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## Education and Skills Development in China-Africa Cooperation

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**Abstract** Education, skills, and the development of an African workforce are at a critical moment. While it is recognized that Chinese firms hire local people, the focus of the debate is more on the position and opportunities for training and advancement. As such, the paper tries to answer the following questions. Does China really contribute to skills development in Africa? Does China employment, education, and skills transfer pattern contribute to Africa's own structural transformation and benefit African workforce? In attempting to answer these questions, this paper first lays out the current magnitude of demand for skills in Africa and the priorities for education and skills transfer that can successfully address Africa's skills shortage. Significantly, this will enable researchers and non-researchers to understand the diversity of Chinese firms' skills transfer patterns and the reasons behind these patterns. In order to present a comprehensive and precise picture as well as understand the context for China and Africa education and skills transfer development, the paper draws from various data collected from diverse sources, including government statistics, firm reports, second-hand academic literature, local and international news media, official government reports, and research studies. The paper suggests that the assessment of skills transfer pattern should not only consider employees' and employers' direct interests, but also in the short run, skills transfer should focus on offering short, practical courses to secondary and higher education graduates involving primarily on-the-job training. In the long run, there is a need to change the way employees and students are trained, including curriculum reforms that favor science, technology, engineering, and mathematics. Emphasis should also

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be placed on critical thinking, problem-solving, discovery, and experiential training.

**Keywords** Africa, China, education, firms, skills development, training, the Forum on China-Africa Cooperation (FOCAC)

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## Introduction

Education and skills are essential tools for achieving sustainable development in Africa. These essential tools have come to occupy center-stage in the development process because they enhance productivity, sustain competitiveness in the global economy, boost earnings and enhance individuals' opportunities and well-being as well as support thriving communities and societies. Therefore, the higher rates of growth that African economies are seeking will only be achieved through gains in the efficiency of the use of resources and in total factor productivity derived from advances in skill acquisition and education (Balasubramanian, 2018). Essentially, the state of underdevelopment of Africa and the struggle to pursue economic transformation is not only due to the dearth of capital but more importantly as a result of the dearth of adequate knowledge and skills to enhance productivity and promote innovative-driven growth. For example, over half a century ago, Ghana's per capita income was 1.17 times better than that of South Korea. However, recent estimates put the latter's per capita income at more than 19-fold relative to the former (Baah-Boateng, 2016). The scarcity of skills affects the economy as a whole, as the lack of skilled workers is critical for a nation's productivity, growth, and worldwide competitiveness. As a result, shortage of skills places African economies at a significant competitive disadvantage (AfDB, 2013). Therefore, in a world where education is given top priority and skills freely flow between economies, the competitive disadvantage can be addressed as developed economies transfer their superior skills to developing economies (Cheng, Qiu, & Tan, 2005; Jones & Ruffin, 2008; Ruffin & Jones, 2007).

Since the extensive and intensive growth in China-Africa cooperation comes with the sharing of development experience, education and skills development have become essential priorities in China-Africa cooperation, and this was one of the significant factors that was emphasized from the very beginning of

China-Africa cooperation. China established its first diplomatic ties with Egypt in 1956, and in this year the two nations exchanged 8 students and teachers (Li, 2018). In 1973, China continued its educational cooperation with Africa, and there was an unprecedented shift towards strengthening science and technology capacity and learning how knowledge can be more directly applied to improve people's livelihoods in Africa so as to attain mutual benefits. During this period, railway technology trainees arrived in China from Tanzania and Zambia in connection with Chinese financing of the Tanzania-Zambia Railway (TAZARA). There are numerous works on TAZARA including documents and records, and on African trainees (Zhang, 1999; Liu & Monson, 2011). As for the first systematic survey of African students in China, Gillespie's (2001) work is one of the few books that put African student experiences in the context of South-South relations, emphasizing the skills transfer development of China's educational exchange programs for Africa. China has established formal diplomatic ties with 54 African economies and radically extended its presence across Africa. China-Africa educational cooperation represents a specific instance of South-South cooperation (Chen & Zhang, 2015). China has turned out to be an important provider of overseas assistance via South-South cooperation. And the nation's assistance for educational development in the continent has evolved over numerous years and is presently quite diverse and institutionalized in its scope and architecture. As for China's role in advancing China-Africa educational ties, Ketema, Xu, and Li (2009) asserts that China's universities played an essential role in China-Africa bilateral ties, while King (2013) suggested that Africans studying in China were used as an indicator of China's soft power, and Haugen (2013) examined China's policy for the enrolment of Africans studying in China and its effect and outcome. Others claimed that China's educational assistance formed an indispensable part of China-Africa cooperation and offered substantial support to African students (He, 2007; Lou & Xu, 2012).

With the establishment of the Forum on China-Africa Cooperation (FOCAC), beginning with the first Summit in 2000, the number of African students greatly increased. China and Africa believed that via the exchange of knowledge, skills, resources and technical know-how, they can support each other in advancing education and skills development. This is as a result of the fact that despite the substantial growth of many African economies over the last decades with an estimated real output growth of 4.1 % in 2019 (AfDB, 2018), several African

nations are still struggling to transition to higher value-added economic activities due to the significant gap between demand and supply of skills required for the labor market. In order to address this problem, China has responded positively to make skills transfer a key element of a new phase in its partnership with Africa, as the Chinese leadership agreed to support Africa in vocational/technical training, higher education and science and technology. At the FOCAC conferences in South Africa in 2015, African and Chinese leaders heavily emphasized education and “skills transfer” as the core of their relationship (FOCAC, 2015). In the 2015 FOCAC, skill transfer appears 12 times in the text, covering fields such as agriculture, industry, civil aviation, energy, and resource, tax, logistics, etc. Furthermore, China and Africa attached importance to skills transfer, and to carrying out exchanges in technological innovation policies and the building of science and technology parks and to encouraging research institutions and enterprises to have intensive cooperation (FOCAC, 2015).

In the short run, this assistance could also support the efforts of Chinese companies to invest in Africa by increasing the quality of labor. With China being the largest investor in Africa (Wagle & Pauldel, 2014), and the African Union clearly articulating the need for an education and skills revolution, there is a strong case for greater collaboration and synergy of projects and initiatives for the purpose of delivering greater impact and building the basis for long-term prosperity.

This paper tries to answer the following questions. Does China really contribute to skills development in Africa? Does China’s employment and skills transfer pattern contribute to Africa’s own structural transformation and benefit African work force? In attempting to answer these questions, the paper starts by examining the nature of African skills shortage and the policies that can successfully address Africa’s skills gap. It further explores Chinese firms’ skills transfer practices in Africa and explores the reasons behind these practices. This paper draws from various data collected from diverse sources, including government statistics, firm reports, second-hand academic literature, local and international news media, official government reports, and diplomatic speeches, to understand the context for China-Africa education and skills transfer development. These various experiences ought not to be generalized, but should be understood in their specific contexts. Records of the evolving paths of several firms are valuable in themselves, as they make known the depth of a procedure

which is not measurable by quantitative technique.

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## **The Magnitude of Demand for Skills in Africa**

Chinese firms have been rapidly increasing their business footprints in Africa, and they are a significant source of foreign direct investment to the continent. According to Sun, Jayaram, and Kassiri (2017), there are over 10,000 Chinese-funded companies operating in Africa presently—four times the previous estimate—and about 90 % of them are private companies of all sizes and operating in diverse sectors. As such, foreign direct investment has grown even faster over the past decade, with a breakneck growth rate of 40 % (Sun et al., 2017). So, here is the challenge: As a result of skills shortage in Africa, there are many workers, but not many with the right skills to work in these Chinese firms. As such, the question is, how can African economies ensure they do not stumble as they attempt to fill their skills gap, and how can African economies ensure their skills gap does not turn into a “skills trap” from which there is no escape? Having said that, nowhere are skills and education more in demand than in African economies. According to United Nations and PwC reports, Africa is expected to account for more than half of the world’s population growth between 2015 and 2050; during this period, the population of 28 African economies are expected to more than double and Africa is expected to have the world’s largest labor force, ahead of even India and China (Department of Economic and Social Affairs of United Nations, 2015; PwC, 2015). But as of today, it is a labor force with some serious skills and education challenges. For example, in sub-Saharan Africa (SSA), the secondary school enrolment rate is only 40 % and only 7 % of students continue to tertiary education (PwC, 2015). UNESCO also predicts that Africa will be home to half of the world’s illiterate people in the years ahead; the report shows that there are still 750 million illiterate adults (UNESCO, 2017). According to African Development Bank, 25 % of African youth are illiterate—the highest rate out of any region in the world; nearly 133 million young people, or more than half of Africa’s young population, are uneducated (AfDB, 2013).

Furthermore, just 28 % of the continent’s youth are enrolled in secondary school, leaving over 90 million teenagers struggling for employment in low-paid, informal sector jobs (Watkins, 2013). Nowadays, a child entering the education

systems of Organization for Economic Cooperation and Development (OECD) nation has an 80 % chance of receiving some form of tertiary education. The comparable figure to SSA is 6 %; there are 127 million children of primary school age in Africa (Watkins, 2013). In the absence of an urgent drive to raise standards, half of these children—61 million in total—will reach adolescence without the basic learning skills that they, and their nations, desperately need to escape the gravitational pull of mass poverty (see Table 1). African economies need to know that high levels of investment in human capital and strong education systems are drivers of economic growth. This is because from Germany to Japan and to the US, these economic powerhouses can attribute much of their success to their heavy investment in human capital. Also, looking at some emerging economies such as South Korea (and more recently China where four-fifths were illiterates in 1949, and less than a twentieth is in 2011<sup>1</sup>) have been able to rapidly expand the supply of skilled workers and dramatically alter the education profile of their populations. China has prioritized its knowledge infrastructure in ways that extend beyond basic education. This has created what one British report called the “absorptive state,” progressively capable to harness worldwide knowledge and innovation networks (Bound et al., 2013). For all these nations and more, skills are a precious commodity and good education systems are what set them apart from other high-growth economies that simply rely on physical capital. Also, not just emerging but developed nations are recognizing that if knowledge is the arbiter of economic advancement, then the preparedness of secondary school graduates and the training of tertiary students must rank among the highest priority for economic policy making. This is because education and training are sound investments for the individual, the employer, and the economy. Therefore, investing in the productivity and skills development of the economically vulnerable groups will raise their incomes and reduce poverty.

