

The Realistic Dilemma and Countermeasures of Anti-poverty Industrial-capacity Cooperation Between China and Africa

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Abstract: Poverty eradication is an important goal of African social development. China has always attached great importance to exchanges and cooperation with African countries in the field of poverty reduction and with the deepening of the practice and understanding of China-Africa anti-poverty cooperation, industrial-capacity cooperation has become a new theme of poverty reduction and development in China-Africa cooperation at the 2016 Forum on China Africa Cooperation (FOCAC)—Africa-China Poverty Reduction and Development Conference. Through combing and analysis of relevant literature and data, we found that China-Africa industrial-capacity cooperation, which is based on infrastructure construction, industrial park construction and trade exchanges, has played an important role in poverty reduction and development in African countries by facilitating industrialization and agricultural modernization, enhancing endogenous motivation for poverty alleviation, and improving the sustainable livelihood of poor people. At present, in the practice of anti-poverty industrial-capacity cooperation between China and Africa, there are still difficulties such as weak anti-poverty foundation and cooperation paths yet to be optimized. Meanwhile, it is also faced with a series of risks and challenges such as intensified international competition. In order to improve the cooperation between China and Africa, promote anti-poverty benefits, optimize the implementation paths, and better solve the dilemma of cooperation, we put forward relevant countermeasures and suggestions from the four dimensions of government, enterprises, think tanks and people.

Keywords: China and Africa, industrial-capacity cooperation, anti-poverty, realistic dilemma, countermeasures

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Poverty is one of the most severe challenges the world has to deal with and has long been a major culprit that hampers global peace and development. Africa has the highest concentration of impoverished countries among all continents, which is particularly serious in the Sub-Saharan Africa region, where the rate of poverty as per the US\$1.9/day poverty line was an astounding 41 percent (The World Bank, 2017) in 2013, according to the latest data from the World Bank. Statistics also show that in 2017 this area's per capita income was merely US\$1,453.79, far below the world average of US\$10,366.143 (The World Bank, 2018). The poverty alleviation mission in Africa has a long way to go, and helping eradicate poverty in Africa not only affects Africa's development and the well-being of its people, but is also a powerful boost to the poverty management objectives outlined in the United Nations 2030 Agenda for Sustainable Development (United Nations, 2018). As a prolific contributor to progress in worldwide poverty management, China has achieved success of worldwide significance in poverty alleviation since the nation's economic reform and opening up, exemplified by being the first country to accomplish the poverty eradication objective in the United Nations Millennium Development Goals, as well as having contributed 76 percent (Yin, 2015) to global poverty reduction achievements. China's poverty alleviation experiences in reform and opening-up to attract foreign investment, implementation of compulsory education to raise professional proficiency, agricultural reforms to drive poverty eradication in rural village areas and "precise government policies for targeted assistance and support", among other undertakings, have all been considered to be worthy of earnest study and reference and have earned widespread approval among developing nations. Nicholas Rosellini, UN Resident Coordinator and highest-level representative of the UN in China, pointed out that many countries including Africa are interested in the poverty alleviation experience of China (Yan, 2018).

Industrial-capacity cooperation refers to two countries or regions with the willingness and needs to relocate industrial capacity via methods including product output or relocation of industries to actualize transnational or surpanational industrial-capacity allocation. Not only could industrial-capacity cooperation effectively propel strategic structural adjustments in the Chinese economy, promote industries in realizing transformation and upgrade, and accelerate the pace of high quality Chinese industrial capacity in going abroad, but could also further optimize resource configuration on a global scale, promote better and more rational divisions of labor in the international industrial-capacity, and generate a new win-win paradigm. Therefore, intensifying the industrial-capacity cooperation between China and the nations of Africa could efficaciously assist African nations to advance their industrialization and agriculture modernization processes, drive industrial expansion, promote growth that benefits poverty alleviation, extensively propagate China's poverty reduction and models, and provide Chinese wisdom and Chinese approach conducive to Africa's poverty eradication endeavors.

At present, mutual political trust between China and Africa has strengthened, top-level design continues to improve, a swath of long-term dialogue mechanisms like the Forum on China-Africa Cooperation (FOCAC) have been created, industrial-capacity cooperation projects continue to be

established and executed, a large number of capable Chinese enterprises have set up a presence in Africa, and a series of positive poverty eradication outcomes have been achieved (Zondi., 2018), although quite a few dilemmas and challenges remain to be dealt with by anti-poverty industrial-capacity cooperation between China and Africa. An objective analysis of realistic dilemmas, risks and challenges present in the cooperation between the two sides, and further optimization of pathways and policies, will be hugely beneficial and significant to making breakthroughs in collaboration quagmires, expanding areas of cooperation, elevating the quality of partnerships, improving anti-poverty performance of industrial-capacity cooperation and other aspects.

Primary Pathways for China-Africa Industrial-capacity Cooperation and Their Impacts on Poverty Eradication

Primary Pathways in Industrial-capacity Cooperation Between China and Africa

Industrial-capacity cooperation between China and Africa has had a positive history. As early as the latter half of the 20th century, China positioned infrastructure construction as a main method for China-Africa industrial-capacity cooperation. The completion of the construction of the groundbreaking Tanzania-Zambia Railway, between China, Tanzania and Zambia in the 1970s provided a new and reliable channel for Zambian copper exports to reach the ocean, opened a gap in the economic blockade of South Africa's Apartheid regime, ensured a chief source of income for the Zambian economy, and greatly propelled the two nations' economic development and exchanges in material goods (Bailey, 1975). For the construction of the Tanzania-Zambia Railway, China relied on its own funding, industrial-capacity and a plethora of cutting-edge technology advantages in infrastructure construction, and the project emerged as a landmark achievement that injected a powerful endogenous motivation into the development and poverty eradication efforts of the African nations. It would not be an understatement to claim this as a paragon in Chinese-African industrial-capacity cooperation. Since the onset of the 21st century, under the drive of a score of top-level design strategies such as the "461 framework of China-Africa cooperation" (Yun, 2018), the "1+5+10 cooperation framework", the "three networks and industrialization" projects and the "10 major China-Africa cooperation plans" (Wang, 2010), China has carried out infrastructure construction collaborations with Africa through a wide range of models like general contracting by Chinese enterprises in Africa, interest-free loans and financial aids from the government, "EPC+F" (engineering, procurement and construction plus financing), and corporate investments backed by the government and policy-driven banks (Liu Qinghai, 2018). A string of Chinese-African infrastructure construction cooperation projects such as the Addis Ababa-Djibouti Railway, the Benguela Railway, a new port at Pointe-Noire and the 50MW Solar Power Plant in Garissa have broken ground or are already finished, constituting major contributions to industrial-capacity cooperation that can benefit the people and promote poverty eradication (Deloitte, 2018). Also, the construction of China-Africa

