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Challenges faced by Chinese firms implementing the ‘Belt and Road Initiative’: Evidence from three railway projects

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ABSTRACT

In 2013, China launched its ‘Belt and Road Initiative’ (BRI) as a major effort to enhance international trade and economic development. An important feature of the BRI is that it supports free trade regimes and a world economy based upon open regional cooperation. The concept of BRI involves establishing a transport route between China and participating countries to provide more profitable trade and investment corridors. There are few comprehensive studies examining the social and environmental impact on development in recipient countries. To address this gap, this study gathered empirical evidence on railroad projects in three key countries: Indonesia, Ethiopia, and Kenya. The comparative analysis revealed that while political leaders signed agreements that welcomed China’s BRI in support of their national transport development plans, the implementation of these ambitious infrastructure projects faced significant management and operational challenges that had not been foreseen by the Chinese partners. More effective implementation of BRI infrastructure projects in the future will require better understandings of governance, specifically through harmonization with the cultural, institutional and political contexts in partner countries. Social and cultural characteristics of the countries where Chinese firms are working need to be well understood if sustainable and inclusive benefits from the BRI infrastructure projects are to be delivered. Further research on the benefits gained by local people living in the areas affected by the BRI investments is needed.

Introduction

In 2013, China’s President Xi Jinping unveiled ‘The Belt and Road Initiative’ (BRI), a massive economic integration plan (Debin and Yahua, 2015; Shahrar, 2019) (Fig. 1). One aim of this initiative is to expand China’s economic opportunities through infrastructure investments across Asia, Europe, and Africa. The BRI is the largest infrastructure investment plan ever launched by a single country. Under the BRI auspices, China has the ambitious goal to create the world’s largest platform to promote trade and investment linkages with the rest of the world (Debin and Yahua, 2015; Shahrar, 2019). The BRI is a continuation of China’s global strategy that began with the ‘Reform and Opening Up’ policy in 1978, which focused mainly on bringing in advanced technology and investment to China and continued with the ‘Going Out’

policy in the 1990s, where Chinese companies were encouraged to ‘go out’ to accelerate China’s internationalization process. After transforming China with high-speed rail lines, roads, and electricity grids, China is enabling its firms, mostly State-owned enterprises, to export their expertise in these domains. China’s ‘Going out’ strategy has taken various forms over the years, each of which aims to advance Chinese integration into the global economy (Grieger, 2016).

Africa was not included in the original 2013 ‘Belt and Road Initiative’. Following a decision to expand to Africa, 60 billion USD was pledged in 2015 by China’s government at the Forum on China-Africa Cooperation (FOCAC). In 2017, the Chinese Foreign Minister Wang Yi’s visited Africa, welcoming African countries to participate in China’s BRI (Ministry of Foreign Affairs, 2017). In 2018, China formally included Africa into the BRI concept at the FOCAC Summit, announcing

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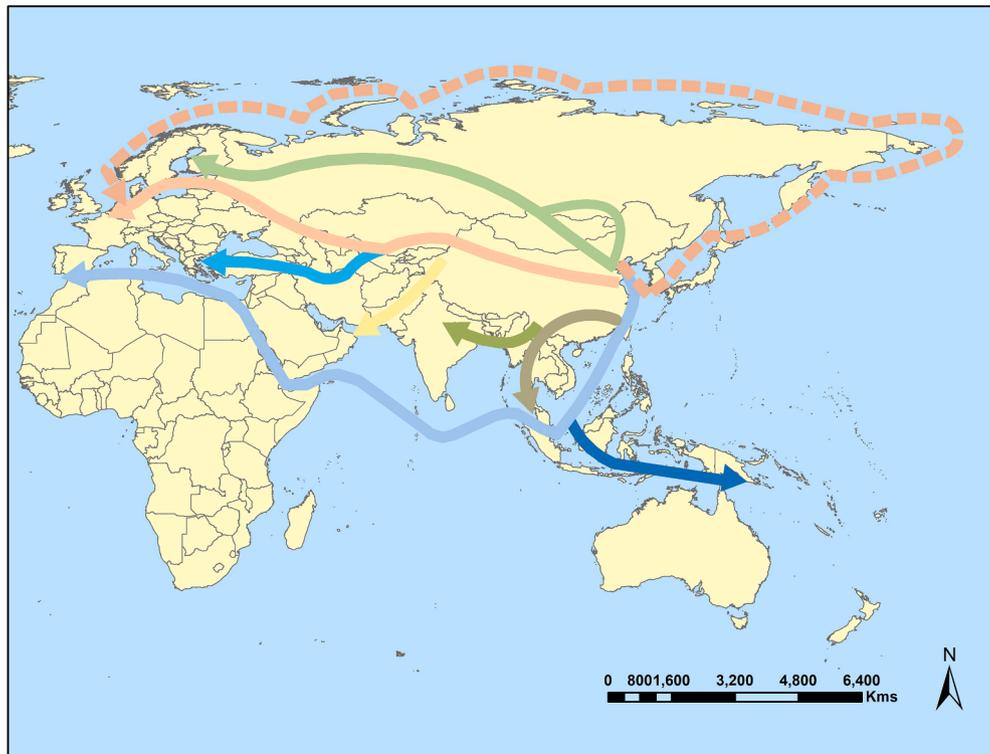
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China's Belt and Road Initiative