To succeed in the labor market, people need a broad range of both hard skills—such as knowledge of accounting practices or the ability to operate machinery—and soft skills, such as creativity or communication (OECD, 2012). Given the size of the gap and the increasing demand for highly qualified workers,

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<sup>1</sup> National Bureau of Statistics. (2011). Data bulletin of the Sixth National Census of the People’s Republic of China. Retrieved November 14, 2018, from [http://www.gov.cn/gzdt/2011-04/28/content\\_1854048\\_2.htm](http://www.gov.cn/gzdt/2011-04/28/content_1854048_2.htm)

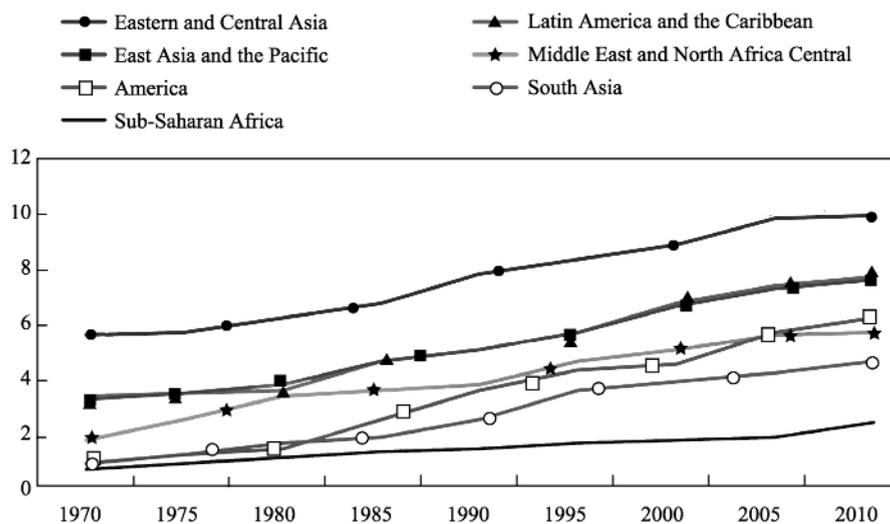
**Table 1** Learning Levels in Some African Countries

Country	Literacy (%)	Numeracy (%)	Composite (% not meeting basic learning level)
Benin	44.8	38.5	41.7
Botswana	10.8	22.4	16.5
Burkina Faso	31.4	24.9	28.2
Burundi	16.6	15.5	16.1
Cameroon	9.0	10.2	9.6
Chad	45.0	34.9	40.0
Comoros	37.5	30.8	34.2
Congo	37.9	31.9	34.9
Ethiopia	54.2	56.3	55.3
Ghana	21.1	43.1	32.1
Ivory Coast	33.6	48.3	41.0
Kenya	8.0	11.2	9.6
Lesotho	21.2	41.8	31.5
Madagascar	23.6	6.5	15.1
Malawi	36.6	59.9	48.3
Mauritius	11.1	11.2	11.2
Mozambique	21.5	32.8	27.2
Namibia	13.6	47.7	30.7
Nigeria	65.7	51.0	58.3
Senegal	24.0	19.2	21.6
Seychelles	11.8	17.8	14.8
South Africa	27.2	40.2	33.7
Swaziland	1.4	8.6	5.0
Tanzania	3.5	13.3	8.4
Uganda	20.4	38.8	29.6
Zambia	44.1	67.3	55.7
Zimbabwe	18.5	26.6	22.6

Source: (Watkins, 2013).

however, much more private-sector investment is required (Strack et al., July 2, 2014). At the individual level, the skills gap limits employability and deprives an individual of the opportunity to improve his or her living conditions; at the company level, skills gaps limit productivity, which can lead to higher costs and lower quality, and reduce the firm's growth prospect; at the country level, skills

gaps limit the nation's competitiveness and reduce economic and social development potential (Barthel et al., March 14, 2016). Thus, these factors are important roadblocks to further skills development that will hinder the continent's structural transformation, economic, and social development going forward. This is a reminder of the work ahead to meet the Sustainable Development Goals (SDGs) 4 and 5 and the Education 2030 targets. Relatively, SSA lags behind other regions in the average skills level of its population. Figure 1 displays the growth in the stock of SSA compared to other regions of the world. Although this has been increasing in recent years, the pace of growth is relatively slow, and certainly does not match the speedy upsurge in investment in physical infrastructure in recent years. One measure of the stock of human capital in the average years of education of the population, aged 25 years and over (that is, when most people have completed their education). The average years of education are about 3 years, which is similar to the level for South Asia about 30 years ago. It is interesting to note that numerous regions were at the same level as SSA about 47 years ago, but have since made significant progress.



**Figure 1** Average Years of Education of Population Aged 25 Years and over in SSA and Other Regions

Source: (Bashir, 2015, p. 12).

*Note.* Some nations in the SSA region are not included in the dataset as a result of dearth of data.

This low average education achievement is largely as a result of the fact that a large proportion of young Africans do not complete even basic education. Therefore, the proportion of the population with less than basic education continues to exceed that with higher levels of education. Over the past two decades, development partners and African nations are investing heavily in universalizing access to primary and basic education. With a speedy upsurge in access, quality has worsened and poor learning results compromise the benefits of broader coverage, while also limiting the students who can access post-basic education and tertiary education. Offering quality basic education (8–9 years) to all African children will continue to be a top priority for African leaders, as most fresh employment opportunities during the next decades will need relatively basic skills (technical, interpersonal, basic literacy and numeracy, and higher-order cognitive skills will suffice). Nonetheless, looking beyond 2025, numerous bigger nations, which could potentially diversify into more sophisticated higher technology activities, will need more advanced skills beyond basic education, and especially in the applied sciences, engineering, and technology (ASET). This requires training of workers in tertiary level and technical/vocational institutions, because, in the near term, a “critical level” of these skills will be required to initiate the process of technological absorption and prepare the groundwork for the broadening of an industrial base. As such, the Partnership for Skills in Applied Sciences, Engineering and Technology (PASET) was launched by numerous African nations and the World Bank, to build cooperation with new partners in a way of providing advanced skills beyond basic education. Since its launch, Chinese academic institutions have participated in analytical work and in sharing the experiences of China in the development of capacity in vocational training and science and technology.<sup>2</sup>

A lot still needs to be done, because the proportion of the population with higher education and required skills is extremely small. This proportion has remained more or less constant for the last two decades, while other regions have accelerated their accumulation of skilled labor. There is a special lack of middle-level technicians in African economies as a result of inadequate skills (Bashir, 2015). Consistent statistics are not accessible, but the proportion of

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<sup>2</sup> Numerous Chinese universities took part in the two regional PASET forums held in Addis Ababa (July 2013) and Dakar (June 2014), respectively. These included Tianjin University, Shanghai Jiao Tong University, Beijing Normal University, Zhejiang Normal University, the Chinese Academy of Agricultural Sciences and the Chinese Academy of Sciences.

secondary students in technical and vocational education and training (TVET) courses is significantly below that in other nations (Oketch & Lolwana, 2017). This mirrors the limited relevance of these courses, as a result of the fact that, the courses seem not attractive to students who prefer to continue with academic courses at the tertiary level. Understanding these factors is essential in establishing a framework to support policy learning in Africa TVET in different contexts, rather than policy borrowing and policy lending which reproduces policies from one nation to another, with little regard to the differing social, economic and cultural contexts (Allais et al., 2009). In particular, through a narrow emphasis on skills for work, the result has been narrowed. As such, it has created an instrumental vocational education that focus on specific skills for particular occupations rather than equipping students with the broad-ranging knowledge and skills required in fulfilling their careers, and in turn assist them in contributing to their various communities (Allais, 2011). Notably, vocational education is recognized to ease the transition from school to work in workers' early career (Ryan, 2001) and could thus provide a solution to high youth unemployment. Samman and Watkins (2017) also point to the potential for vocational education to become more relevant and effective, and to align better the supply of tertiary education with skills demanded in the evolving economies of Africa.

Speaking of aligning skills development with labor needs, Africa labor markets suffer from mismatches as a result of the fact that vocational education or post-primary education is only weakly linked with labor market needs. From a labor market standpoint, education and training are supposed to align to the skills acquired by workers with the skills needed by industry. However, that is not the case when employees experience a mismatch between their own skills and the skills needed in their current job. Research in this area is limited but surveys of experts in 36 African economies revealed that 54 % of experts recognized a skills mismatch as a major challenge to youth employment, while 41 % identified a general lack of skills (Samman & Watkins, 2017). Adopting a "matching skills" approach means providing the right skills needed in the labor market, while generating the necessary economic dynamism to generate new employment (WEF, 2014). Skills mismatch is generally understood as various kinds of gaps or imbalances in skills, knowledge or competencies that may be of a quantitative or qualitative nature (Proctor & Dutta, 1995). As a result, diverse kinds of skills

mismatches coexist, including skills shortages, qualification mismatches and skills gaps (see Table 2). The process of matching diversely skilled job seekers with available vacancies is not automatic. Imbalances between the supply and demand for different skills exist in all economies and are sometimes inevitable (WEF, 2014). There are several reasons for this mismatch. Among these are most educational systems and policies in Africa are relics of the continent's colonial heritage and post-independence thinking of the 1960s, over-looking (or dismissing) 50 years of structural change and growth within the formal sector (Brewer, 2004; Liimatainen, 2002).

**Table 2** Forms of Skills Mismatch

Skills shortage	Demand for a particular kind of skills surpass the supply of people with the skills at equilibrium rates of pay
Qualification mismatch	The level of qualification and/or the field of qualification is different from that needed to perform the job adequately
Over-(under-) qualification/education	The level of qualification/education is higher (lower) than needed to perform the job adequately
Skills gap	The kinds or level of skills is different from that needed to perform the job adequately
Over-(under-) skilling	The level of skills is higher (lower) than required to adequately perform the job

Source: as cited in (WEF, 2014, p. 7).