economic, trade and industrial parks is key conduits for industrial-capacity cooperation. According to incomplete statistics, so far China has set up 25 economic cooperation zones in Africa, with more than 400 enterprises having established operations in these zones. A cumulative total of more than US\$6 billion have been invested into these zones which involve industries such as energy and minerals, light industry, construction materials, textile and manufacturing, and home appliances, amounting to roughly US\$18.9 billion in output value, US\$900 million in tax income to host nations, and employment of over 40,000 foreign employees (Zhang, 2018). The construction of these industrial parks, vastly encouraged Chinese manufacturing companies to cluster and use foreign investments to carry out industrial-capacity cooperation with African nations, which helped these enterprises improve their ability to withstand risks, lower costs and practically drive the growth of associated and supplementary services. These efforts also meant better utilization of the resource endowment and labor advantages of the African continent, consolidation of rare and needed factors, harnessing the potentials of spillover effects, realizing relocation of industries, and promoting the expansion of local African manufacturing industries. Product output is also a primary avenue for performing industrial-capacity cooperation. In recent years, import and export trade between China and Africa has sustained a high level of activity. According to statistics from the General Administration Customs of the People's Republic of China, in 2017 total trade between China and Africa reached US\$170 billion, a year-on-year rise of 14.1 percent, with Chinese exports to Africa climbing by 2.7 percent to US\$94.74 billion, and Chinese imports from Africa surging by 32.8 percent to US\$75.26 billion (Economic and Commercial Office Consular General of the People's Republic of China in Nigeria, 2018). Consumer products, machinery, equipment and related products, transportation vehicles, construction materials and other competitive Chinese products accounted for large shares (Table 1). Urban rail transport equipment is particularly noteworthy, as the Addis Ababa Light Rail successfully completed its construction in 2015, which was the first of its kind in East Africa, built by China using complete Chinese standards in a project that included financing, planning, design, construction, equipment procurement, installation, commissioning, trial operation, operation management and equipment maintenance. It signifies China's transformation from the early simple "product export" model to a "product+service+technology+management+capital" entire industrial chain export (Wu & Zhang, 2017), underpinned by China's sufficient foreign exchange reserves, comprehensive industrial system and a diverse array of industries. The project injected new impetus into China's industrial-capacity cooperation with African countries with scarcity capital and low levels of industrialization. Meanwhile, the continual hosting of a bevy of high-end and highly effective "one-stop" economic and trade match-making fairs in nations across Africa such as the China-Africa Industrial-capacity Cooperation Exposition have furnished the industrialization progress of Africa with multi-tiered, multi-sector product support in multiple formats.

Table 1 Distribution and Structure of the Main Merchandise Imported by Africa from China between 2008 and 2014

Category	Import Value (RMB100 million)	Proportion of Same Category Products Imported by Africa from All Other Sources
Consumer products	1623.2	48.29
Machinery, equipment and related products	998.8	19.39
Transportation vehicles	579.2	19.39
Construction materials	480.5	21.8

Data source: China-Africa Trade Research Center (<http://news.afrindex.com/zixun/article10705.html>)

Industrial-capacity cooperation between China and Africa plays a crucial role in promoting poverty eradication in Africa

Chinese-African industrial-capacity cooperation can help African nations ameliorate their industrial systems, augment manufacturing capabilities, promote their industrialization progress and generate poverty alleviation outcomes in a multitude of aspects. First, by promoting economic growth of the host nation, accumulating capital for poverty eradication, optimizing secondary distribution and raising wages and income, the livelihoods and conditions of impoverished citizens may be improved. The economic development model in the majority of African nations is based on extensive development and simple processing of natural resources, resulting in limited economic growth impetus, a lack of inclusive job creation and poor results in helping the poor. Salalei, an African Renaissance Studies expert at the University of South Africa, stressed that only when the states of Africa free themselves from the single-track economic structure that depends on the exploitation and export of natural resources would there be hope for raising the level of socio-economic development and improving the livelihood of the people (FOCAC, 2018). Chinese-African industrial-capacity cooperation could utilize the relocation of industries method to position Africa as the next destination and receiver for “industry relocation”. Capital and technology could be used to fuel the advancement of Africa’s industries, and to increase production efficiency, which could then promote “made in Africa” to go international via a flying geese paradigm, help African nations fill in industry voids, optimize economic structures, switch to other impulsions for economic growth, unshackle from long-standing over-reliance on natural resources, make the most out of Africa’s potent labor potentials, diversify the economic growth impetus in the countries of Africa, take full advantage of the “catch-up effect” and ultimately realize their independent development. For example, in recent years Ethiopia’s average annual economic growth rate has been above 9 percent and industrial added value as a proportion of GDP rose to 23.7 percent in 2016. Such rapid expansion was in large part thanks to investments from China, and at present there are more than 400 Chinese manufacturers operating in Ethiopia (Liu, 2018). Furthermore, direct investment from Chinese firms also filled voids in Ethiopian glass production, iodized salt production, capsule pharmaceuticals and other industries, helping the country decrease its total reliance on imports for certain products while propelling “made in Ethiopia” products to go abroad as “hard currency-earning exports” (Li, 2010). Second, Chinese-

African industrial-capacity cooperation in the realm of infrastructure construction could also directly ameliorate the quality of life of impoverished populations, and generate opportune conditions for industry-driven poverty reduction. The inadequacy of infrastructure facility development has long been a severe hindrance to industrial development in Africa, nullifying the industrial sector's ability to alleviate or reduce poverty, while at the same time adding to the cost of living for impoverished citizens. Third, China and Africa had carried out a string of industrial-capacity cooperation programs in the field of infrastructure construction which stimulated the domestic capital markets and consumption markets in the host nations, created conditions ripe for industry-based poverty reduction in these African countries, and generally brought about benefits for the sake of the local people. Industrial-capacity cooperation between China and Africa could directly uplift the quality of life of Africa's impoverished populations. The underdeveloped industries in Africa are hard-pressed to satisfy the material needs of the African people, and both high quality products exported and imported through industrial-capacity cooperation and cultivation of the host nation own manufacturing capability will pragmatically raise the accessibility and availability of goods and services among the impoverished populations, thus directly benefiting these poverty-stricken citizens. In particular, Chinese-African industrial-capacity cooperation in the healthcare sector can guarantee the supply of medical supplies and services, effectively avoiding situations like "fall into poverty because of illnesses".

