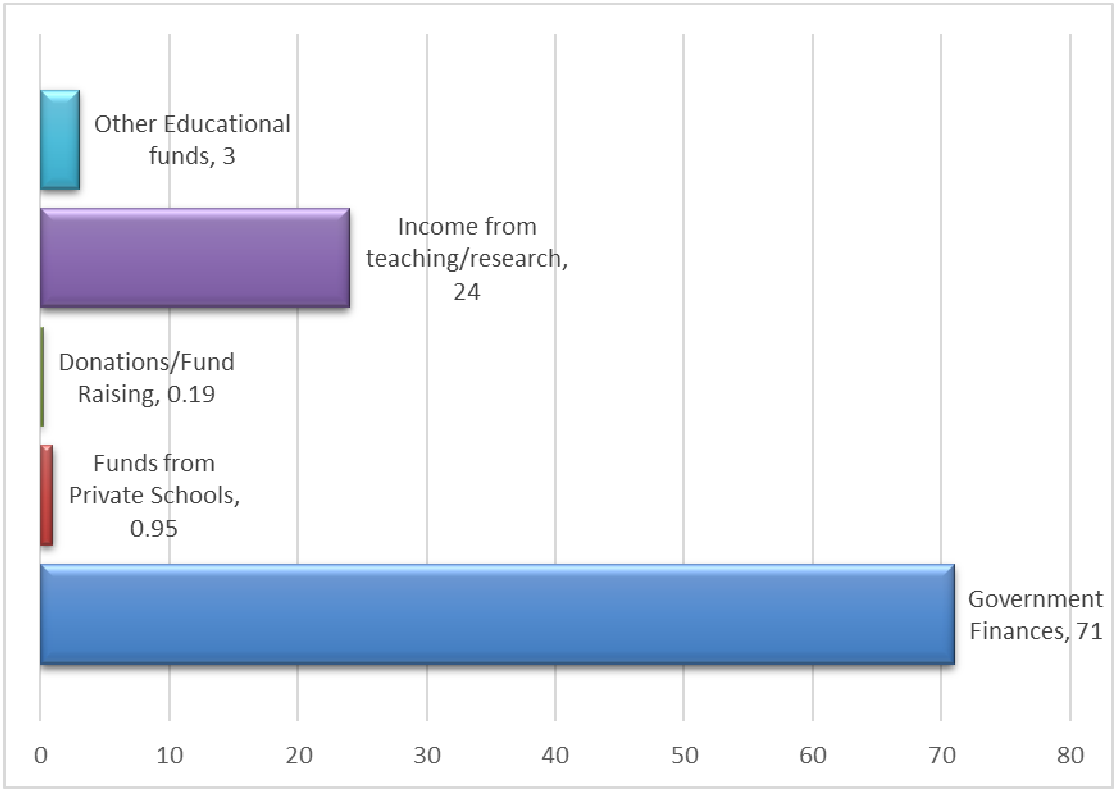

Figure 2: Source of Funding For TVET

Source: (Ministry of Education PRC, 2015)

Furthermore, the central government encouraged diverse providers to run TVET institutions, which include local governments at city and provincial levels, industries and enterprises, non-government organizations, individuals, and foreign organizations/individuals. However, in the policy named Resolution on Energetically Developing Vocational Education, the State Council (2005) stresses that the existence of multiple funding sources for TVET does not change the dominance of the public ownership of TVET and submitted that "public vocational colleges should be main forces in developing vocational education" (para. 18). In all, the government plays the role of the major provider for TVET institutions at the local level (city and provincial governments) backed up by the central government's strategic fund allocations to TVET, a process of involvement indicating the central government's increasing emphasis on developing TVET.

5.3 Policy-Driven TVET Stream System

Technical and vocational education in China commences early as learners are introduced to technical and vocational education at the junior secondary level (or junior middle school). Junior secondary education takes place at the last 3-year phase of the compulsory 9 years basic education provided by the nine-year Compulsory Education Law of 1986. In 2015, only about 1.1% of junior secondary graduates entered the labour market after the 9 years of basic education. Out of the remaining 98.9% students continuing to the senior secondary education those entering the vocational stream are 43%. In contrast, though students in Nigeria are introduced to TVET from the Junior secondary education (lower secondary school) with introduction of pre-vocational subjects, only 1% of graduates of Juniour secondary schools transit to technical colleges compared to China's 43% (Figure 3).