Also, misguided government funding policies for higher education contributes to this mismatch. Instead of focusing on priority skills, African governments tend to support any student admitted to a tertiary education institution without regard to the field of study. The courses offered to fail to meet the multiskilling needs of the highly diverse informal sectors. Furthermore, this mismatch is driven by individuals' initial educational and occupational choices, a discounted education and training system, and imperfect information about opportunities in the labor market (ILO, 2015a). Likewise, labor markets are dynamic and characterized by information asymmetries (WEF, 2014). Where public financing is used without accountability for results, the institutions have few incentives to monitor and adjust to changes in the demand for skills (Ziderman, 2003). For skills development and education programs to effectively align employer needs with labor force skills and lower unemployment, programs must address labor concerns and meet labor needs of business, enabling the business to completely utilize the labor force. While efforts are being made to increase the size of

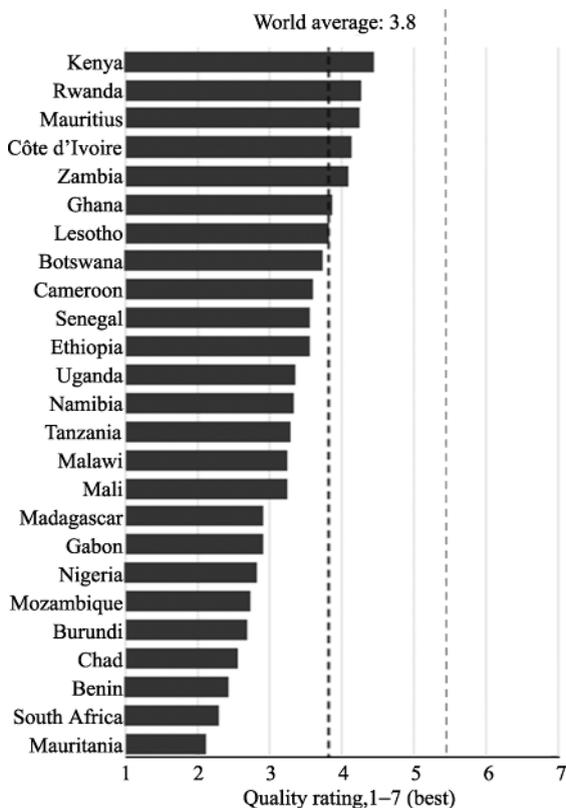
Africa's labor, there is also the need to ensure skills entering the labor force are actually match up to demands.

With the abovementioned skills situation, perhaps it comes as no surprise that employers are having trouble recruiting workers with the right skills today. Seven in ten African firms surveyed by EY (2015, p. 34) are recruiting to support planned growth yet "vacancies are taking longer to fill and employee turnover is high." For those who are enrolled in schools and universities, African education systems' capability to meet the need of a competitive economy, as perceived by the respondents to the World Economic Forum's *Executive Opinion Survey*, remain a concern. They rank significantly below average—suggesting that learners are not acquiring the knowledge and skills required for today's economies and societies (see Figure 2). This is further corroborated by business leaders' concern about the difficulty of finding skilled workers for their businesses. Despite the window of opportunity, the region's capacity to adapt to future job disruption may worsen in the future if the right policies are not put in place to close the continent's skills gap.

Figure 3 shows the percentage of firms in some African nations that are finding a skilled workforce as the most binding constraint to their business. This tandem of increasing skills requirements and rising constraints for firms points to a misalignment in schooling and training programs. One reason for the constraints stems from weakness in the education system and the fact that many jobs in the region are becoming more intense in their use of digital technologies. Average information and communications technology (ICT) intensity in jobs in South Africa for example increased by 26 % over the last decade, while 6.7 % of all formal-sector employment in Ghana and 18.4 % of all formal-sector employment in Kenya occurs in occupations with high ICT intensity (WEF, 2017).

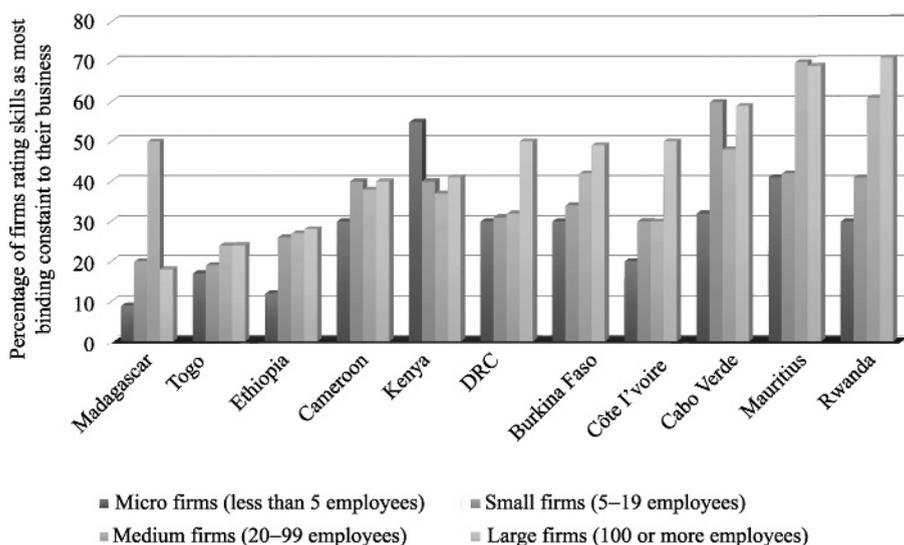
Across Africa, a substantial potential exists for creating high-value adding, formal-sector jobs in a number of areas. However, to realize this potential, closer dialogue between education provider and industry is needed to align and optimize the region's demand and supply skills. If African nations are going to unlock their vast human and economic potential and continue on their sustained growth path, the time to address the skills constraints is now, because poverty is not an absence of money, rather, it results from an absence of skills and knowledge. African governments need to reshape curricula at secondary and

tertiary institutions to ensure they meet the needs of the labor market. Creating quality technicians and professionals via targeting investments in better quality technical/vocational education and training programmes, higher education, and research are needed for creating skills that will equip African workers with high-quality skills that business needs for the emerging growth sectors across Africa. As a result, Africa must leap ahead, and not crawl forward to address the skills mismatch as well as close the gap between demand and supply of skills required for the continent’s structural transformation. Due to the fact that, skills and knowledge promote economic development by enabling economies to catch up with technology, and in turn enhance the competitiveness of economies and contribute to social inclusion, decent employment, and poverty reduction.



**Figure 2** Quality of Selected Africa’s Education System

Source: as cited in (WEF, 2017, p. 7).



**Figure 3** Labor Force Skills as a Constraint Perceived by Firms in Selected African Nations  
Source: as cited in (Gandhi, 2017).

*Note.* Data from the Standard Enterprise Surveys covering largely formal firms and excluding microenterprises. DRC stands for Democratic Republic of Congo.

## How Chinese Companies Meet Labor and Skill Needs in Africa

One particular heated area of debates about the local impact of Chinese investment in Africa is in the area of skills transfer. According to ILO (2015b), across Africa, youth are three times more likely to be unemployed than adults. Three out of five unemployed in SSA are young people, mostly surviving in the informal economy (UNESCO, 2017). For that reason, skills that focus on creating capacity and empowering African youth to be “job-creators” rather than “job-beggars” is necessary for the structural transformation of Africa. Therefore, skills and the ability to learn updated knowledge could be crucial in determining the success of the new continental and globally sustainable development goals: Agenda 2063 and the 2030 Agenda for Sustainable Development. Africa’s educational institutions have not been up to the task of up-skilling Africa’s population. Among the five million graduates that African universities produce annually, many display low employment capacity (AfDB, 2013). Compounding

this issue is Africa's population growth rate, which will double by 2050, making the continent home to 30 of the 40 youngest nations globally, with 70 % under the age of 25 (United Nations, 2015b). Based on the current poor performance of Africa's educational institutions, the large influx of working-age people is sure to exacerbate the unemployment problem in many African economies. It is no wonder, then, that the question of job creation, education and skills development by Chinese companies inside of Africa has received increased media coverage. China has been charged with using labor imported from home, without transferring skills to local communities. According to a recent study, about 12,000 Chinese experts worked in Africa in the 1990s, this number soared to over 40,000 in 1999, 114,166 in 2007, 195,584 at the end of 2010 (Tang, 2016), and estimates show that in 2013, about 215,534 Chinese workers came to Africa to work, around one-fourth of all workers were in large state-owned firms (Wonacott, May 14, 2014), whereas numerous small and medium-sized businesses were not counted.

The number was 18 % higher than in 2011 (Wonacott, May 14, 2014); in 2007 there were 750,000 Chinese working or living in Africa (Tang, 2016). Nowadays, some commentators estimate that the number ranges from 1 million to 2 million (Bashir, 2015). However, Tang (2016) survey shows that it is possible that most of the Chinese people that made up the 1 to 2 million might be former employees of Chinese state-owned enterprises (SOEs) who have decided to stay in Africa "for a lengthy period." As such, based on Tang claims, this means that the sudden influx of numerous Chinese people into Africa may have led to the wrong perception that Chinese companies only bring their own workers, do not hire locals (Zafar, 2007), and do not engage in skills transfer development (Shelton & Kabemba, 2012, p. 149). Nonetheless, these comments that Chinese firms bring their own workers from China to Africa are not supported by the accessible data.

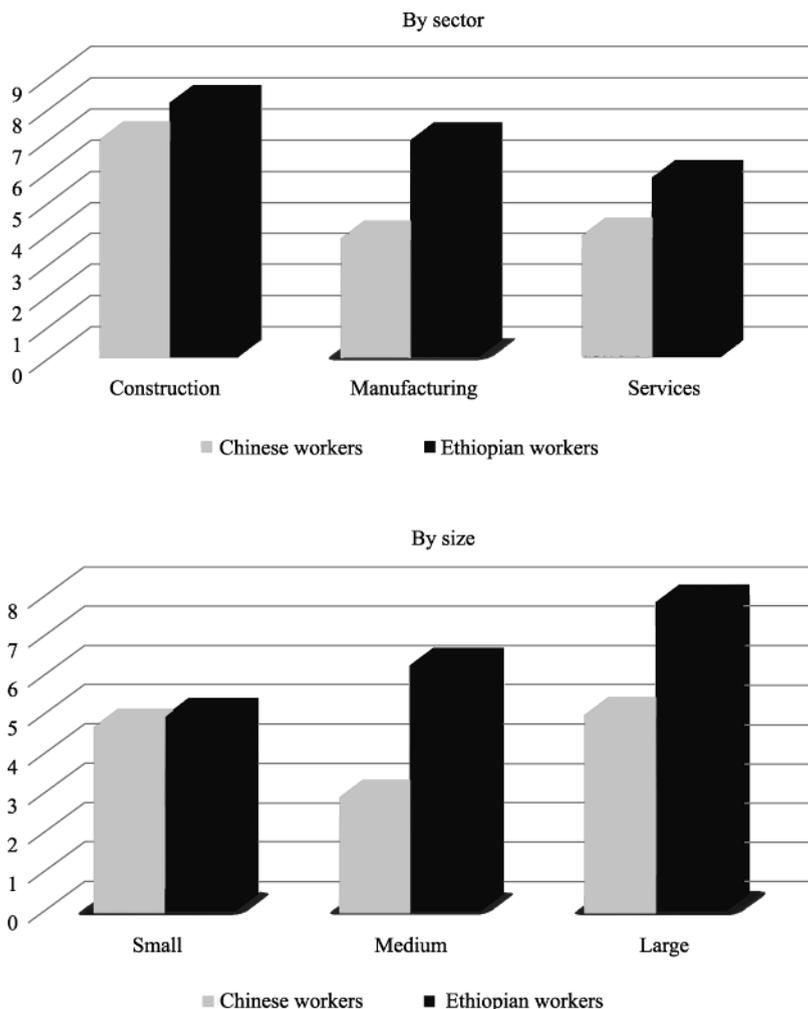
Though it is hard to get the precise numbers of African employees in Chinese firms as a result of a dearth of official data, occasional reports and numerous studies can still indicate an overall trend. In 2007, the Ministry of Finance of Angola published a report, which listed the composition of workers in thirty infrastructure projects realized by Chinese firms. In one case, out of a total of 3,136 workers, 1,872 were Angolans, making up 59.7 % of the whole labor force (MOF, 2007; Tang, 2016). In this situation, the proportion of Chinese workers is still relatively high, more than 40 %, as a result of the pressing deadline of