Industrial-capacity cooperation between China and Africa can effectively accelerate the pace of agricultural modernization in African nations, also helping to achieve the goal of poverty reduction and eradication. Currently, agriculture remains the economic pillar that underpins the majority of countries in Africa, and approximately 70 percent of the African population reside in rural villages and rely on farming as their source of living (Wang, 2018). Although there is expansive space and abundant agricultural resources in Africa, the outdated agricultural production and management methods lessen agricultural production efficiency and incapacitate self-supply in sustenance, while the short industrial and value chains mean that product value-added is low and incapable of lifting impoverished people out of poverty. China has relied on industrial-capacity cooperation, adopted a series of measures such as agricultural infrastructure construction, dialing up investments in the agricultural sector and agriculture industrial parks, building demonstration centers, and utilizing Chinese agricultural development and technologies to bolster the improvement and upgrade of agriculture across Africa, prolifically raising food productivity in Africa, increasing the food security and supply in African nations, and directly benefiting an enormous number of impoverished farmers. Take Mozambique for example. The Chinese-Mozambican partnership performed a raft of agricultural industrial-capacity cooperation projects such as the joint African production industrial-capacity collaboration project and the cotton industrial-capacity cooperation project of cotton firms, and propagated a "company+farmer" entire industrial chain ordering model (Zhang & Gao, 2017), which practically allayed local poverty and lifted food production. The Wanbao Mozambique Agricultural Park, one of the key projects at the heart of Chinese-Mozambican industrial-capacity

cooperation, is a conglomeration of rice cultivation, storage, processing and sales. 20,000 hectares of arable land has been developed as planned, a total of 80,000 hectares of land in the surrounding region has been used for rice cultivation through training of local farmers, thereby creating 100,000 hectares devoted to rice production (Nie, 2018), which spurred local agricultural development, expedited the pace of poverty reduction and garnered critical acclaim from the local people.

Direct investments in Africa have stimulated the creation of job opportunities, increased transmission of poverty reduction know-hows, and the practice of social responsibilities and other actions undertaken by Chinese enterprises have improved the sustainable livelihood of the impoverished populations in host nations and fueled poverty reduction progress in Africa. Realistically, the lion's share of Chinese direct investments in Africa is concentrated in labor-intensive industries with substantial labor demands such as large-scale infrastructure construction and manufacturing, and these companies have "made use of local resources" to generate vast numbers of employment openings in the host nations (Zhang, 2017). In Namibia for example, CGNPC Uranium Resources CO.Ltd purchased the Hushan Uranium Mine, which generated 6,000 temporary job openings and more than 2,000 long-term positions for the local community (FOCAC, 2017). Moreover, the coastal railway built at a cost of US\$11.97 billion under a concerted effort between China and Nigeria similarly generated employment, including 50,000 direct positions and 150,000 indirect positions, while the operation process of the railway also created around 20,000 to 30,000 stable jobs (Zhang, 2016). The massive number of jobs created through China-Africa industrial-capacity cooperation expanded income channels for local impoverished citizens and enhanced their independent poverty eradication ability. Objectively, industrial-capacity cooperation between China and Africa also promotes local corporate development in Africa, in turn creating even more opportunities for impoverished Africans to climb out of poverty. In China-Africa industrial-capacity cooperation, for one, industrial matchmaking, technology transfer and other methods employed by China have brought cutting-edge technologies and management concepts to Africa, which further elevate the technical proficiency of local African enterprises and instigate the growth of local African companies, consequently improving employment in the cooperating countries (Fauzell, Seetanah & Sannasse, 2015). The vertical spillover effect of Chinese enterprises purchasing production materials from local suppliers in the process of investment in Africa, and the horizontal spillover effects of Chinese companies through demonstration, staff training and healthy competition with local companies also play a positive role in promoting the overall technical level of local companies and employees. A research report published by McKinsey & Company pointed out that in Africa the number of local personnel hired by Chinese enterprises totals several million, and nearly two-thirds of these Chinese companies provide skill training staffs. Investment and business actions taken by Chinese firms have brought knowledge and transferred technologies to Africa, fostered the know-hows of local employees, (McKinsey's latest report on Africa-China economic partnership challenges previous beliefs, 2018) immensely enhanced the self-sustainability of impoverished people and genuinely realized poverty alleviation and permanent development. Furthermore, the practice of social

responsibility is a fundamental requirement among Chinese enterprises that invest in Africa (Tang & Xiong, 2015). During the investment process in Africa, Chinese companies have taken substantive actions and have energetically dedicated themselves to a wide range of poverty reduction endeavors such as “helping develop local medical care efforts”, “supporting local education development”, “assisting the construction of infrastructure facilities” and “making active contributions to disaster relief and poverty alleviation” (Yang, 2016). For example, Chinese private enterprises like Hanergy Holding Group Limited have actively worked with the Joint United Nations Programme on HIV/AIDS (UNAIDS) to unveil “Power Africa” and other public welfare and philanthropic programs which aim to provide local impoverished people with basic life assurances from different aspects, solidifying a sound foundation for eventual poverty eradication. Over the course of industrial-capacity cooperation, Chinese enterprises transferred Chinese poverty reduction experiences to Africa, contributed “Chinese wisdom” and offered “Chinese approach” conducive to poverty alleviation in Africa. As early as 2011, the Chinese State Council Leading Group Office of Poverty Alleviation and Development, Mozambican Ministry of Planning and Development and China Kingho Group, which has been investing in Africa, together set up the China-Mozambique Kingho Poverty Reduction Cooperation Center and for the past few years, the Center has employed methods such as hosting the “China-Mozambique Poverty Reduction and Development Policy Symposium” and field-study groups on-site investigations to apply Chinese poverty reduction to actual poverty alleviation practices in Mozambique, instilling China’s “wealth obtainment experience” in Mozambique and speeding up the pace of poverty reduction in African nations.

Realistic Dilemmas in Anti-poverty Industrial-capacity Cooperation Between China and Africa

Africa: Further fortification required in the foundation for anti-poverty industrial-capacity cooperation.

Whether industrial-capacity cooperation can yield positive outcomes is contingent on political, social and public opinion foundations. Although obstacles in Chinese-African industrial-capacity cooperation are gradually being eliminated, there are still a few weak links in the chain.

