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Technology Transfer in China–Africa Trade Relations

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Key Points:

- Technology is one of the bottlenecks in African industrialization and development. Consequently, it should be a key component of the China–Africa partnership. Chinese firms can be the catalysts for sound technology transfer and, thereby, play an important role in African development.
- Yet, while China is forced in some circumstances to clarify its technology transfer provisions (especially with trade partners in the West), most of its trade relations with the developing world (particularly Africa) are not governed by any specific technology transfer provisions, which opens the door to exploitation.

Scientific discovery and advanced technology are integral to a country's economic development¹ within the modern global economy. Indeed, the current global economy is grounded on a predominance of intangible assets, of which technology is the biggest pillar. Yet, Africa's currently underdeveloped technological capability remains one of the major constraints to its efforts to achieve sustainable development. Like China decades ago, African countries still seek to reduce their dependence on technologies from other countries and to advance from low-cost manufacturing or mere natural resources provider to global innovation powers in science and technology. From that perspective, technology transfer should be one of the key drivers behind the relations between China and Africa, particularly since China itself has always had a rich tradition of scientific invention² and has

¹ The value of many multinational companies such as Oracle, Intel, Apple, IBM, and Microsoft is based on the intellectual property they have developed (Jessica Brum, *Technology Transfer and China's WTO Commitments*, 50 Georgetown J. Int'l L., 710, 713 (2018-2019)).

² China is home to what is popularly known as the Four Great Inventions of papermaking, printing, gunpowder and the compass (JIALU FAN et al., *The Four Great Inventions*, in A HISTORY OF CHINESE SCIENCE AND TECHNOLOGY (Yongxiang Lu, ed), 161-299 (2015)).

benefited from technology transfer from other nations.³

Yet, in the conversation on Africa-China relations (particularly in the mining sector), technology transfer is one of the least developed aspects. Most trade agreements either barely mention or do not mention at all⁴ technology transfer. For instance, under Article 14.1.4. of the Agreement between the Democratic Republic of the Congo (DRC) and the Group of Chinese Companies relating to the development of mining and infrastructure projects in the DRC⁵, the Chinese party may freely choose the supplier of materials and equipment, technology and service. Article 11.2 of the same Agreement gives priority to the Chinese market both for supplies abroad and for services that Congolese companies will not be able to provide. Such clauses suggest that even if infrastructure projects are subject to specific contracts, there is no legal assurance there will be a technology transfer. Since the African host country will not have participated in setting up the infrastructure, it will be unable to maintain it or build other infrastructures with the same architecture.

³ Luke Shen-Tien Chi, *China's Education Reforms and Strive for Innovation*, CHINA DAILY (Aug. 24, 2018), www.chinadaily.com.cn/a/201808/24/WS5b7fb080a310add14f387a5b.html.

⁴ Agreement Between the Government of the People's Republic of China and the Government of the Republic of Djibouti on the Promotion and Protection of Investments, http://www.fdi.gov.cn/1800000121_39_1801_0_7.html; Agreement Between the Government of the Republic of Botswana and the Government of the People's Republic of China on Promotion and Protection of Investments, <https://jusmundi.com/fr/document/treaty/en-botswana-china-bit-2000-botswana-china-bit-2000-monday-12th-june-2000>; Agreement between the People's Republic of China and the Republic of Tunisia concerning the reciprocal encouragement and protection of investments signed in Tunisia, www.fdi.gov.cn/1800000121_39_1477_0_7.html.

⁵ Collaboration Agreement between the Democratic Republic of Congo and the Chinese Enterprise Group: China Railway Group Ltd Sinohydro Corporation relating to the development of a mining project and an infrastructure

Consequently, it will depend on the Chinese companies to maintain the built infrastructures. The same is true for oil or mining exploitation. Indeed, without technology transfer, at the end of the contract, the owner of the natural resources will have to sign another contract with another foreign partner because it will not have acquired, after thirty years of exploitation by the Chinese companies, the training necessary to successfully realize the further exploitation of its natural resources.