project completion and the dearth of skilled labor in post-war Angola (MOF, 2007; Tang, 2016). In Zambia, the Chambishi Copper Mine employed 2,000 Zambians; The TAZARA which was constructed in the 1970s employed 50,000 Zambians and Tanzanians, compared to 25,000 Chinese workers; in Ghana's Bui dam, the Chinese constructor Sinohydro hired 560 Ghanaians and 110 Chinese employees as of June 2008 (Baah & Jauch, 2009). The construction of Chinese-financed Imboulou Dam in Congo-Brazzaville involved as many as 2,000 Congolese, 400 Chinese, and 20 Germans (Reuter, 2010). The construction of the Mombasa-Nairobi Standard Gauge Railway (SGR) by China Communications Construction Company (CCCC), which reduces the cost of physical distribution by 40 %, created 30,000 jobs for locals and provided internal skill training to 20,000 employees for railway construction and operation; these employees had no experience before and the firm made them all qualified for the work (The Chinafrica project, 2018; Chinese Academy of International Trade and Cooperation, 2017). Likewise, FAW, a Chinese automotive firm in South Africa has created 230 jobs (Chinese Academy of International Trade and Cooperation, 2017).

Other surveys indicate that Chinese factories in Africa overwhelmingly employ locals. The evidence shows that local workers tended to be "predominately employed as unskilled, casual workers" (as cited in Corkin, Burke, & Davis, 2008). Also, according to Yuan (2017), there is no sample in which the proportion of local workers dips less than 78 %, and in some firms with thousands of employees, the number surpasses 99 %. Yuan (2017) further asserts that in Nigeria, a study shows that 85 % of workers hired by Chinese manufacturers are locals. She further gave another instance that a large-scale Chinese-language survey in Kenya discovered that 90 % of the employees in Chinese manufacturing and construction companies were local hires. In another study, 89 % of employees were African, adding up to almost 300,000 jobs for African workers; scaled up across all 10,000 Chinese companies in Africa (Sun et al., 2017). A separate survey in Ethiopia found that 75 % of Chinese firms invested in worker training, compared to 27 % of Ethiopian firms (see Figure 4).

But the chances of career advancement for locals seems to remain limited to date. Sun et al. (2017) found out that only 44 % of managerial positions at Chinese firms in Africa are held by locals. This suggests that Chinese-owned business employed several millions of Africans. Moreover, almost two-thirds of Chinese employers offered some type of skills training. In firms engaged in

construction and manufacturing, where skilled labor is a necessity, half provide apprenticeship training while experienced Chinese workers teach new African hires to begin work through hands-on teaching and gradually improve the new workers’ skills through daily operation (Jayaram, Kassiri, & Sun, 2017). All the above statistics discredit the claim that Chinese firms do not hire local workers as well as transfer skills.



**Figure 4** Incidence of Training in Chinese FDI Companies, by Worker National and Firm Sector and Size

Source: as cited in (Bashir, 2015, p. 10).

As for the Chinese government, it has placed skills development for the youth at the heart of its bilateral ties with African nations. The Chinese leadership encourages more Chinese firms to create win-win outcomes by transferring skills and know-how among African youth (Xinhuanet, 2015). Battling against high unemployment rates, many African economies have strict regulations on employing local workers and issuing work permits to foreigners. According to Brautigam and Tang (2011), the authors gave an instance on how Egyptian law permits one foreign employee for every nine Egyptians employed. They further gave another similar instance on how Angola is requiring that 70 % of a firm's staff must be Angolans, though exceptions may be made for certain urgent public projects; in Ethiopia, only two experts' residential permits are granted for every registered enterprises as of 2009. Also, South Africa has signed agreements to limit labor imports from China (Adisu, Sharkey, & Okoroafo, 2010). Even without governments' constraints, Chinese firms often think of hiring more local employees, because it can greatly lessen the labor costs. To Support this claim, Tang (2016) gave a very good example in the report by citing a survey that involved 35 Chinese firms in Angola. The survey shows that a Chinese worker on average earns about 60 % over his local counterpart.

The author further mentioned that employing a Chinese will also require extra expenses such as accommodation, food, work permit applications and extension as well as traveling to China annually. The author further claims that, actually, Chinese employee is three or four times more expensive than a local employee. Due to these reasons, Chinese workers are preferred only for "administrative efficiency" especially during the commencement of operation (Cheng & Liang, 2011). This is because Chinese workers are more familiar with Chinese firm's organization and procedure. They can organize the firm operation speedily, install and test the machineries since it is imported from China and written in Chinese; all these are done most especially during urgent projects (Tang, 2016). Given public perception that Chinese companies do not care about skills transfers to locals, it is ironic that Chinese companies have identified skills shortage as a major business issue that they face in operating in Africa. Skills transfer is diverse areas but the next part is going to focus on telecommunication, manufacturing, infrastructure which has been unanimously identified by China and African nations as the top priority areas of skills transfer for African development (FOCAC, 2015).

## **Core Sectors through Which Chinese Firms Meet Labor and Skill Needs in Africa**

### *Telecommunications Sector*

Skills transfer has stretched to numerous fields; however, the telecommunications sector stands out significantly. For instance, Huawei and ZTE, two multinational Chinese telecommunication firms, always focus on bridging the digital divide, skills transferring and professional training as part of their Corporate Social Responsibility (CSR) strategy. Huawei and ZTE are setting up training institutions in Africa to address local skills shortages they have identified for their own projects and business plans. ZTE has officially outlined skills transfer as a vital goal on its websites (April & Shelton, 2015). Both ZTE and Huawei have established a total of ten training centers across Africa and over 20,000 African technicians are trained by Chinese IT and telecom companies each year (Tang, 2016). As for Huawei, the firm has established eight training centers in Angola, Morocco, South Africa, Nigeria, Egypt, Tunisia, Kenya, and the Democratic Republic of Congo to train African youth in skills needed to operate and maintain wireless telephones and broadband internet systems; the firm has provided training to 12,000 African students each year and over 60 % of its 5,800 employees on the Africa team are local (Tsui, 2016). The majority of participants and African scholars lauded this employment creation as critical to the development of Africa (Chanakira, 2010; Cissé, 2012; Otenyo, 2017).

Initially, Huawei had to import expertise from China and Europe, but it was too expensive and offered only a short-term solution. The sustainable long-term solution is to invest in training local people. Some firms even send their workers to China, for intensive training. One good example is, in order for some local employees to acquire the necessary skills to initiate a whole car assembly procedure, a Sino-Angolan automobile joint venture CSG sent 50 Angolan engineers to Henan province for three months in 2007 (Lopez, 2010; Tang, 2016). Several programs are executed presently in the continent; one of the most welcomed is the establishment of the only West Africa telecom technology training hub in Abuja; so far, the training hub has trained over 5,000 local engineers (Huawei investment, 2013). According to the same source, Huawei

also set up one of its regional network operation hubs (RNOHs) in Lagos, which is capable of maintaining the entire network managed by Huawei in Africa, offering 400 employment opportunities for local senior engineers. Still on the same source, since 2013, Huawei and Nigeria's Federal Ministry of Communication and Technology have organized an ICT basic one-year knowledge training program for 1,000 females' engineers. This program is part of the "Girls and Women Initiative" (GWIN), a larger federal government initiative in Nigeria. The program aims to bridge the gender divide in Nigeria by promoting "empowerment, employment, and the inclusion of women in the country's development" (Elebeke, July 22, 2014). Also, the firm created another program that supports female Africans—"She Leads Africa" (SLA) project. This is the first program to offer African female technology entrepreneurs the chance to travel to China and connect with industry leaders.

Chinese telecommunication enterprises attached great importance to sustainable development. Huawei has launched the "Seed for the Future" program in 22 African nations including Benin and Algeria, supporting outstanding students in visiting China for learning and practicing (Chinese Academy of International Trade and Cooperation, 2017). The program was established in 2011 through a partnership with Safaricom Limited, the Ministry of Higher Education of Kenya, Ministry of Information and Communication (via the Kenya ICT Board), Moi University, Jomo Kenyatta University of Agriculture and Technology and University of Nairobi. The program comprises of the organization of Android application challenges to improve localized innovation. As a project designed to assist young talent in telecommunication, the program offers internship opportunities, scholarship, and training; this program has been executed in over 42 nations and benefited over 11,000 students from more than 110 universities (Li, 2016). Huawei and ZTE always put a great emphasis on better conditions for education, and the two firms have been the leading champion in contributing to the long-term development of the ICT industry in Africa.

### *Manufacturing Sector*

In a recent report on industrialization in Africa, one of the proposed recommendations from the G20 is to inclusively promote industrialization

through various mechanisms, such as multi-stakeholder discussions, the sharing of best practices, policy measures and guiding tools as well as the knowledge sharing platform (Li, 2017). China has been active in advancing skills transfer development with African nations so as to facilitate their industrial development. For instance, China has offered a concessionary loan to equip the labs of 135 technical and vocational institutions with Chinese machinery in mechanical fields, electrical, lathe machining, rapid prototyping and computer numerical control.<sup>3</sup> Thousands of Kenyan students will be trained to operate these modern manufacturing machines and reproduce spare parts. This marks the second phase of the program that aims to grow Kenya's labor pool in technical fields and drive the country's agenda of industrializing by 2030. The first phase, which began in 2013 involved 10 learning institutions and 15,000 students.<sup>4</sup> The Made in Kenya and Study in China program aims to enlarge Kenya's portfolio of finished products that are manufactured locally and strengthen its balance of trade.