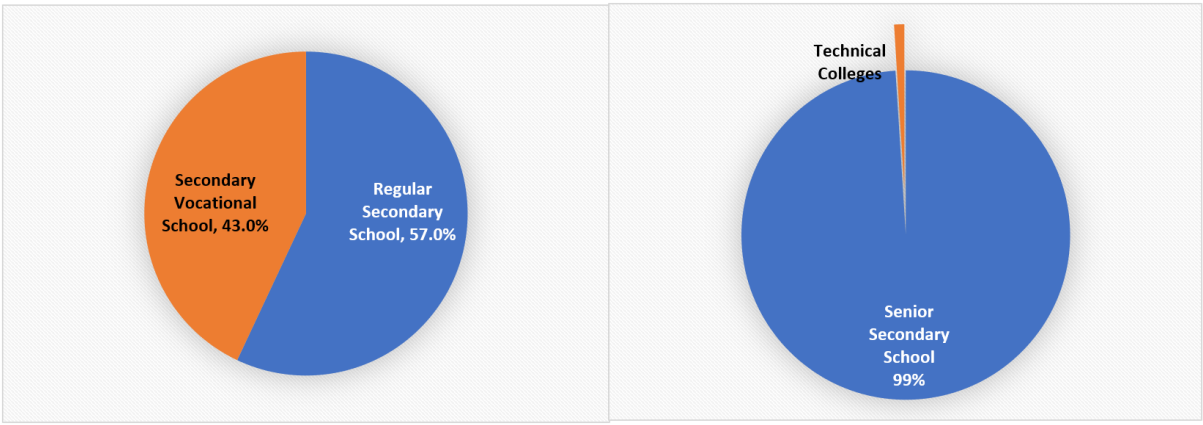

Figure 3: (a) 2014/2015 Senior Secondary Enrolment (China) (b) 2014/2015 Senior Secondary Enrolment (Nigeria)
Source: (Federal Ministry of Education Nigeria, 2017; Ministry of Education PRC, 2015)

5.4 Financial Aid for TVET Students

China is not left out in the social stigma attached to TVET; in fact, the Chinese traditional education system is built on an elitist system where parents always want their children to go to regular academic schools in order for them to become government officials in future. However, faced with the dual challenge of need to provide skilled manpower to achieve the country's goal of industrialization and shortage of the required workforce to bring the goals into reality, the Chinese government adopted the provision of incentives to students to encourage the embrace of TVET. Apart from providing a tuition free TVET system, the government makes available monthly stipends for students enrolled in TVET schools. There are incentives to encourage students in agricultural vocational schools. Providing students with motivations to choose vocational stream in secondary high schools through the provision of stipend for rural students for boarding and lodging, as well as making tuition free of cost for all students has shown very positive outcomes for China's technical and vocational education with high employment rate of graduates of senior secondary vocational schools.

From the period of reform and opening up in the late 1970s, the Chinese government, guided by the principle of "efficiency and equity", placed special emphasis on provision of financial support to students of TVET, especially indigent female students who could not afford the costs of education. The financial support system has been fully developed over the years and is widely deployed in TVET institutions all over the country to guarantee that no student is left behind due to financial difficulties. Over the years, the implementation of financial aid to students of TVET institution has taken various forms and by 2010, secondary technical and vocational education in the country is tuition free with financial aid to students. The policy has impacted significantly on the student enrolment in secondary technical and vocational schools in the country. Between 2006 and 2011, close to 7.5million TVET students received financial aid from the government, with more than 100billion Yuan (about $158 million) committed by the government. Fiscal input from the government is the mainstay of TVET funding in China. According to Chen (2016) , the financial aid policy to students is implemented in three areas:

5.4.1 Bursary

This is provided for full-time TVET students in the first and second year of study. The bursary is paid directly into the beneficiary's bank account and is tax exempted. The students receive 125 yuan (about $20) monthly amounting to is 1500yuan (about $240) per year. The fund comes from the central and regional governments based on agreed proportions considering the financial capacities of the regional governments. In less developed regions of the country, the central government takes full responsibility for the disbursement of funds for bursary.

5.4.2 Free Tuition Programme

It is believed that the cost of running a TVET institution is higher than that of a regular academic institution due to the cost of acquiring and maintaining training equipment. This informed the reason why TVET institutions charge tuition fees from students. Having considered the significant role of TVET in economic development of the country, and to reduce the financial burden of learners, the Chinese government made the decision that all public owned secondary technical and vocational schools will be tuition free for full-time students from the first to the final year of study. Between 2009-2011, a total of 12.61million students have benefitted from the free tuition policy and a total of about 20.96billion yuan (about $3billion). The standard tuition fee is about 2000yuan (about $310) per student per annum.