This neglect of technology transfer in Sino-African relations is in stark contrast with the importance China – as a host country – gives to its acquisition of technology from foreign companies. China has issued several industrial policies, such as the National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020) (MLP),⁶ the State Council Decision on Accelerating and Cultivating the Development of Strategic Emerging Industries,⁷ and the Notice on Issuing “Made in China 2025”.⁸ These policies spurred Chinese government ministries and government officials to pursue an array of

project in the Democratic Republic of Congo [French], Apr. 22, 2008, <https://static.tijd.be/pdf/congochina.pdf>.

⁶ Notice on Issuing the National Medium- and Long-Term Science and Technology Development Plan Outline (2006-2020) (State Council, Guo Fa [2005] No. 44, issued Dec. 26, 2005). This is the seminal document which articulates China's long-term technology development strategy.

⁷ Decision on Accelerating the Cultivation and Development of Strategic Emerging Industries (State Council, Guo Fa [2010] No. 32, issued Oct. 10, 2010).

⁸ Notice on Issuing “Made in China 2025” (State Council, Guo Fa [2015] No. 28, issued May 8, 2015). See further National Strategic Advisory Committee on Building a Powerful Manufacturing Nation, *Made in China 2025 Key Area Technology Roadmap* (Oct. 10, 2015). See also CCP State Council Releases the ‘National Innovation-Driven Development Strategy Guidelines’ §2(3) [Chinese], XINHUA NEWS (May 19, 2016), http://news.xinhuanet.com/politics/2016-05/19/c_118898033.htm.

aggressive implementing acts, policies, and practices, which the United States regard as constituting “forced technology transfer”⁹. More specifically, the Section 301 Report¹⁰ alleges that China uses inbound foreign ownership restrictions, such as joint venture requirements and foreign equity limitations, and the administrative licensing and approvals process to require the transfer of technology.¹¹ Based on these allegations, the U.S. has imposed sanctions pursuant to Section 301 of the Trade Act of 1974.¹² On January 15, 2020, the U.S. and China signed the U.S.-China Economic Trade Agreement (Phase One Agreement) under which China is prohibited from employing a range of policies, practices and acts to extract technology and intellectual property from U.S. companies (see Article 2.1. of the Agreement).¹³

The foregoing underlines that the two situations are the reverse: On the one hand, China – as a host country – is forcing foreign investors to transfer their technology, while, on the other, China – as investor – is not requiring its firms to transfer

their technology to African host countries. While China is forced in some circumstances to clarify its technology transfer provisions (especially with trade partners in the West), for the most part its trade relations with the developing world (particularly Africa) are not governed by any specific technology transfer provisions, which opens the door to exploitation. To remedy this discrepancy, African policymakers should give greater attention to technology transfer in the context of their relationship with foreign investors in general, and Chinese investors in particular. In particular, human, institutional and legal capacity in technology transfer must be enhanced, to allow African companies to own leading-edge technologies like their foreign peers. In that regard, African countries could revisit their trade agreements with China to enshrine rules governing the technology transfer from Chinese companies. Since most African countries are members of international organizations such as the World Trade Organization, the United Nations Conference on Trade and Development, and the

⁹ Forced technology transfer can be broadly understood as referring to a situation in which the government compels a foreign firm to share its proprietary technology as a condition for accessing its domestic market (Julia Ya Qin, *Forced Technology Transfer and the US-China Trade War: Implications for International Economic Law*, Wayne State University Law School Research Paper No. 2019-61 (2019), <https://ssrn.com/abstract=3436974>).

¹⁰ Office of the United States Trade Representative Executive (Office of the President), Findings of the Investigation Into China’s Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation Under Section 301 of the Trade Act of 1974, 22 March 2018, <https://ustr.gov/sites/default/files/Section%20301%20FINAL.PDF>.