Moreover, some private Chinese firms are building African capacity in manufacturing through the transfer of their technology. Brautigam (2009) declared that, Chinese firms are building capacity in Africa through the transfer of their technology and their presence in Nigeria is empowering Nigerians, particularly the Ibos, who believe in manufacturing. Huajian shoe factory is also playing a significant role in skills transfer among the local Ethiopians. In a recent development, Huajian shoe factory sent 86 Ethiopian workers in 2012 to its production base in Jiangxi province for two months to acquire the necessary skills to initiate the operation (World Bank, 2012). In addition, the company has a program that is working closely with the Chinese government to train 300 Ethiopians. After the training, workers can choose to remain in the company or work for other shoe firms or start their own shoe manufacturing business. Furthermore, an initiative like Africa Tech Challenge (ATC)<sup>5</sup> provides opportunities for youth to participate in the manufacturing sector while enhancing their entrepreneurial skills.

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<sup>3</sup> China to equip all 134 technical training institutes countrywide with state-of-the-art equipment. *KenyaTalk*. Retrieved December 15, 2018, from <https://www.kenyatalk.com/index.php?threads/china-to-equip-all-134-technical-training-institutes-countrywide-with-state-of-the-art-equipment.33932/>

<sup>4</sup> Ibid.

<sup>5</sup> The Africa Tech Challenge is a seasonal competition aims to empower African youth in technical training institutions with practical skills required in the 21st century job market. Currently the competition is in season 5.

Chinese firms have partnered with Kenyan institutions to improve technical and entrepreneurial skills of the nation's youth grappling with a high unemployment rate estimated at 40 % (FOCAC, 2018). The manufacturing contract signed between AVIC International and the Technical University of Kenya worth US\$100,000 will contribute to the attainment of Kenya's transformation agenda; AVIC International promises to employ 25 youths who demonstrated outstanding competence in the three construction-based skills (FOCAC, 2018). Over the past decade, AVIC International has been unique among Chinese firms in Africa in the extent to which it has invested in local skills development. It has invested in four major skills development projects in Kenya, all of which are still in place today. Two of these are part of commercial, for-profit contracts with the Kenyan government, one is a purely non-profit, CSR project, and the last is a mixture of for-profit and non-profit models (Yuan & Lin, 2017). In the 2017 ATC which focused on skills development in carpentry, bricklaying and steel work attracted 103 youthful participants in Kenya. Also, the ATC program empowers the youth, combines skills upgrade and employment opportunities for Kenya youth in the construction sector (Ayemba, November 30, 2017).

As for the Chinese automaker First Automotive Works (FAW) South Africa, the rise of the automobile manufacturing industry has helped turn many previous unemployed and unskilled young South Africans into skillful industrial workers, bringing hope to many more. The firm now has a total of 240 workers, of which 98 % are locals.<sup>6</sup> Also, Beijing Automobile Works (BAW) South Africa's work force is made up of approximately 200 workers, with 96 % of them being South Africans. In the newly established auto plants, young people receive training and soon become skillful workers.<sup>7</sup> For example, Errend Magaena used to do maintenance work in a local school before joining BAW South Africa in November 2012 as a maintenance and cleaning employee. He was soon transferred to the production line. Magaena is now a first-level supervisor in charge of two teams working on the trimming and mechanical lines, making sure everything is running smoothly. Also, Rose Mothogoane, previously a car-cleaner,

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<sup>6</sup> Behind the wheel. *Chinafrica*. September 8, 2016. Retrieved December 13, 2018, from [http://www.chinafrica.cn/Business/201611/t20161107\\_800071097.html](http://www.chinafrica.cn/Business/201611/t20161107_800071097.html)

<sup>7</sup> Ibid.

is now a team leader responsible for the trimming line at BAW South Africa.

### *Infrastructure Sector*

In 2014, the China Road and Bridge Corporation (CRBC) developed a whole educational system to train future Kenyan railway operators. The company plans to transfer the operation of the SGR to Kenyans five years after the project opens for business as well as the Djibouti-Ethiopia Railway in six years after the project opens for business. As a result, there is a need to train capable technicians in transportation, management, telecommunications, control engineering, and locomotive, rolling stock engineering, administration, and railway operation. As such, China, Djibouti, Ethiopia, and Kenya have adopted a new model that will sustain these projects for years to come. As for China and Kenya, in line with the Mombasa-Nairobi Railway, a 5 + 5 model has been adopted. What this means is that China will operate the railway for 5 years and offer technical aid for another 5 years (Asit, 2018). As for China, Djibouti, and Ethiopia, the three economies have adopted a 6 + 2 model which is slightly different from China and Kenya (Asit, 2018). For both projects, China is transferring skills to local employees who can progressively take over the operational tasks from their Chinese counterparts. This shows that skills development, too, is part of the agreement.

The CRBC set up a comprehensive 3-level training system comprising of technology training in railway management and operation, railway engineering education system and the building of the railway. The aim of the entire training program is to incorporate Chinese railway skills with indigenous institutions. At present, nearly 18,000 Kenyans have gotten their first-level training (Li, 2016). The training usually takes place at the worksite, at nighttime and weekends. Capacity building among local technicians, along with improving supervisory expertise and skills will be crucial for the long-term sustainability of large infrastructure projects. And for the railway projects to be economically viable in the long-term, local ownership and technological capacity are important. In the absence of modern railway lines, African economies can never be competitive. The knowledge sharing through offering training to African students start a novel path of development and prosperity for African economies. As such, Chinese

firms must be encouraged to shoulder more social responsibilities and focus on long-term results, in order to change an aid-driven relationship to “charity-driven” cooperation. After all, knowledge sharing is a significant part of President Xi Jinping’s vision of “walking together towards prosperity” to build a community with a shared future for mankind (Ehizuelen, 2018).

## **Challenges**

Firms operating in the three abovementioned sectors deal with language issues daily. How they do so, nonetheless, remains largely absent from the literature. The striking observation by Maclean (2006) rang true until very recently. In spite of the importance of language for the efficient functioning of a multinational corporation (MNCs) (Harzing & Feely, 2008; Luo & Shenkar, 2006), language effects have long been underestimated by international business researchers (Harzing et al., 2011). Only since the groundbreaking research by Marschan-Piekkari, Welch, and Welch (1999) have international business and management studies recognized the importance of language as a “medium for thought” (Brannen & Doz, 2012, p. 80). As such, in the case of the Chinese firm training process, communication is a key barrier. According to EOM (2018) report, the author asserts that most of the Chinese technicians do not speak English well let alone Arabic, Swahili, French, Portuguese, or other languages that are spoken in Africa. The author further mentioned that, in response, factory management in Rwanda placed a whiteboard on the factory with “Learn Chinese” written across the top. Underneath, there are three columns, “Kinyarwanda,” “English,” and “Chinese,” with the words “responsibility” and “discipline” written in all three languages. There is also the possibility of attracting Chinese-speaking Africans from Confucius Institutes in African nations or those that have studied in China to solve the language challenge. This enables the Chinese technicians to convey their ideas to local workers, or just use simple words and gesture to demonstrate skills. It is not surprising that the tutors and the apprentices often misunderstand each other. Local workers mechanically follow the gestures without understanding the point. They easily make mistakes when situations change (Tang, 2016).

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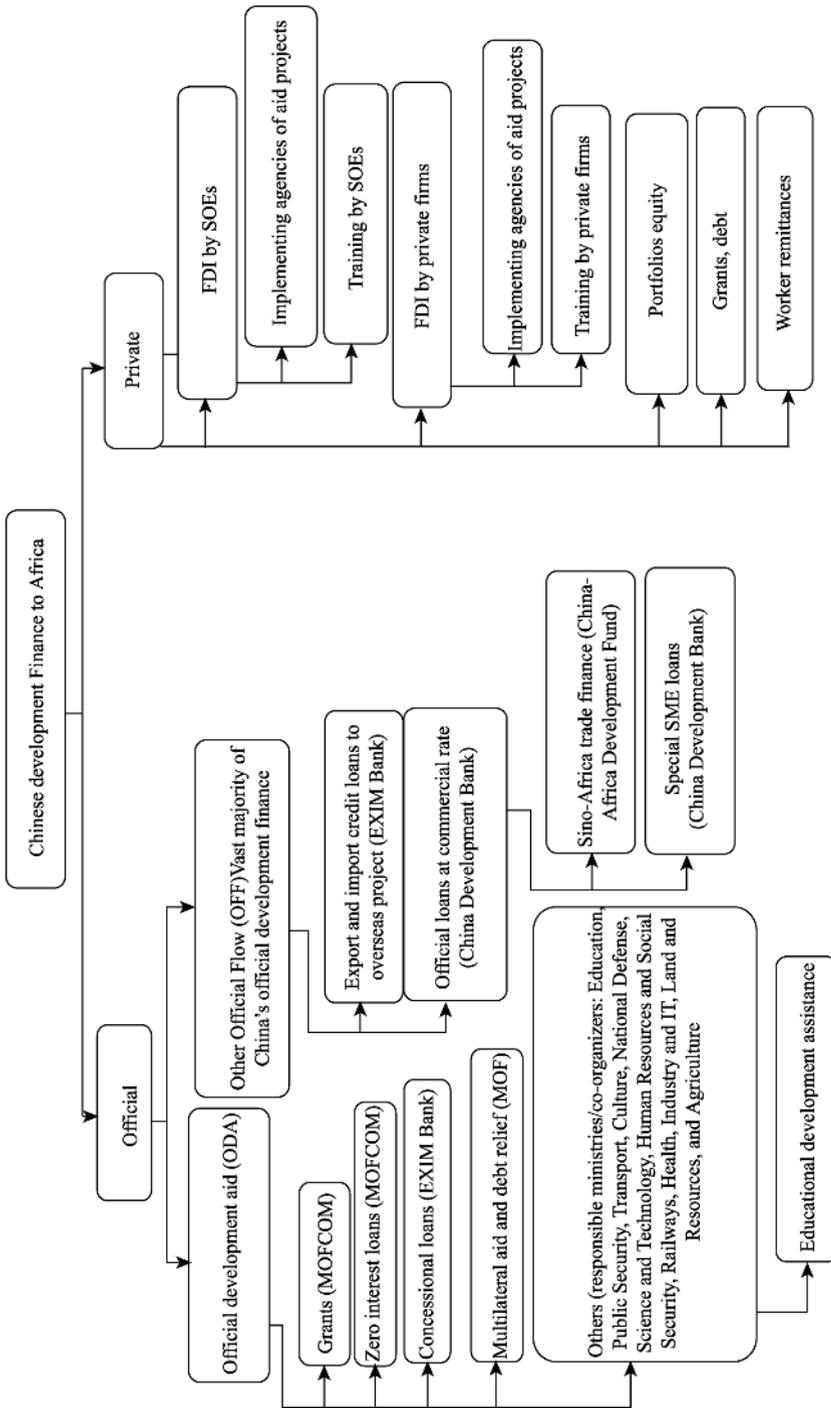
## **China's Contribution to Education and Skills Development in Africa**