The Silk Road Economic Belt

- The Bangladesh-China-India-Myanmar Economic Corridor
- The China-Indochina Peninsula Corridor
- The China-Pakistan Economic Corridor
- The China-Mongolia-Russia Economic Corridor
- The New Eurasian Land Bridge
- The China-Central Asia-Western Asia Corridor

The 21st Century Maritime Silk Road

- The China-Indian Ocean-Europe Economic Corridor
- The China-South Pacific Economic Corridor
- The Ice Silk Road

Source: <https://www.yidaiyilu.gov.cn/>
<http://www.beltandroadforum.org/>

Fig. 1. China's 'Belt and Road Initiative' (The map is drawn by authors).

officially in the Beijing Declaration 'An Even Stronger China-Africa Community with a Shared Future' (FOCAC, 2018). The 'Belt and Road Initiative' will have a far-reaching impact on African countries. Despite the hope that Beijing will contribute more to agricultural and industrial development in BRI partner countries. However, observers of China-Africa relations are concerned that most of China's new financing announced in 2015 and 2018 at the FOCAC meetings will repeat past attempts to use investment to trigger economic take-off. Many observers have advocated rethinking African countries' positions within the 'Belt and Road Initiative' and re-examining the role African decision-makers could play in shaping and influencing investment decisions.

Connectivity and cooperation are the foundation of China's BRI. China's current infrastructure developments in Africa follow China's development pattern, which brought economic prosperity to China over the last 40 years (Brautigam, 2009). China's declared intent to create a 'harmonious Asia' and foster regional economic integration hints at the geopolitical nature of the BRI (Flint and Zhu, 2019). Southeast Asia, a key component of 'harmonious Asia', along the Silk Road Economic Belt, is located at the intersection between Asia and Oceania, and the Indian Ocean. It is in a strategic geographical position, and it is also the first

overseas stop in the construction of the Modern Maritime Silk Road (Feng, 2020). Three entwined goals, economic integration, regional influence, and global geopolitical competition, drive China's ambition for investing in Southeast Asia. The BRI could provide advanced technologies, equipment, and enhanced production capacity to Southeast Asian countries in an integrated regional market (Lim et al., 2021).

Infrastructure construction and renovation is a priority for many SE Asian countries (Lim et al., 2021). Indonesia has the largest economy of Southeast Asia. The Jakarta-Bandung High-Speed Rail (HSR) is a landmark project contributing to President Joko Widodo's electoral pledge to revitalize Indonesia's deteriorating infrastructure. Chinese investment has the potential to improve linkages within the Indonesian archipelago. Ethiopia and Kenya are the largest recipients of infrastructure investment in sub-Saharan Africa (SSA). Ethiopia is also one of the largest recipients of Chinese development finance (Gutman et al., 2015). Both Ethiopia and Kenya respectively built standard gauge railways as flagship projects supported by the BRI. Together, Indonesia, Ethiopia, and Kenya allow for comparisons of BRI implementation (Table 1). Each country is promoted by China as an example of the new approach of China's internationalization strategy. Construction of railways in these

Table 1
Profiles of the three railway projects.

Parameter	Jakarta-Bandung HSR	Addis Ababa-Djibouti SGR	Mombasa-Nairobi SGR
Project value	USD 5.5 billion	USD 4 billion	USD 4 billion
Project description	The first high-speed rail	The first electric railway	The biggest and most expensive infrastructure project
Project status	Under construction (2015 -)	Completed (2012–2017)	Completed (2014–2017)
Financing source	China development bank (75%)	EXIM (approximate 80%)	EXIM (approximate 90%)
Railway extension	Bandung- Surabaya (planning)	Addis Ababa-Ejaji-Kumruk (planning)	Nairobi-Malaba (completed)
Elite perceptions	Welcoming	Welcoming	Welcoming

Source: Authors' interpretation after collation, verification, and triangulation of multiple sources of primary and secondary information.

countries follows a similar financing structure and is led by Chinese State-owned enterprises. However, the three firms have approached their railway projects differently. The outcomes are also varied. The Jakarta-Bandung HSR has made slow progress in the first three years between 2015 and 2018. The Addis Ababa-Djibouti Standard Gauge Railway (SGR) and Mombasa-Nairobi Standard Gauge Railway (SGR) were completed on schedule; however, operational challenges have emerged. Complex social and political contexts have influenced the construction and operations of the railways in each country, raising questions over the long-term outcomes of these and other BRI infrastructure projects. Understanding how diverse domestic and local political settings influence BRI implementation in both the African and Asian contexts will be essential for meeting the entwined goals of integration, influence, and competition.