First is the prevalence of single-track industrial structures, as most African nations still rely on the exploitation and export of natural resources, and many find it difficult to leverage industrial-capacity cooperation to invigorate their own development. Many countries across Africa have been blessed with copious natural resources, and thus the continent is dubbed by some as the “raw materials warehouse of the world”, and 150 kinds of discovered underground mineral resources in the world can be found in Africa. Africa contains more than 50 percent of the world’s reserves of gold and diamonds, over 40 percent of platinum and more than 90 percent of cobalt. Africa possesses 7.5 percent of global coal deposits, 8 percent of petroleum and 12 percent of natural gas (Josie. FOCAC 2015, 2018). This rich abundance of natural resources has brought wealth to Africa, as well as the “curse”. In reality, the majority of African natural resources are exported instead of being utilized as fuel for growing their own industries. For instance, Angola is the second-largest oil producer behind

Nigeria in Sub-Saharan Africa, but 99.7 percent of petroleum produced is exported, which accounts for 97 percent of Angola's total exports, as well as 80 percent of the country's tax revenue (Economic and Commercial Office of the Embassy of the People's Republic of China in Angola, 2017). The extensive export-oriented economy means that economic drivers of growth in Africa are too singular and industrial development basis is feeble, which are unfavorable to China-Africa industrial-capacity cooperation-driven poverty reduction.

Second, the lagging infrastructure facility development in Africa is a severe hindrance to the anti-poverty efficiency of Chinese-African industrial-capacity cooperation. In the past decade or so, infrastructure facility development in Africa basically remained in a stagnant state (Fig. 1). In the past ten years, the quality of African transportation infrastructure facilities has been down by 6 percent, almost twice the figure of transportation infrastructure facilities in the ASEAN states. Similarly, the quality of African energy supplies has dropped by 3 percent. In addition, the rifts between Africa's information and communication technology (ICT) infrastructure facilities and their usage compared with developed economies are widening, which could hamper the African continent's chances of assimilating into The fourth industrial revolution (World Economic Forum, 2017). Although China and Africa have long positioned infrastructure construction as a priority in collaborations between the two sides, and certain feats have been achieved, there is still a huge need to fill (Fig. 2). The lag in the development of infrastructure facilities has seriously impeded industrial advancement in Africa and added to the cost and difficulty in China-Africa industrial-capacity cooperation. Electricity shortages in Uganda are an example. They have been a serious hindrance to the country's industrial and agricultural production and commercial development. Deficient power supply drags down production, and the insufficient transportation infrastructure also fails to meet the demands required to expand Ugandan tourism, mining, petroleum and natural gas industries (Li, 2016).

Third, the underdeveloped level of education in Africa means that it is difficult to convert the continent's population advantage into a source of industrial growth. Statistics show that the total population in Africa in 2017 was 1.256 billion, and its birth rate of 33.6 was far higher than the other continents (UN, 2018), but the serious lack of educational resources has turned Africa into the most illiterate region in the world. In 2016, the literacy rate of persons 15 years old or older in Africa was only 66.58 percent, far below the global average of 86.25 percent (UNESCO, 2017). The operational and production efficiency of African workers are also dismal, merely half of their Chinese counterparts (FOCAC). Of course, there is an even greater lack of high-quality personnel with higher education backgrounds and the ability to bring external benefits to African society to promote advancement in Africa. Inadequate education limits impoverished people from obtaining higher salaries and climbing out of poverty, and indirectly adds to the cost of training of local labor in industrial-capacity cooperation.

Fourth, the management levels of African nations are generally subpar, legal environments have much room for improvement, and some nations weighed by political instability and policies that are often not consistent and continuous, which compound the uncertainties in Chinese-African industrial-

capacity cooperation. For example, the then new administration of former Zambian President Michael Charles Chilufya Sata substantially lifted the minimum wage standard of the Zambian labor force that had been in place for two decades (Ministry of Commerce of the People's Republic of China, 2017), which imparted a relatively big impact on local investments and enterprises. Furthermore, some African nations are marred by severe corruption and low work productivity. According to data released by Transparency International, among the 20 nations ranked worst on the organization's Corruption Perceptions Index, 12 are African countries (Table 2), and in particular, six nations in Sub-Saharan Africa have fallen in the ranking. The serious corruption problem in Africa not only significantly escalates the risks and costs of Chinese enterprise investments, but also raises the cost of access to basic public services among the impoverished population. Investigations indicate that when poor African people seek public service, they might pay twice the bribe required from more affluent people (Economic and Commerce Consular Office of the Embassy of the People's Republic of China in the Federal Republic of Nigeria).

Fig. 1 Trend of average infrastructure development in Africa

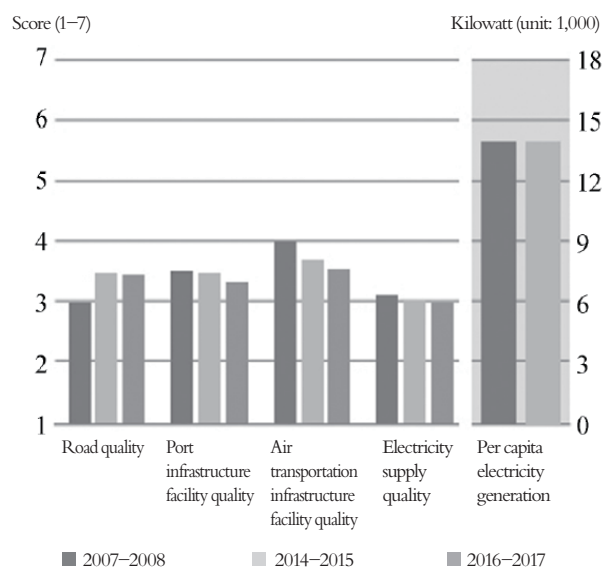
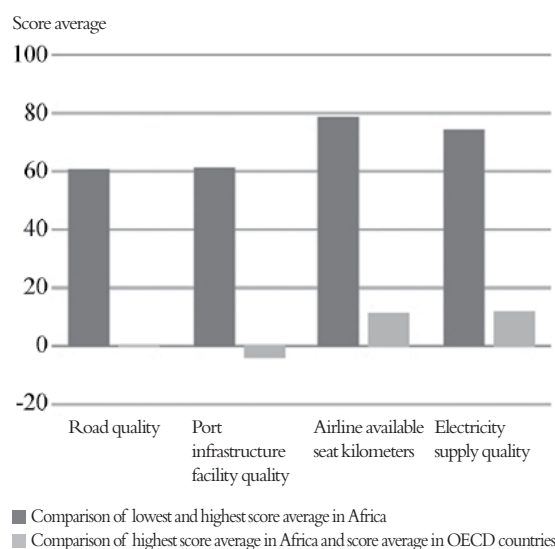


Fig. 2 Gaps in infrastructure construction in Africa



Data source: The Africa Competitiveness Report 2017 (http://www3.weforum.org/docs/WEF_ACR_2017.pdf)

Table 2 Corruption Perceptions Index 2016 (lowest 20)