Education and skills development are central to China's cooperation with Africa. By advancing skills and technologies, it is expected that the resultant industrial growth will create new jobs and attract foreign direct investment. Continued cooperation will open up favorable prospects for mutually beneficial, collaborative business ventures between African nations and Chinese firms. The 2006 White Paper on "China's Africa Policy" listed "learning from each other and seeking common development" as one of its four principles guiding its engagement with Africa (Freeman, 2015, p. 204). This is a unique principle and development that no Western donor has specified in their documents or proposed. From the very beginning of China-Africa cooperation, the Chinese government always place emphasis when it comes to supporting research, education, science and technology, vocational and professional training, skills transfer, university scholarship-all of which are led and conducted by various Chinese institutions (see Table 3). More recently, this assistance has been undertaken within the framework of the FOCAC. A new set of actors include the Chinese SOEs and private companies who are investing in Africa. Figure 5 shows a schematic overview of the channels for assistance/investment in education and training. The main ministry coordinating foreign assistance is the Ministry of Commerce, meanwhile, a number of Ministries are involved in implementing the specific program. Figure 6 provides a schematic overview of the agencies involved in China's educational aid program. A soaring trend of cooperation in education and training by the Chinese government can be seen since the launch of the FOCAC. Five key modalities are used by the Chinese government: (i) Chinese government scholarships for African students and offering places in Chinese universities for self-funded students from African nations; (ii) offering training for African officials and professionals technicians in a range of fields; (iii) sending professional experts to African nations to undertake specialized training; (iv) building education infrastructure; and (v) partnership programs implemented by various governmental ministries like the Ministry of Education, Ministry of Science and Technology, Ministry of Foreign Affairs, Ministry of Finance, Ministry of Commerce with coordination through the foreign aid inter-agency coordination mechanism.

**Table 3** Different Chinese Institutions and Their Responsibility

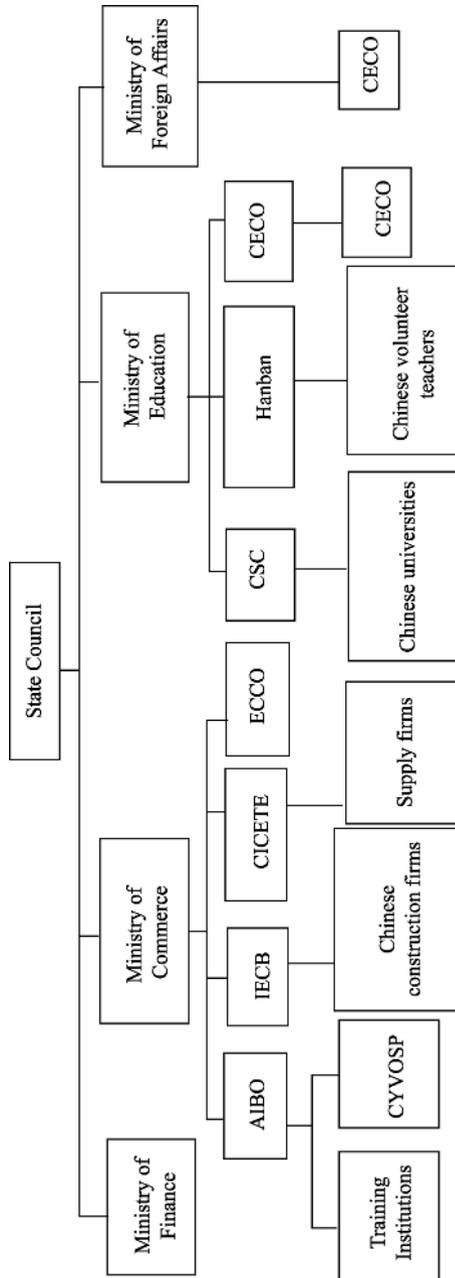
Institutions	Responsibility
Academy for International Business Officials (AIBO)	It is responsible for either directly implementing or allocating most of China's vocational trainings. Also, it sometimes funds Master-level university scholarships.
International Economic Cooperation Bureau (IECB)	It is responsible for most infrastructure projects financed by Chinese aid, including school construction.
China International Center for Economic and Technical Exchanges (CICETE)	It oversees the provision of education equipment. It also, directly engages with international counterparts on aid policy, conduct research, and offers policy analysis within China.
Economic and Commercial Counselor's office (ECCO)	It is in Chinese embassies and have a functional responsibility to the Ministry of Commerce (MOC) and administrative responsibility to the ambassador. It facilitates the selection of participants for training, supporting volunteers, overseeing school construction, and ensuring equipment delivery within the host nation.
Chinese Scholarship Council (CSC)	It is responsible for the huge majority of China's higher education scholarship program, including: Chinese Government Scholarship Fund, Confucius Institute Scholarship Fund, Province and City Level Scholarship Fund, Foreign Government Scholarship Fund, University Scholarship Fund and Enterprise Scholarship Fund.
Hanban/Confucius Institute Headquarters (Hanban): Chinese Language Council	It is a "social organization" under Ministry of Education (MOE). It is responsible for promoting Chinese language instruction abroad, implemented primarily through the Confucius Institutes and Classrooms, and through the Chinese Volunteer Teachers Plan (CTVP).
Cultural and Education Counselor's Office (CECO)	It is responsible for activities relating to the ministries of Commerce and Education.
China Youth Volunteers Overseas Service Plan (CYVO)	It is responsible for volunteer recruitment through local youth associations.
Ministry of Commerce (MOC)	It is responsible for helping set foreign aid policy and is the lead agency for most of China's aid programs.
Ministry of Finance (MOF)	Ministry of Finance manages the foreign aid budget. It issues funds for implementation, receives and assesses financial reports, helps sets foreign aid policies, and issues funding for multilateral aid overseas.
Ministry of Foreign Affairs (MOFA)	The ministry helps to set aid policy, particularly as it relates to foreign policy, and plays a lead role in determining aid levels for individual countries and programs.
Department of International Cooperation and Exchange (DICE)	DICE sets policy for China's scholarship programs, oversees universities international collaborations, and directly administers several smaller scholarship programs, including: Honor Student Scholarship, HSK Scholarship, Chinese Culture Research Projects, and Foreign Chinese Language Teachers short-term study project.

Source: Author's computation based on (Reilly, 2015) and with minor changes.



**Figure 5** China's Assistance for Higher Education and Technical/Vocational Training

Source: as cited in (Bashir, 2015, p.17).



**Figure 6** Institutions Involved in China's Education Aid  
Source: as cited in (Reilly, 2015, p.11) and with minor changes.

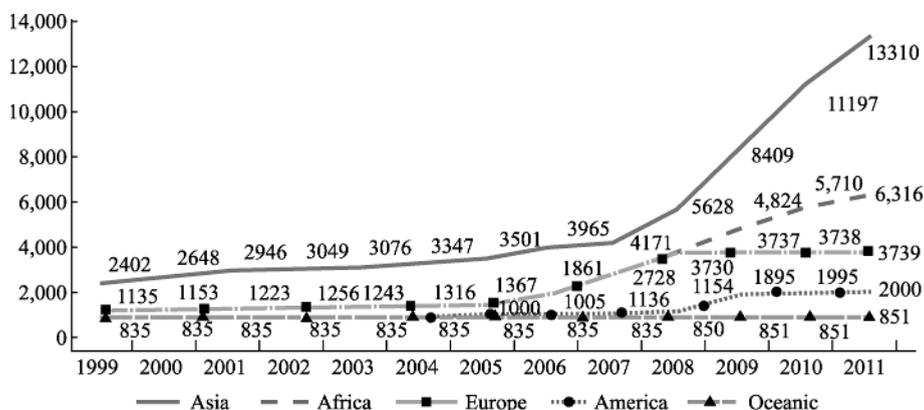
## **Various Core Modalities through Which Chinese Aid to Education Is Channeled**

### *Scholarships*

Over the past decades, the dynamics of China-African students' mobility have intensified. Such mobility can be traced back to 1956 when China first established diplomatic ties with Egypt, and the two nations exchanged 8 students and teachers as mentioned earlier in this paper. If we compare the figure with 61,594 African students in China in 2016, the trend is remarkable. Having said that, in terms of scholarship, Li (2018) asserts that in 1978, China enrolled 1,236 new international students with 95 % enjoying Chinese government scholarships. Among them, 121 were African students, about 10 % of the total (Chen & Xie, 2010). Together with almost 300 African students in China, accounting for one-quarter of overseas student during that period. Nonetheless, only 30 African received Chinese government scholarships in 1979, 43 in 1980, and 80 in 1981 (China Africa Education Cooperation Group, 2005). After 1996, the history of African students in China entered a period of speedy development. This speedy development in 1996 came after President Jiang Zemin visited six African nations—Kenya, Ethiopia, Egypt, Mali, Namibia, and Zimbabwe. This was the first time a Chinese head of state visited SSA. During the visit, Jiang put forward five proposals for China and Africa to build a long-time stable and all-round cooperation for the 21st century based on the principles of sincere friendship, equality, solidarity and cooperation, common development, and the future (Li, 2018). The visit and policy brought about a great surge of Chinese government scholarship for African students, which leapt from 256 in 1995 to 922 in 1996 (Liu & Li, 2014; Wan, 2015).

After the 2010 FOCAC, China-Africa educational cooperation turned out to be an essential matter, and it lasts till at the present time (He, 2007; Liu, 2017). The number has increased speedily since 2006, especially for African students. In 2006, the Chinese government doubled the number of scholarships for African students from 2,000 to 4,000 per year (Li, 2018). During 1996–2011, there were 84,361 African students in China, with 36,918 holding Chinese government scholarships; in 2015, there were 8,470 African Chinese government scholarship holders (Li, 2018). In 2012, China increased the number to 18,000 government scholarships; the number further soared to 30,000 at the 2015 FOCAC Summit in South Africa (FOCAC, 2015). At the 2018 FOCAC Summit in Beijing China

increased its scholarships provision from 30,000 to 50,000 government scholarships to African students (FOCAC, 2018). Additionally, between 2015 and 2016, 55 Kenyans obtained scholarships from the Ministry of Commerce of China and came to renowned Chinese universities for Master's and doctoral programs (Chinese Academy of International Trade and Cooperation, 2017). Approximately 40 % of these scholarships provided to African students are in the applied sciences, engineering or technology fields, reflecting the demands from the African countries to build up skills in these areas. The majority of scholarships continue to be in the humanities, social studies, and Chinese language. When compared with other regions, the study shows that the number of scholarships has grown more rapidly for African nations than other regions (see Figure 7).