Table 4: Bursary and Free Tuition Programme in SVEs (2009-2011)

	2009	2010	2011
Beneficiaries	4,260,000	4,400,000	3,950,000
Amount	4,260,000,000	8,800,000,000	7,900,000,000

Source: (Chen, 2016)

5.4.3 Other Financial Aid

These include scholarships provided by individual schools, free tuition by individual schools, internship, apprenticeship and so on. Groups in the society, enterprises and individuals also provide financial aid for schools and indigent students.

5.5 TVET Institution-Enterprise Collaboration

Under the auspices of The Vocational Education Law, enterprises and TVET institutions develop their own networks and linkages giving room for many different forms of collaboration including enterprises providing schools with opportunities for work placements for students and their teachers, providing industry specialists for teaching and assessment, funding, equipment, materials and venues, that will assist schools to provide relevant training. On the other hand, TVET institutions may provide customized training programmes for employees of enterprises. Also, enterprises have the opportunity to come into schools to participate in management, and also evaluate teachers. Ensuring that teachers have both industry-specific skills and teaching qualifications is also a unique characteristic of the industry-institution linkage system in China.

The Vocational Education Law of 1996 stipulates that: "vocational schools and vocational training institutions should develop linkages between industrial production and education and serve the needs of local economic development." The law required TVET institutions to build networks with the industry by providing legal principles for the operation and development of such linkages. The law also enabled the TVET system to include both pre- and in-service training for all ages. In addition, Resolutions, such as the "Resolution Extending Educational Reform and Promoting Large-scale Implementation of Quality-based Education', was established in order for TVET institutions to provide practical training for their trainees; this was confirmed by the establishment of 33 TVET school-enterprise supervision committees. Another Resolution, 'The Resolution on Active Promotion of Vocational Educational Reform and Development', was adopted by the State Council in 2002 and required TVET institutions to provide training that highlighted industrial production, community service, and technology promotion and development. This Resolution defined the role of enterprises and industry organizations under TVET provisions. In 2004, another Resolution provided the basis for the policy framework for TVET industry collaboration, i.e. collaboration types, collaboration building methods, and specific roles of providers and enterprises.

In addition to policy and resolutions of government on TVET school-enterprise linkages, the government equally organizes a series of national forums to build a national consensus. Several of such have been held like 'The Experience of Higher Vocational and Higher Specialized Institutions with the Integration of Industrial Production, Education and Research', which was convened in 2002. The forum reached a consensus that the integration of industrial production, education, and research was critical to the successful development of higher learning in TVET. The second forum held the following year to evaluate TVET industry linkages, in particular, manufacturing industries; and came up with the consensus that TVET should provide skills required by specific occupations. The third national forum was held in 2004 to re-iterate the importance of TVET industry linkages

The TVET school-enterprise collaboration was not limited to the secondary level of TVET, collaboration between the tertiary level of TVET and enterprise has equally improved over the last decades in China. The number of courses combined with industrial production has increased rapidly. Also, according to the NCVER study, 8.1% of the vocational courses and 12.5% of the core courses were developed jointly by colleges and companies in 2011, both higher than those in 2010. In addition, the institutions built 'on-campus factories' and 'schools in factories' are closely linked with enterprises. Several of such collaborations exist in the country. In collaboration with its partner enterprise, the Jiangsu Institute of Economic and Trade Technology Institute built a job-training centre and a science and technology industrial park that provided more than 600 fieldwork positions. Also, the partnership enabled students to receive appropriate theoretical and occupational training and to gain some working experience prior to graduation. With the company's resources, the institute runs a teachers' work station, encourages students to set up job-creation companies, and hires competent engineers to teach.