Rank	Nation	Score (2016)	Region	Rank	Nation	Score (2016)	Region
156	Democratic Republic of the Congo	21	Africa	166	Venezuela	17	South America
156	Uzbekistan	21	Asia	168	Guinea-Bissau	16	Africa
159	Burundi	20	Africa	169	Afghanistan	15	Asia
159	Central African Republic	20	Africa	170	Libya	14	Africa

Rank	Nation	Score (2016)	Region	Rank	Nation	Score (2016)	Region
159	Chad	20	Africa	170	Sudan	14	Africa
159	Haiti	20	North America	170	Yemen	14	Asia
159	Republic of the Congo	20	Africa	173	Syria	13	Asia
164	Angola	18	Africa	174	North Korea	12	Asia
164	Eritrea	18	Africa	175	South Sudan	11	Africa
166	Iraq	17	Asia	176	Somalia	10	Africa

Data source: Transparency International (<https://www.transparency.org/>)

Fifth, the volatile situations in the African region are a grave threat to steady progress in anti-poverty industrial-capacity cooperation between China and Africa. The build-up of “third term” problems, and Europe and North America’s decisions to roll back security aid might ignite “security vacuums”, alongside an increase in social and mass events that affect political stability and a multitude of other factors compounding the already complicated security situation in Africa (Li, 2017). Civil wars and armed conflicts occur in high frequency in some nations, and “war as a cause of poverty” and “chaos as a cause of poverty” are also common phenomena. The security powder kegs in Africa severely threaten the basic security and safety of the African people, further weighing down the poverty issue on the continent. Investigations show that in Nigeria, 39 percent of residents are of the opinion that the habitat environment is not safe, 31 percent of residents have been victims in robbery, theft and burglary, and 20 percent of residents have been physically attacked (Economic and Commerce Consular Office of the Embassy of the People’s Republic of China in the Federal Republic of Nigeria, 2017). Such dire circumstances also objectively affect industrial-capacity cooperation between China and Africa because not only have conflicts and wars divided some African nations into isolated economic entities that are difficult to form into coalesced markets (Wang, 2018), but simultaneously, the security of properties and safety of employees of firms that invest in Africa are hard to guarantee, while some major industrial-capacity cooperation and investment projects cannot take place due to the unstable investment climate, thus making it even more difficult to generate endogenous impetus for poverty eradication.

China: Urgent Need to Address Issues in Anti-poverty Industrial-capacity Cooperation

First and foremost, at the governmental level, certain issues and dilemmas exist between Chinese and Africa in synchronizing top-level designs. Africa has many nations that differ vastly in industrial development basis and development plans, and how to identify the varying needs of the different states to effectively synchronize top-level designs and development strategies and pinpoint the most optimized pathways for anti-poverty industrial-capacity cooperation are major issues that China must address. For example, the *National Development Plan 2030 (the Plan)* South Africa proposed in 2012 clearly stipulated the desire to achieve diversified economic development between

2018 and 2030, including further development of energy-intensive industries like mining, and at the same time ensuring orderly progress in technology-intensive industries, commercial industries and service industries (South African National Planning Commission, 2018). The *Plan* also mentioned ramping up investments in infrastructure construction and fostering the growth of labor-intensive manufacturing industries. This means that China not only has to continuously intensify traditional infrastructure facility collaborations and prioritize the transfer of labor-intensive industries in anti-poverty industrial-capacity cooperation with South Africa but also ensure better synergy in top-level design and locate precise focal points in accordance with South Africa's development needs and development trends to identify new directions and blaze new trails for the anti-poverty industrial-capacity cooperation between the two parties.

Then at the corporate level, there are also some challenges and difficulties pertaining to product exports and relocation of industries from China to Africa. Although "Chinese merchandise" has vastly bolstered the chances of impoverished Africans in acquiring daily necessities and enjoying hi-tech products, what they have access to is often counterfeit, which damages the image and reputation of the Chinese government and Chinese companies. According to a 2014 report from the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) (now the State Administration for Market Regulation), of the 80,538 batches of products exported from China to Egypt, 6,083 batches totaling US\$198.7896 million in value did not meet requirements, equating to a defective rate/batch of 7.55 percent and defective rate/total value of 6.05 percent (AQSIQ, 2017). Moreover, "Made in China" products of high quality yet available at affordable prices have also impacted local manufacturing industries to a certain extent. Take South Africa for instance. Of the imported products in 45 manufacturing industries, Chinese products were ranked in the top echelon in 27 sectors between 2000 and 2010, and the Chinese share of the South African manufacturing market increased every year. The competitiveness of Chinese products was so pronounced that the South African manufacturing sector developed the risk of "de-industrialization" (Yao, 2015). The process of direct investment by Chinese companies in Africa has several difficulties, and first is the lack of a comprehensive mechanism for assessing potential risks. Insufficient knowledge about the political risks and security risks of the target nation has resulted in loss or failure of investments. Second, some companies investing in Africa are not familiar with local laws and regulations and still apply the management methods used back home, frequently leading to cases of salary that does not meet minimum wage standards, work hours that are too long, the number of hired local employees that does not conform to minimum requirements and other issues. Many African nations have relatively sound laws in terms of the protection of labor rights. For instance, Tanzania's labor laws include a series of strict regulations in aspects like working time, working environment, minimum wage, overtime wage and discrimination prohibition.^① No doubt such circumstances can be a steep learning curve for some Chinese enterprises. In addition, a certain proportion of Chinese investors

① *Employment and Labour Relations Act, 2004*

also lack the sense to practice social responsibility, or even seek profit based on over-exploitation of natural resources at the expense of the environment, which is detrimental to the reputation of China and Chinese companies. Third, Chinese corporate investments in Africa are too concentrated in some sectors. The similarity of resource endowments and industrial development foundations in many African countries, as well as the shortcomings in the Chinese government's overall planning on the types of investment enterprises, have led to serious homogeneity in the field of enterprise investment and intensification in competition between companies. For example, in 2013 foreign direct investment from China to Africa consisted of 15 percent in manufacturing, 16 percent in construction, 20 percent in finance, and a whopping 31 percent in traditional mining (The State Council of the People's Republic of China, 2015). Meanwhile, under the pressure of fierce competition, some Chinese enterprises chose to adopt vicious price tactics and use subpar products or services, resulting in poor engineering quality (Economic and Commercial Office of the Embassy of the People's Republic of China in the Federal Republic of Nigeria, 2014) and considerable harm to the general competitiveness of Chinese firms in Africa. Fourth, it is difficult for Chinese enterprises to secure financing in Africa. Since the financial system in many African states has much room for improvement, financial support for foreign investment enterprises is limited, while some companies themselves lack financing capability (Song, 2016). Due to the Chinese government's overly strict regulations on Chinese companies planning to expand in Africa, there is also a shortage of relevant financial assistance. For instance, in order to maintain a certain balance of international payments and prevent outflow of capital, China administers stringent regulations in aspects like foreign exchange and security deposits, and companies are only allowed to purchase foreign currencies for overseas investments in strategic projects, foreign aid projects and processing on supplied materials meaning that investors have to rely on their own foreign currency reserve for other types of overseas investments (Wang, 2009). However, many companies do not possess enough foreign currency, coupled with the fact that some private enterprises lack adequate management and public financial and accounting transparency which falls short of loan and credit standards, and thus companies often find it hard to secure financing in Africa, resulting in a shortage of both initiation capital and operational capital.