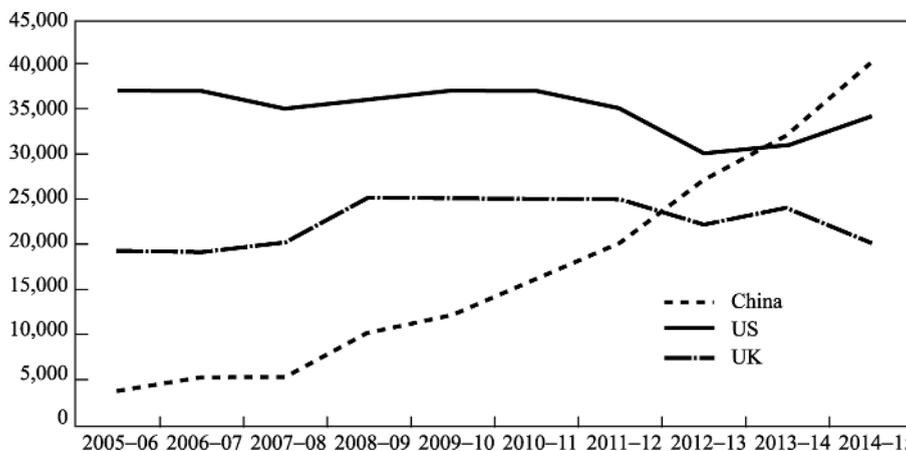
**Figure 7** Chinese Government Scholarship for International Students, by Five Continents (1999–2011)

Source: as cited in (Bashir, 2015, p. 19).

With this remarkable upsurge in terms of offering scholarships to African students, no wonder in an article published in *China in Africa: The Real Story*<sup>8</sup>, the author asks this question. Is China winning the (hearts and) minds of African students? It seems China is because the upsurge in the number of African students in China in the last decade has been remarkable. Furthermore, according to the data compiled by Michigan State University (MSU) and published in the

<sup>8</sup> Is China winning the (hearts and) minds of African students? *China in Africa: The real story*. May 7, 2018. The China-Africa Research Initiative. Johns Hopkins School of Advanced International Studies. Retrieved December 12, 2018, from [www.chinaafricarealstory.com/2018/05/is-china-winning-hearts-and-minds-of.html](http://www.chinaafricarealstory.com/2018/05/is-china-winning-hearts-and-minds-of.html)

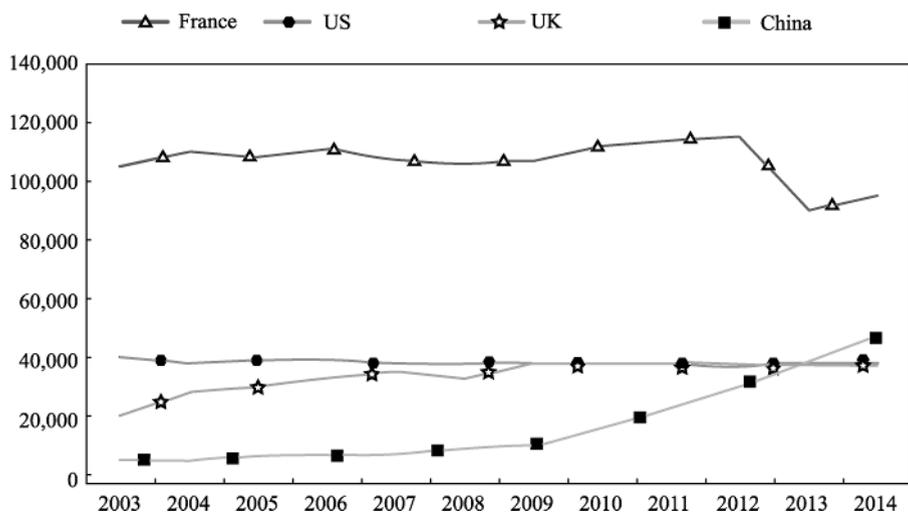
Conversation by MSU scholars Virginia Breeze and Nathan Moore clarified the “remarkable upsurge... in part by the Chinese government’s targeted focus on African human resources and education development.”<sup>9</sup> This targeted focus is an actuality and their data from the China-Africa Research Institute (CARI) confirm that Africans are taking advantage of this focus. Today, China has now become a more popular destination for African students than the US and the UK (see Figure 8). The data in Figure 8 reveals that the UK and the US host about 40,000 African students a year. China exceeded these figures in 2014, making it the second most popular destination for African students studying overseas, after France which host just over 95,000 students. Nonetheless, is it true that China is now way ahead of “the West”? A chart on African students studying overseas by destination nation in “China in Africa: The Real Story,” makes for a more interesting comparison (see Figure 9). Not only have these reports revealed the growth in China-Africa ties, they make it possible to compare China’s international education trends in a global context as well. The increasing African students in China illustrate a growing, mutually beneficial relationship between China and Africa. China’s commitment towards assisting Africa and Africa’s receipt of resources and opportunities has created a multi-country network and a climate of exchange that is continually expanding.



**Figure 8** The Number of African Students Studying in China Has Exceeded Those of the US and UK

Source: as cited in (CARI, 2018).

<sup>9</sup> China tops US and UK as destination for Anglophone African students. June 28, 2017. Retrieved December 11, 2018, from <https://theconversation.com/china-tops-us-and-uk-as-destination-for-anglophone-african-students-78967>



**Figure 9** African Students Studying Overseas by Destination

Source: as cited in (CARI, 2018).

### *Capacity Building Development*

The capacity building development segment has seen a significant fresh impetus and shift at the recent 2018 FOCAC Summit in Beijing. Although the dissimilarity between the FOCAC 2015 and 2018 meetings is pretty significant, a closer comparison between the FOCAC 2015 pledges and FOCAC 2018 pledges as display in figure 4 shows that China is shifting more towards training more African youth. This is because Africa has a young and increasing urbanized workforce, with a projected 12 million people added to Africa workforce yearly (*African Economic Outlook*, 2017), and on top of that, its labor force is expected to rise from 620 million in 2013 to almost 2 billion in 2063 (AfDB, 2018). This presents an opportunity to reap a “demographic dividend” and also provides a huge market for investors—particularly as the McKinsey Global Institute predict that Africa’s consumer spending will rise from US\$860 billion in 2008 to US\$1.4 trillion in 2020. However, regardless of these attractive numbers, Africa’s youth are missing out on much-needed employment opportunities because they lack the skills required by firms. Study shows that demographic dividend supported China structural transformation during its reform and opening up, by adding 26.8 % to the Chinese per capita GDP growth between 1982–2000 (Cai & Wang, 2005). As such, the skills transfer initiative from China shows why in the past, China has given a lot of concessional loans to African nations, but nowadays,

China wants African people to have the capacity to create wealth for themselves—that is why the encouragement of training among Africa’s youth is now the core in China-Africa cooperation.

Ever since the introduction of the FOCAC, China-Africa educational cooperation has attained remarkable outcomes, especially in human resources. In order to strengthen its relations with African economies, China has established numerous large programs of capacity building for African officials. These short-term courses are in economics, urban planning, transportation, foreign affairs, energy, industry, agriculture, forestry, animal husbandry and fishing, medicine and healthcare, inspection and quarantine, climate change, security, and other subject areas. This short-term training usually take place in prominent Chinese universities such as University of International Business and Economics, Beijing Jiaotong University, China Agricultural University and Renmin University of China (Niu, 2014). Currently, China aims to promote Africa’s independent educational development by strengthening Africa’s capacity to create its own cultural and human resources. Africa has long been reliant on overseas assistance, which somehow has often failed to resolve many indigenous issues. Unlike other overseas assistance, China has implemented a non-interference strategy of sharing experiences with African economies, allowing African governments to forge their own development paths. The cooperation between the Chinese government and African nations has offered appropriate expertise to African nations through knowledge sharing.

In 2000, China set up an African Human Resources Development Foundation for training African personnel. Furthermore, the 2003 FOCAC document, stepped up China’s support for human resources development in Africa, aiming to train “up to 10,000 African personnel in different fields” between 2003 and 2006, and emphasized: “We are completely aware of the significance of talent training and capacity building to sustainable development in Africa and of the great potential for cooperation between China and Africa in human resources” (Yuan, 2015, p. 5). In 2006, the Chinese government further committed its role in funding these programs (MOFA, 2006). This paved the way for China to adopt a new African policy in early 2006. Cooperation in human resources development and education remains one of the main premises of the policy. Since its inception, the policy has offered a base for China’s commitment to assist the continent of Africa to tackle the dearth of African-trained professionals, with 27,000 people (mainly administrators and others) being trained in China through short-term

courses (Bashir, 2015). In 2016, the Chinese government organized more than 540 bilateral and multilateral training seminars for African nations on 80 subjects in 17 areas, benefiting 14,000 trainees (Chinese Academy of International Trade and Cooperation, 2017). Also, China has trained 3,000 personnel in diverse fields for Kenya, including officials, technical personnel and in-service postgraduate students (Chinese Academy of International Trade and Cooperation, 2017). China has sent over 2,000 experts to more than 50 nations to conduct technical training, this initiative successfully assisted these nations to improve their technical management capacity in different fields including, agriculture, handicrafts, radio and television, energy, cultural, and sports (Liu & Li, 2014; Information Office of the State Council, 2014). In China's context, human resources development cooperation refers to different kinds of research training programs and other personnel exchange programs for developing nations (Yamada, 2016). The Chinese government took the training of professional personnel in developing nations, especially Africa as their responsibility in national educational development strategy (The State Council, 2010).

These trainings can be categorized into two kinds: (i) the short-term training course (which runs from 2–3 weeks) for African governments officials from different departments; and (ii) short-term course (which run between six months and a year) for training professionals, technicians, focusing on practical skills like agro meteorology, medical techniques, and hybrid rice technology (Nordtveit, 2011; Niu, 2014). Since the mid-1990s, China has been supporting the capacity building for other developing nations, including African nations by enlarging the scale of technical training and hosting training programs for officials from African nations to China. In 2008, the Ministry of Education and the Ministry of Commerce jointly established a Master's education programs for developing nations. The objectives of these programs are to cultivate high-level human resources to accommodate the diverse needs of these developing nations. Between 2008 and 2011, there were 252 trainees from 40 different African nations participating in these programs (Bureau of Asian and African Affairs, Department of International Cooperation and Exchange, Ministry of Education of China, 2012). Between 2000 and 2012, it was estimated that no less than 45,000 African professionals took part in the short-term training in China; these programs were funded by the African Human Resources Development Foundation (King, 2013). Also, from 2010 to 2012, China ran training sessions

with an overall capacity of 27,318 trainees for officials and technical personnel from 54 African nations. The training sessions covered the field of foreign affairs, agriculture, forestry, animal husbandry, fishing, medicine, manufacturing, healthcare, inspection and quarantine, climate change, industry, public management, energy, and social security (Yamada, 2016). Also, Chinese medical teams, agricultural experts, and enterprises situated in Africa have trained local people in an effort to enhance local technological capabilities and upgrading China-Africa cooperation in science and technology (Tambo et al., 2016).