The Ministry of Education and ZTE Corporation entered into an agreement in Higher Vocational Education and the communication industry. The cooperation model was designed to support the establishment of a group of industrial technological innovation bases by ZTE Corporation and higher vocational colleges to meet the industrialization needs of advanced technologies and enhance the added value of technical services in higher vocational colleges. The telecommunication company (ZTE) provided financial donations to the industrial innovation bases, offered their advanced equipment and scientific research platform as a synchronized training platform, as well as provided finance for teacher trainings and introduced real market projects into the industrial

technological innovation bases to activate them as functional scientific research and training platform for the information and communication industry. The cooperation brings mutual benefits to the telecoms company and the TVET institutions in human resources development advantages, improved personnel training conditions, improved value added foreign technical services among others. In 2014, 18 of the projects initiated under the agreement have received more than 200 specialized trainings in research and development (R & D), project management, new technology applications, pilot design of ICT industry system designs among others. The construction of nine (9) innovation bases innovation bases has been completed and 6 of the bases have commenced corresponding technology research and development works (Ministry of Education PRC, 2015).

Industries in China actively participate in practical training for interns because of fear of punishment (taxation or negative publicity or mark on reputation) at the hands of local governments (empowered by the provisions of the 1996 technical and vocational education Law). However, local governments on the other hand provide incentives to local enterprises such as land allocation at subsidized rates, or preferential treatment in case of award of government projects (IAMR, 2013). Such measures prove to be influential in encouraging industry to actively participate in vocational education and training and a good measure that can be adopted in Nigeria for local firms to actively participate in the practical training of students

5.6 Consistent Teacher Development Programme

The capacity of TVET systems to provide high quality and relevant training depends largely on the quality of its teachers and trainers, and, by extension, on the quality of their teacher training systems (ILO, 2015). A major feature of the Chinese TVET system is the organized training system for teachers and instructors at vocational schools in tune with new technologies and needs of modern industry. Teachers' recruitment at vocational schools and colleges is carried out under strict guidelines. Teachers for vocational education are mostly graduates from regular higher education institutions. Teachers hired to teach at the secondary vocational education level must possess undergraduate degrees and those who are to teach in vocational undergraduate colleges must themselves be postgraduate degree holders in that field in addition to possessing the professional certificate in their respective area. The professional preparation and career development of TVET teaching staff as well as the kinds of roles that TVET professionals will undertake are likely to be quite varied given that the different educational purposes, institutions and sectors in which they practice are likely to shape the way in which their professional roles and activities will be transformed. These shape not only the conduct of professional practice, but also the training programmes that prepare individuals for the profession and in-service professional development. Yet, within all of this difference and across these distinct provisions there are likely to be at least two elements of commonality: constant change and relatively modest prestige (Billett, 2009).

In order to achieve the goal of effective teacher training programme for TVET teachers in China, a strong teacher training system was established. Beginning from 1989, more than 160 higher education institutions have established departments for the training of Vocational education teachers. At the same time the government established teacher training bases for vocational education. Over 50 training bases have been set up by vocational technical colleges with affiliations to higher education institutes (HEIs) and more than 200 training bases are set up by central departments and local governments. Teacher training needs for vocational education of various forms and at various levels is being met by a network of training bases (Ministry of Education PRC, 2015). Furthermore, teachers in vocational schools are required to undergo one-month training in industry each year, or two months every two years for their career progression and promotion. During this time, they are provided with financial support from the school authorities. In addition, employees from industry are also hired as part-time teachers in technical and vocational institutions.

Because the development of TVET was taking place during the reforms in education in China, some regular senior secondary schools were transformed into secondary vocational schools. This transformation led to the problem of teaching personnel not being able to adapt to teaching technical and vocational education subjects because the teachers were previously engaged in teaching at the regular senior secondary schools. The major problem was the ability to combine theory with practice, which was very weak in the teachers. Also, due to rapid economic development, new professions like automobile repairs, automation data programming, molding and applied electronics and tourism were in high demands and qualified personnel were in short supply, there was the need for teachers in these fields, but they were equally in short supply. This led to the need to nurture a set of technical and vocational education teachers with the requisite knowledge and qualification to teach the students in these and other professions. This led to the concept of "dual qualification" teachers which means that professional teachers in technical and vocational schools should, in addition to their theoretical knowledge, possess professional skills and be able to provide guidance for students on practicals and experiments.

To achieve this goal, the government adopted measures to establish two types of institutions for training required teaching personnel including the establishment of independent technical and vocational colleges to provide training for urgently required professional technical and vocational education teachers; and the establishment of departments of technical and vocational education in regular universities. The first measure

brought about the establishment of technical and vocational teacher colleges in Tianjin and Jilin which have since transformed into full-fledged technical and vocational normal universities. Altogether, China has established six of such technical and vocational teachers training higher institutions in other provinces including Henan, Jiangsu, Jiangxi, Hebei, Guangdong, and Anhui bringing the total number to eight. By introducing demonstration schools/colleges, key and pilot schools it ensured quality in vocational schools. The country carried out strategic reforms in teaching through international partnerships with Germany, Australia, Canada to transform the teaching process into modern technical and vocational education teaching pattern.