The International Context: International Challenges Facing China-Africa Industrial-capacity Cooperation

The international challenges endangering China-Africa anti-poverty industrial-capacity cooperation are mainly manifested in two aspects. The first is competition from developed nations in the West, like the US, and emerging industrial behemoths such as India. Compared to China, Western states have relatively marked historical advantages in cooperation with Africa, including high levels of cooperation scale, cooperation standards and areas of cooperation. At the government level, the EU, the US and others held summits with Africa in 2014 and have all set up African cooperation platforms to speed up collaborations with Africa in various sectors. In particular, China-Africa industrial-capacity cooperation came under immense competitive pressure as the US, in

2013, pushed forward its *Electrify Africa Act of 2013*, Trade Africa and The Young African Leaders Initiative (YALI), supplemented by the proposal of utilizing new policies to encourage American companies to invest in Africa that was put forth at the summits in 2014. At the same time, the US and other countries of the West possess the power of discourse at international organizations like the UN, enabling them to lean on multilateral mechanisms to engage in cooperation in Africa via multiple channels. At the corporate level, multinational corporations from developed countries have long constituted the main staple of investors in Africa, and major developed economies led by the UK, the US and France still remain the African continent's biggest investors (Zhang, 2017). Numerous European and North American companies have operated for years in Africa, and their prominent competitive prowess is founded upon their in-depth understanding of Africa, their market share advantage and the "soft power" of their home nations. Similarly, the natural resource endowment and huge market in Africa have attracted emerging nations like India. The India-Africa Forum Summit functions as the long-term exchange and cooperation mechanisms between India and Africa, and a vast number of other ministerial-level and non-governmental cooperation mechanisms have also been established. Upon this sweeping basis, India capitalizes on its rapidly developing electronics industry to advance industrial-capacity cooperation with Africa in aspects such as network infrastructure construction, trade and investment, and technology transfer. In 2015, trade volume between the two parties skyrocketed by nine-fold compared with 2005, topping US\$72 billion, while the Pan African e-Network project and a string of other programs are continually being executed. Under this circumstance, certain countries of Africa have devised specific and targeted policies to maximize their own benefits. For instance, the Ministry of Electricity and Renewable Energy of Egypt expressed that future power generation projects will adopt a tender bidding format in lieu of the direct contracting model, to obtain the best technology at the best price (Economic and Commercial Office of the Embassy of the People's Republic of China in the Arab Republic of Egypt, 2018).

The second aspect is that some Western countries have resorted to various methods to discredit Chinese-African industrial-capacity cooperation. The industrial-capacity collaborations between China and Africa are not only advantageous to the modernization of agriculture and industrialization across Africa and the general growth of the African economy and full-fledged promotion of anti-poverty efforts on the continent, but are also beneficial to the transformation and structural adjustment of the Chinese economy, showcasing China's responsibility as a major power and iteration of the Chinese pathway. It can be said that Chinese-African industrial-capacity cooperation is a model for bilateral and win-win cooperation in sync with the current trend of the multi-polarizations in the world, globalization of the economy and diversification of culture, and a major step forward in a multi-polarized world that China has always advocated. Therefore, Western countries like the United States often lean on their technological advantages and power of discourse in the international community to smear various aspects of industrial-capacity cooperation between China and Africa. Theories like "neo-colonialism" (Meservey, 2018), "transfer of outdated

industrial-capacity” and “pillage of resources” (US Government Publishing Office, 2018) are propagated to discredit the original intent of Chinese-African industrial-capacity cooperation and comments like “ignorance of human rights” and “environmental destruction” (Shaw, *China's impact on human rights in Africa*, 2011) are spread to magnify the misconducts of a portion of Chinese enterprises in order to discredit the substantive practice in Chinese-African industrial-capacity cooperation, and claims like “Chinese loans further weigh down the debts in Africa” and “foreign assistance format hazard” (Bradley, Austin & Strange, 2014) are publicized to dismiss the accomplishments of Chinese-African industrial-capacity cooperation. Some scholars in the West have also intentionally demeaned Chinese-African industrial-capacity cooperation in academic circles. Swayed by these influences, some countries in Africa have come to doubt or reject Chinese-African industrial-capacity cooperation.

Countermeasures and Suggestions for the Anti-poverty Industrial-capacity Cooperation between China and Africa

To surmount the realistic dilemmas obstructing current anti-poverty industrial-capacity cooperation between China and Africa and to further enhance collaboration outcomes, coordinated efforts at the governmental level, corporate level, think tank level and non-governmental level are required.

Governmental Level: Ensure Better Results in Top-down Design and Synchronization of Anti-poverty Industrial-capacity Cooperation Between China and Africa

Of primary concern is the inclusion of poverty alleviation as a priority in bilateral and multilateral industrial-capacity cooperation in accordance with the *Beijing Declaration—Toward an Even Stronger China–Africa Community with a Shared Future* and the *FOCAC Beijing Action Plan (2019–2021)*, to ensure better synchronization with the African Union Agenda 2063 development plan and the strategic development plans of the various African countries, and ascertain the generation orientation that will engender bilaterally beneficial or multilaterally beneficial industrial-capacity cooperation between China and Africa. Upon the foundation of in-depth analysis of the competitive industries, development demands and development plans of different African countries, the governments should focus on the present development needs of the host nation, emphasize industrial-capacity cooperation support as key to fueling the growth of Africa's competitive industries to new heights, and formulate a suitable schedule with suitable milestones, for the sake of aiding the various countries to foster long-term and refined industries that can serve the future. It is necessary to consider the whole picture, ensure adequate spatial planning, coordinate the advancement and generate synergy between the industries of the different states by making the most out of the various resource advantages and foundations amongst these countries, form industrial chains that integrate both upstream and downstream, rely on effective policy communication and policy synchronization to remove barriers between nations, and facilitate the flow of key factors between states to create the ideal conditions for Chinese-African industrial-

capacity cooperation to drive industrial development in Africa and create more inclusive opportunities for the impoverished population.