In the 5th Ministerial Conference of the FOCAC, the Chinese government announced “African Talents Program” to train 30,000 African professionals in various sectors; also, the second Summit of the FOCAC in Johannesburg in December 2015, Chinese President Xi Jinping announced the “10 major plans” to boost China-African cooperation between 2015–2018. This includes establishing a number of regional vocational hubs and several “so-called capacity-building colleges” to address the continent’s dearth of skilled workers. This will train 200,000 technicians and offer 40,000 African students with chances for professional training (FOCAC, 2012; MOC, 2015; Yamada, 2016). Based on these increased numbers, the Chinese government placed particular emphasis on the *quality* of its training: The Chinese leadership will continue to offer training for people from diverse sectors in Africa as the need arises, and pay special attention to raising the *quality* of such training. The Chinese government interest in international education cooperation is also included in the *Outline of China’s National Plan for Medium- and Long-Term Education Reform and Development (2010–2020)*. It emphasizes the promotion of international aid to education through human resources development. This assistance will focus on developing African nations own human resources capacities and in return help, the Chinese government discover other significant sectors for investment. That is why recently China is paying more attention to the quality of training they provide. These human resources, training, and capacity building development programs enhance the mutual understanding and friendship between China and Africa, contributing to broader and deeper cooperation between the two sides in several areas.

### **Core Issues and Priority Areas for Action**

Growth in Chinese assistance for education, training, and skills transfer is

impressive and much appreciated by African nations. To build on achievements to date and accelerate its impact going forward, several issues could be considered. Growth strategies based on structural transformation depend on adequate skills and knowledge to succeed. As such, supporting the development of skills involves both short- and long-term strategies.

Short-term strategies involve upgrading the skills of employers who are already working and graduates, who attained a good level of general education but lack the specific work skills. Skills transfer from Chinese firms should focus on offering short, practical course not only to employees but also to graduates. For instance, a general engineering graduate could be trained in construction engineering, a graduate in mathematics could be trained to become an accountant for the electronic software industry, and English majors could be trained to work in call centers. These courses should involve primary on-the-job training and require cooperation between African governments and Chinese enterprises. Businesses are indeed critical not only to offer funding, but also internships and facilities for such training. Singapore (AfDB, 2011), for instance, adopted such a strategy starting in the 1960s rapidly turn its low-skilled workforce into one of the most qualified in the world. Public-private internship mechanisms placing tertiary education graduates in firms, particularly Small and Medium Enterprises (SMEs), would also promote much-needed practical training. Additionally, incentives for tertiary institutions and firms to collaborate on research, design and testing or product development need to be put in place.

In the long term, education and skills transfer systems need to be revamped. Increasing the supply of skills transfer from Chinese firms will involve changing the way employees and students are trained—a process that will require changes in the training system, labor markets, government policies, and the interaction among all three. These skills transfer reforms should: (i) focus on increasing skills and productivity of workers, (ii) train graduates to be entrepreneurs and thus create and develop enterprises to employ themselves, and (iii) create a class of skilled researchers who can develop new ideas and products. Entrepreneurship skills and the ability to manage the small business are critical for private sector development in Africa, since small private firms dominate Africa's sector. The training system should favor science, technology, engineering, and mathematics, which will require curriculum reforms. The curriculum should also focus on the specific problems facing Africa such as poverty, unemployment, inequality, low

entrepreneurship, low scientific and technological know-how, and skill shortage. Skill and knowledge are good for individuals and are good for countries to eliminate the problems of poverty and unemployment. Like all low-income countries, African nations tend to have more in-country inequalities than high-income countries. Africa has challenges in health, environment, industry innovation, infrastructure, and more, and skills development can be a great contributor in solving these. In addition, critical thinking, problem-solving, discovery and experiential pedagogy skills need to be developed instead of the current dependence on rote learning; this will help develop some sense of innovation among African youth. The innovation pillar is important for African economies that want to add value to their economies by going beyond just integrating and adapting existing technologies. Nations ranked high in terms of innovation means that firms in these economies are staying ahead of developing cutting-edge products and processes to move towards higher value-added activities.

Having said that, the most effective way for Chinese firms to communicate its needs to the training system is through strong, effective and constant linkages with universities. For instance, Chinese firms could be represented on academic boards of educational institutions to participate in curriculum development. This will make it easier for the Chinese firm to fund education and training through joint research as well as research work of relevance for them, and provision of scholarships and school equipment. For the present situation of skill transfer, there is much room for improvement in order to achieve mutual benefits. Now, Huawei, ZTE and few SOEs have realized the importance of skills transfer in the development of local economy, as a good strategy to open African market and enhance their businesses and for the structural transformation of Africa. Therefore, more Chinese firms should join the trends. Furthermore, Chinese government, firms, and African governments should know that a system that produces abundant skilled labour force but does not consider how they are to be effectively harnessed and utilized in meeting its present and future needs may be embarking on wasteful economic venture. In order to avoid this, and accelerate education and skills catch-up, ILO (2010) advised that skills development policy in any nation should aim at meeting at least four main objectives, namely: (i) matching supply to current demand for skills –The production of skilled labour force should be based on needs analysis in various sectors of the economy. This

requires careful planning information gathering and sharing; (ii) helping workers and enterprises adjust to change –Competition in global economy always necessitates movement of workers and enterprises from declining or low productivity activities sectors. Therefore, workers must be helped to acquire new skills, upgrade existing ones and embark on lifelong learning to maintain their employability and for enterprises to adapt and remain competitive; (iii) building and sustaining competences for future labour market needs –society must look at the world of tomorrow with the eye of today which requires long-term perspective, anticipating the skills that will be needed in the future and making provision for the type of education and training that would propel innovation, investment, technological change, economic diversification and competitiveness thereby engendering job creation and growth. This is perhaps, an aspect of what is often referred to as skill development for knowledge-based economy; (iv) adopt a collaborative approach to addressing the skills gap by establishing a formal dialogue framework with a defined process and governing principles. The mandate should include the incorporation of business perspectives in the development of federal actions and programs on skills development and training.

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## **Conclusion**

China's aid for educational development in Africa has evolved over several decades and is recently quite diverse and institutionalized in its scope and architecture. From official discourse, we can see that China is engaging in a higher "quality" South-South cooperation where education and especially the higher level of education plays a significant role in boosting the sustainability of China-Africa relations. Universities as platforms are connecting vocational training, formal higher education, academic research and think tanks from the two sides together, transferring China's development lessons to Africa. Overall, these various cooperation programs seem to signal a determination to take the relationship between China and Africa beyond the purely commercial level. Furthermore, cooperative ties in education have been developed in time and cemented with the creation of the FOCAC. On the basis of tremendous commonalities of interest, China and African countries have succeeded in constructing bilateral and multilateral cooperation. Besides strengthening their relations, such educational cooperation would help African nations break away

from being further marginalized globally, build a resilient economy, promote education as well as inclusive and sustainable industrialization and the fostering of multidisciplinary innovation. Economic growth and social development are heavily dependent on investment in education, sustainable industrial development, and skills acquisition.

Speaking of skills acquisition, recently, there is a distinct and unprecedented shift towards strengthening skills transfer development capacity and learning how knowledge can be more directly applied to improve people's livelihoods in Africa. However, for the present situation of skills transfer, there is much room for improvement in order to achieve mutual benefits. African and Chinese leaders are putting more emphasis on "knowledge sharing" in the form of skills transfer; this is a promising sign. This obligation suggests that China's development assistance may be a good force in achieving the SDGs in Africa. Building skills that are relevant to labor market needs, using them fully in the workplace and developing them further over the lifecycle can yield sizeable returns for individuals, economies and societies as a whole. This provides a strong case for adopting a set of common policy principles around a China-Africa Skills Strategy to complement the China-Africa Growth Strategies and Employment Plans. Implementing such a Strategy should consider country-specific conditions and challenges, but could collectively translate into stronger, more sustainable and, in particular, more inclusive growth in the short- and medium-term. More skilled individuals that are matched to suitable jobs are more likely to work and earn higher wages—key components of individual wellbeing. Firms also benefit from a better skilled workforce allowing them to expand and adopt new technologies.

Despite sizable progress made in advancing education and skills development in China-Africa relations, to promote access to, and quality of, education, much remains to be done towards a successful skills strategy along the lines delineated in this paper. Many workers still lack the skills necessary to participate and thrive in the labor market. Additional investments in skills are relevant for employees in Africa and employers are among the best people to provide those skills directly in their workplaces. Not only would training on the job help address skill shortages, it would also help firms and economies move up the value chain towards a high-skilled equilibrium. Also, while focusing on increasing the skill base, societies also need to make the most of existing skills. Unused human capital—either due to inactivity or to a bad match between workers' competencies and those required by their jobs—represents a waste of skills and

of the initial investment in them. These challenges call for a strategic approach, involving all relevant stakeholders. To be effective, policies related to initial education and life-long learning need to be complemented by broader actions including, for instance, the removal of obstacles to labor market entry of under-represented groups, a change in those labor market regulations that favor job types with poor training provision, and the removal of disincentives built into the tax-benefit system. Based on the evidence collected, the paper puts forward a three-pronged approach to developing strong skills system: (i) building skills for work and life; (ii) encouraging firms to invest in skills; and (iii) ensuring that skills are fully used (through activating skills); and used well (matching workers to jobs). Only if all three elements and the actionable policy principles put forward under each of them are successfully combined with better economic and social outcomes be achieved.

Finally, in terms of academic initiatives, China-Africa cooperation should be reinforced in teaching, research, and management to support human resources need in Africa as local economies develop. Joint research laboratories should be established in African nations to develop fields necessary to face future challenges such as nanotechnology and material science, biotechnology for health and agriculture, informatics, alternative sources of energy and the social sciences. An effort should be made to upsurge opportunities for student exchange at all levels, to build mutual consensus and confidence. Also, a concerted effort should be made to train semi-skilled and managerial African personnel in areas where there are active Chinese economic investments and a dearth of African expertise. The spheres of China-Africa development partnership should be stretched to include non-state actors from both sides—so as to produce adequate capacity and synergies for executing China-Africa development involvement. The potential advantage of China-Africa cooperation can be severely threatened or even eroded if China reproduced similar patterns of dependency associated with the contemporary North-South relationship. All these suggestions can act as possible avenues of action to make the China-Africa relationship more durable and productive—a relationship that is profitable to both partners and to future generations.

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