¹¹ United States Trade Representatives, Findings of the Investigation into China’s Acts, Policies and Practices Related to Technology Transfer, Intellectual Property and Innovation under Section 301 of the Trade Act of 1974, (Mar. 22, 2018), 19. <https://ustr.gov/sites/default/files/Section%20301%20FINAL.PDF>. See Joint Statement on

Trilateral Meeting of the Trade Ministers of the United States, Japan, and the European Union, Annexed Statement 2: Joint Statement on Technology Transfer Policies and Practices, (May 31, 2018), <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2018/may/joint-statement-trilateral-meeting>.

¹² Starting in July 2018, the Trump Administration has levied tariffs on more than half of Chinese imports. For a detailed chronological presentation of the main actions in the context of the trade war between China and the U.S., see Chad Bown & Melina Kolb, *Trump’s Trade War Timeline: An Up-to-Date Guide*, www.piie.com/blogs/trade-investment-policy-watch/trump-trade-war-china-date-guide. See also 84 FR 22961 (May 21, 2019); 84 FR 29371 (June 24, 2019).

¹³ It is interesting to note that on at least eight occasions since 2010, the Chinese government has committed not to use technology transfer as a condition for market access and to permit technology transfer decisions to be negotiated independently by businesses. See United States Trade Representatives, *supra* note 11 at 8.

Organization for Economic Co-operation and Development, the work of these organizations can serve as the contractual basis or model for technology transfer provisions.¹⁴ Furthermore, following the Chinese model,¹⁵ Africa countries could create Special Economic Zones at the national and (sub)regional level. Through tax and business incentives as well as flexible governmental measures, those zones would help building up high-tech industries and attracting technology related foreign investments. China's own economic rise was fueled by the creation of special economic zones governed by laws that were more market-oriented than national laws, in order to boost business and attract foreign investors. These zones were often established in close proximity to national excellence research centers to encourage technology transfer. Already in 2006 and in 2012, the Forum on China-Africa

Cooperation agreed to establish such zones on the African continent, notably in Egypt and in Zambia.¹⁶ However, some of the obstacles to the success of these zones were a failure to locate African zones near local industrial and knowledge hubs and the lack of efforts from the African countries to develop supplier programs and other close links between the domestic private sector and the zones.¹⁷ However, the current efforts for the establishment of the African Continental Free Trade Area (AfCFTA)¹⁸ offer an opportunity to revamp the discussions on such Special Economic Zones in Africa for more technology transfer from foreign (particularly Chinese) companies.

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¹⁴ For example, the World Trade Organization has a Working Group on Transfer of Technology which was established by the Ministers in Doha and aims to examine the relationship between trade and the transfer of technology from developed to developing countries, and ways to increase the flow of technology to developing countries. See www.wto.org/english/tratop_e/devel_e/dev_wkgrp_trade_transfer_technology_e.htm.

¹⁵ YITAO TAO & ZHIGUO LU, SPECIAL ECONOMIC ZONES AND CHINA'S DEVELOPMENT PATH 27 (2018) *et seq.*

¹⁶ Ana Cristina Alves, *Chinese economic and trade co-operation zones in Africa: Facing the challenges* (2012) South African Institute of International Affairs, Policy Briefing 51.

¹⁷ Deborah Bräutigam & Tang Xiaoyang, *African Shenzhen: China's Special Economic Zones in Africa*, 49 *Journal of Modern African Studies* 27, 27-28 (2011).

¹⁸ The AfCFTA is a free trade area which was created by the African Continental Free Trade Agreement among 54 of the 55 African Union nations. For more details on the AfCFTA, see Guillaume Guérout, Jaimie Macleod & Melaku Desta, *The AfCFTA as yet Another Experiment Towards Continental Integration: Retrospect and Prospect*, in *INCLUSIVE TRADE IN AFRICA: THE AFRICAN CONTINENTAL FREE TRADE AREA IN COMPARATIVE PERSPECTIVE* (David Luke & Jamie Macleod (eds), *New Regionalisms Series*) 35 (2019) *et seq.*