Next must be the expansion of areas for industrial-capacity cooperation. Take into consideration aspects such as changes in the international landscape and the multidimensional causes of poverty in Africa, make timely adjustments in areas of cooperation, forge progress with major projects in the lead, strive to gradually pivot from traditionally labor-intensive industries toward technology-intensive industries, service industries and other emerging industries, endeavor to progressively transform from an infrastructure construction-centric cooperation toward a multi-sector cooperation model involving not only infrastructure construction but also fields such as education, medical care, security and culture, utilize industrial-capacity cooperation to spur the innate anti-poverty motivation in Africa, enhance Africa's self-sustainability and improve the general anti-poverty outcomes originating from Chinese-African industrial-capacity cooperation.

Equally important is to consider China's own competitive industries, select the appropriate industrial-capacity cooperation projects and avoid the risk of the "de-industrialization" of Africa. Chinese-African industrial-capacity cooperation is neither the transfer of outdated production capacity, nor a repression of Africa's local manufacturing sector, but an effort entailing support for developing Africa's local manufacturing sector through technology transfer and industry match-making with China's high-quality industrial capacities, to assist Africa in realizing industrial advancement, shorten the distance to the goal of eradicating poverty in Africa, and orienting the continent toward a path of positive progress. Therefore, not only is it mandatory to identify and clarify the industrial development needs of the other party, but Chinese-African industrial-capacity cooperation also ought to take into consideration one's own industrial advantages, target regions with a relatively sound realistic foundation, security landscape and stable government, locate the fulcrum and point of synergy in the industrial-capacity collaboration between the two parties, carefully select the right areas of partnership, utilize effective and reasonable cooperation pathways, and position mature, competitive and high-quality industries at the core of industrial-capacity cooperation between China and Africa. Under the leadership of high-quality industrial-capacity, ascertain that Chinese-African industrial-capacity cooperation can truly propel the local industrial development in Africa and augment the internal anti-poverty capabilities of the African countries.

We must also ensure coordination in industrial-capacity cooperation and anti-poverty cooperation policies. Through the establishment of a joint committee on China-Africa industrial-cooperation and other work mechanisms, reinforce communication and decision-making with cooperating nations in aspects like selection of region, verification of cooperating industries, innovation in cooperation models, financial support, waived or reduced taxes, and corporate performance of social responsibility, roll out specific measures, coordinate policies, engender interconnectivity in industrial-capacity cooperation and anti-poverty efforts, promote inclusive growth in cooperating states, generate more cooperation outcomes that benefit the impoverished population, and solidify positive public opinion on Chinese-African industrial-capacity cooperation.

It is important to resolve the shortage of funding in companies and advocate diversification in corporate investments. First, carry out policy and system reforms, ease restrictions in areas like foreign exchange, reasonably relax loan standards or offer interest-free loans to foreign investment enterprises, give full play to the functions of the market, embolden banks and other financial institutions to expand in Africa, to innovate financial products and to enlarge corporate financing channels for the sake of providing more convenient financing for companies operating or planning to operate in Africa. Second, through the provision of corporate consultation services, elevate the management capability of companies, help enterprises set up healthy and normal capital chains and improve accounting reports to help firms satisfy loan and credit requisites. At the same time, by stressing on the construction of industrial parks, broaden the types of enterprises investing in Africa, encourage support industries and service industries to establish operations in industrial parks, build integrated upstream and downstream industrial chains within industrial parks, facilitate enterprises in the same industrial chain to provide each other with assistance, effectively prevent competitiveness arising from homogeneity and instead actualize synergistic development in order to lower operation costs while boosting production efficiency. Equally important, ascertain adequate liaison and coordination with the host nation, address policy issues faced by companies in Africa such as repeated tax levies, help firms lessen their investment and operational burdens, and better utilize investments to drive local anti-poverty efforts.

Finally, take an active stance on the advocacy and creation of international multilateral industrial-capacity cooperation frameworks. Capitalize on the opportunities inherent in the construction of the Belt and Road Initiative, include African countries in the Belt and Road Initiative cooperation framework as quickly as possible, reinforce dialogues and exchanges with states related to the Belt and Road Initiative, improve industrial-capacity cooperation mechanisms, and clarify the positioning and tasks of African nations in “Belt and Road Initiative” industrial-capacity cooperation. Proactively engage in communication and coordination with states and international organizations worldwide, sign into effect various multilateral industrial-capacity cooperation agreements, transform disorderly competitions in the international community into mutual benefit collaborations, advocate and build international multilateral industrial-capacity cooperation frameworks, further optimize the allocation of key factors and resources, optimize the global industrial division of labor system, and give full play to orderly multilateral industrial-capacity cooperation for advancing the industrialization progress in Africa to realize self-development in Africa and foster self-sustainable anti-poverty efforts in African states.

Corporate Level: Optimize Pathways, Strengthen Corporate Industrial-capacity Building for Companies Heading to and Investing in Africa

It is important to establish risk resistance abilities in companies. Prior to venturing to Africa for industrial-capacity cooperation, enterprises ought to step up communication with competent government organs and Chinese embassies or consulates in Africa to gain a thorough understanding of the politics,

economy, culture, society, laws, markets and other facets of the host nation, and ascertain adequacy in project verification and risk assessment. At the same time, competent government organs also need to provide Africa-bound companies with information about the host nation and related investment policies, and offer credit and insurance to these outbound enterprises through authoritative credit and insurance institutions to minimizing risks these firms might encounter. Successful models from industrial-capacity cooperation between China and other countries should be fully utilized, for instance the industrial park model whereby enterprises form clusters to heighten risk resistance and to enable interactions and mutual assistance, or the Angola model characterized by “enterprises in the spotlight on a platform built by the government”, and organically combine the capital, technology and management advantages of the Chinese parties and the labor and resource advantages of the African parties, to strive for obvious returns in the shortest duration possible to benefit a larger group of impoverished people and win the trust and support of the host nation.

We must also fortify the sense of social responsibility in companies planning to invest in Africa. Africa bound enterprises and management teams must uphold the principle of forging a community with a shared future for mankind, always remember to perform social duties while earning a profit in Africa, and strengthen the faith of the host nation and its people during the course of social responsibility performance to create an ideal external environment contributive to industrial-capacity cooperation. The various firms need to intensify contacts with Chinese embassies, consulates and patriotic overseas Chinese groups and organizations, establish platforms, perform corporate social responsibilities through methods such as the dissemination of Chinese in poverty alleviation, publicity of Chinese success stories in poverty reduction, transmission of skills and knowledge to impoverished people, participation in day-to-day community activities, investments in education in poverty-stricken regions, public welfare campaigns and philanthropic donations to cultivate and nourish the soil for fruitful Chinese-African partnerships, thus garnering even broader support.