6. Conclusion

Investing in knowledge and skills is seen by many governments as the cornerstone of developing an employable and globally competitive work force (AFDB & OECD, 2008). All young people require skills that prepare them for decent jobs, so they can thrive and participate fully in their societies. Skills and knowledge are engines of economic growth and social development of any nation. Quality education and skills not only empower the recipients for access to economically and socially rewarding jobs, but also empower them to create jobs, provide opportunities for re-integration of displaced workers and migrants and provide platform for school drop-outs and graduates to transit from school to work. (AFDB & OECD, 2008). Developing relevant skills and competencies among the youth, poor and vulnerable members of the society is crucial to reducing poverty and poverty-triggered insecurity in Nigeria. This becomes imperative as skills development in the global community is not just a part of a country's human resources strategies, but more of economic growth, poverty reduction and national security strategies. Amid the constantly changing, knowledge driven global world of work, a coordinated strategy to boost labour demand and supply for the promotion of flexible employment growth and quality of jobs in Nigeria through the platform of education for skills is a national priority. This equally demands a strategic interplay between skills development sector and other sectors of the Nigerian economy to enhance labour demand and supply system, thereby reducing the impacts of unemployment, poverty and its attendant consequences in Nigeria.

Investment in education for skills as well as basic health and social protection will empower people to move out of poverty, equip people to be socially mobile and to avoid exclusion, as well as improve resilience for both individuals and society as a whole (AFDB, OECD, & UNDP, 2017). To ensure inclusive growth among individuals and the society at large, there must be a blend between investment in skills and knowledge along with monetary stimulus measures, updated business practice, infrastructures, efficient markets and investment in innovation which are key components for driving sustained growth and prosperity (World Economic Forum, 2017). It has been observed that skilled and knowledgeable workforce not only improve a country's investment climate, it is also a major determinant of productivity and growth as well as international competitiveness (AFDB & OECD, 2008). Provision of skills oriented TVET programs will bring about the nurturing of many skills outlets in the youth population for employment or job creation. Investing in knowledge and skills in Nigeria will help to develop a more employable and globally competitive workforce to drive key sectors that are life blood of the country's economic development and make the country move up the global competitiveness index ladder.

Taking cue from the experience of China in TVET delivery is imperative for Nigeria and most developing countries of Africa in their quest to solve the challenges of unemployment-induced poverty as well as the poverty-triggered insecurity prevalent in the continent of Africa. The need for strong and realistic TVET policy thrust that will make TVET more appealing to young people is important for Nigeria to achieve the goal of becoming a leading industrial country in the world. Apart from the strong policy thrust, China's strategic and focused funding of TVET with guaranteed multiple funding sources, dedicated implementation of TVET and regular education streaming system at the secondary education level, financial aids to TVET students, partnerships between TVET institutions and enterprises as well as consistent and quality teacher development system are holistic strategies adopted by China in building the largest TVET system in the world with remarkable results that have impacted positively on the development agenda of the country.

The transformation of African economies into globally competitive economies with abundant opportunities for decent work for the young population which constitute a large portion of the continent's population has been hinged on investment in human capital development through acquisition of relevant skills and knowledge (World Economic Forum, 2015). Nigeria has the largest population in Africa and the largest youth population on the continent. As the largest economy in Africa, properly harnessing the vast human resources for the development of the country portends significant advantage to the country and the continent of Africa at large. The country's long-drawn struggle with diverse sectional violence, insecurity, crimes and other social vices impact negatively on the country's image as a haven for investment. These constraints to development have been linked with persistent high unemployment among the youth and a major cause of unemployment is lack of adequate skills for employment among job seekers (Dike, 2009; NISER, 2009; Odu, 2010; Uddin & Uddin, 2013). In view of this, it is important to explore skills and training system (TVET) in Nigeria and identify the contextual challenges and

opportunities for TVET in developing relevant skills for employment and job creation needed for national development. The repositioning of TVET is indispensable to the sustainable development of Nigeria and Africa at large because it provides the platform for the development of latent capabilities in learners and opening cycle of opportunities for the beneficiaries. Only effective education system can engender the realization of the country's goal of peace, progress and prosperity as well as remain relevant and competitive in an increasingly dynamic globalized world.

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