Concentrating on human resource training to augment the flexibility and adaptability of Africa bound companies is another key issue. Chinese enterprises heading to Africa need to adopt methods like public recruitment and partnerships with universities to identify and acquire professional talents that possess international vision, familiarity with the legal environments in African countries, have managerial expertise and national pride, and set up different tiers of management teams in order to ensure the smooth progress in industrial-capacity cooperation between China and Africa. Simultaneously, it is necessary to employ measures like one-on-one mentorships or apprenticeships to accelerate the cultivation of localized management personnel in the host nation, extensively seek, recruit and hire returned native students from the host nation that previously received education in China, capitalize on their Chinese language proficiency, comprehension of Chinese culture, knowledge about the situations of their homeland and communication ability, cut the number of intermediary steps and procedures, ensure the efficient flow of information and prevent disputes or conflicts due to misunderstandings to thoroughly enhance the flexibility and adaptability of Chinese companies.

Think Tank Level: Capitalize on the Positive Effects of Think Tanks in the Course of Anti-poverty Industrial-capacity Cooperation Between China and Africa

The founding of think tanks is crucial to raising the anti-poverty performance in industrial-capacity cooperation. First, rely on institutions of higher education and research institutes, utilize methods such as establishing research projects and hosting academic symposiums, intensify the communications and collaborations between different fields of study, encourage experts, scholars and researchers with varying backgrounds to contribute their wisdom and insight to anti-poverty industrial-capacity cooperation between China and Africa, and utilize policy-based financial support to empower researchers to carry out on-site investigations, obtain first-hand materials and fill voids in direct studies on industrial-capacity cooperation for poverty reduction in current academic circles to solidify the theoretical basis for anti-poverty industrial-capacity collaboration between China and Africa. Second is to lean on existing dialogue mechanisms like the FOCAC, set up think tank platforms to facilitate exchanges about anti-poverty industrial-capacity cooperation between China and Africa, reinforce mutual understanding and trust through regular academic contacts and information exchanges, and adopt different angles to discover and resolve dilemmas and challenges inhibiting Chinese-African industrial-capacity cooperation for poverty reduction so that concerted efforts may be dedicated to seeking new pathways for industrial-capacity cooperation between China and Africa to drive poverty eradication. Third is to accelerate the combination of the efforts of enterprises, universities and research institutions and take full advantage of think tanks in terms of consultation during decision-making processes. Adhere to the mentality of pragmatism, encourage researchers to put theory into practice, stick to problem-solving as the main direction, rely on research to resolve realistic difficulties hindering anti-poverty industrial-capacity cooperation between China and Africa, engender innovation in the model of industrial-capacity collaboration for poverty reduction, elevate good models and methods to the theoretical level and specifically explore avenues through which China's success in poverty reduction may be applied in Africa. Simultaneously, ensure that theoretical research outcomes are adequately applied via conversion to actual practice and enable the latest theoretical research achievements to be applied in actual practice, initially through trial sites and then through extensive promotion so that research results may be tested in the real world. Also establish scientific decision-making mechanisms, design mechanisms to facilitate think tanks to participate in governmental and corporate decision-making processes, and fully leverage the consulting function of think tanks to cement the foundations for the creation of more scientific and reasonable top-down designs in anti-poverty industrial-capacity cooperation between China and Africa and for the formulation of more pragmatic and effective investment strategies for companies venturing to Africa. Fourth is to maximize the value orientation functionality of think tanks. Efforts should be made to encourage researchers to carry out breakthrough and revolutionary theoretical studies, ensure that research is substantive, utilize internationally influential academic exchange platforms and embolden the African nations to join hands with China in industrial-capacity cooperation for poverty reduction. Fifth is to strengthen the cultivation of human resource reserves. Steps should be taken to establish research institutes for fields related to anti-poverty industrial-capacity collaboration between China and Africa and also support

for institutions of higher education that may also want to establish research orientations in relevant academic divisions in order to secure an endless supply of talents to further the anti-poverty cause of Chinese-African industrial-capacity cooperation.

Non-governmental Level: Amplify the Functions of Non-governmental Organizations in Anti-poverty Industrial-capacity Cooperation Between China and Africa

The role of non-governmental organizations in the course of anti-poverty industrial-capacity cooperation between China and Africa cannot be ignored. There is a sizable number of non-governmental organizations in Africa engaged in various sectors and fields, often with members that are experts and scholars in their respective domains. The majority of these NGOs in Africa are representatives of specific groups, devoted to promoting betterment and development in Africa and may help China understand the diverse needs among the peoples and societies across the continent so that ultimately industrial-capacity cooperation and anti-poverty undertakings may more suitably serve the African population. In addition, many African NGOs are rooted in the local society and have forged close-knit relationships with the local populace and government, thus teaming up with them to establish platforms may enable China to better understand aspects of the host country such as policy and market environments, which in turn would help Chinese enterprises engaged in industrial-capacity cooperation in Africa to more readily assimilate into Africa. Simultaneously, facilitating Chinese non-governmental organizations to perform extensive visits and operations in Africa to carry out programs and campaigns like “one-to-one support”, transmission of Chinese in poverty eradication, provision of daily necessities and medical care and education services, and to offer tangible and substantive aids on a micro and personal level to impoverished locals are positive supplements to government-oriented anti-poverty industrial-capacity cooperation between China and Africa that will contribute to mitigating some Africans’ misguided or erroneous perceptions about anti-poverty industrial-capacity collaboration between China and Africa, promote the bond and rapport between people and garner widespread approval for the cooperation between the two sides. As such, first and foremost it is necessary to adjust the existing mindset and consider NGOs as partners that share the same target and possess the ability to aid the execution of industrial-capacity cooperation between China and Africa for the sake of combating poverty and not as opponents that aim to thwart the efforts of the Chinese government, investors and enterprises at every turn. Such actions should be taken to form amiable and mutually assisting relationships with non-governmental organizations in Africa. We should also encourage and support Chinese NGOs with capabilities, reputations and the authority to adopt a proactive stance and to use legal and law-abiding methods to enter Africa for anti-poverty activities, and provide these Africa-bound NGOs with full-spectrum support in aspects like funding, technology and logistic assurances. Equally important, companies engaged in industrial-capacity cooperation could employ reputable non-governmental organizations based in the host nation as consultants to build rapport with the various facets of the local society and to provide help and guidance conducive to the execution of the business project and the satisfactory performance of social responsibility.

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