China-led infrastructure projects are bound to profoundly impact the recipient countries, especially those deemed strategic in the BRI context. Yet comparative research evaluating implementation of the BRI is lacking (Lim et al., 2021). This paper seeks to understand the outcomes of BRI railway construction in Indonesia, Ethiopia, and Kenya. In so doing, it addresses the following questions: 1) Why China-led projects face challenges to deliver their anticipated benefits? 2) How challenges relate to the complex interplay of economic, social, political, and environmental issues? and 3) What implications can we draw from the three projects to better adapt BRI to the realities of other developing countries?

To answer these questions, this paper begins with an overview of the literature on China's 'Belt and Road Initiative' since it was launched in 2013. We then describe our methods for data collection and findings from field investigations at the three railway locations in Indonesia, Ethiopia and Kenya. We analyze the impacts and challenges of the stalled high-speed rail construction in Indonesia and completed standard gauge railways in Ethiopia and Kenya. Examining all three railway

projects, we attempt to determine why China-led construction is confronting challenges at different stages of implementation. This paper concludes with a summary of the main arguments and research findings, providing insights into how countries engaging with China's BRI can mitigate challenges and realize benefits.

Implementing the 'Belt and Road Initiative': debates and controversies

The BRI has become the world's best-known development initiative and immediately attracted close attention from all over the world. It seeks to promote an efficient flow of materials and deep integration of markets to achieve diversified, balanced, mutually beneficial, and sustainable development (Grieger, 2016). A key policy document entitled 'Vision and Actions on Jointly Building the Silk Road Economic Belt and 21st Century Maritime Silk Road' states 'Countries along the Belt and Road have resource advantages and their economies are mutually complementary' (Liu and Dunford, 2016). The BRI architects promote cooperation through policy coordination, facilities connectivity, unimpeded trade, financial integration and people-to-people bond (Fig. 2). The BRI aims to provide a blueprint for integrating developing countries by building infrastructure that seeks to provide a community of shared prosperity for mankind (Xue and Weng, 2019). As such, the BRI aims to improve connectivity using improved technical standards to form an infrastructure network connecting China with the rest of Asia and with Europe, and Africa (National Development and Reform Commission, 2015).

Developing countries have increasingly expressed their willingness for collaboration within the framework of BRI (Flint and Zhu, 2019). According to the newest official report entitled 'The Belt and Road Initiative Progress, Contribution and Prospect', by the end of March 2019, the Chinese government had signed 173 cooperation documents

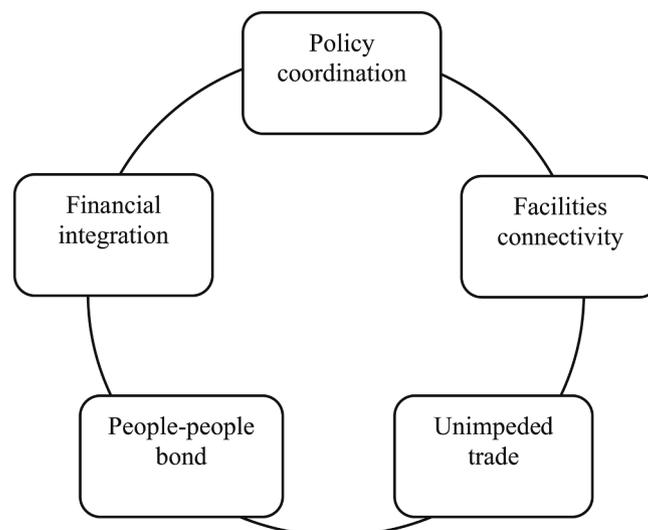


Fig. 2. Five key areas of the 'Belt and Road Initiative'.

with 125 countries and 29 international organizations (Office of the Leading Group for Promoting the Belt and Road Initiative, 2019). Recipient countries that signed agreements see significant benefits in cooperation. The global infrastructure gap is large; 1.2 billion individuals are without electricity, 663 million lack improved drinking water sources, 2.4 billion lack improved sanitation facilities, and 1 billion live more than 2 km from an all-weather road (Rozenberg and Fay, 2019). China's development model of heavy investment in infrastructure combined with financing of manufacturing capacity could help close this gap and drive economic development in countries engaged in the BRI (The Economist, 2018a).

The recent expansion of the BRI from Asia to Europe, Africa, Latin America, and the South Pacific has aroused both widespread interest and concern outside China (Debin and Yahua, 2015). Western politicians and public intellectuals claim that China prioritizes speed over quality and often funds 'white elephant' projects (Dollar, 2018). The goal of infrastructure connectivity has been described as 'China's Marshall Plan' or 'neo-colonialism' (Hans, 2020). Other criticisms include corruption and associated issues, including poor investment decisions, low quality, time and expense overruns, and inadequate attention to maintenance, all of which inhibit delivery of benefits (Wells, 2015). There were also observations that, in recipient countries, infrastructure construction frequently encounters setbacks and challenges during project implementation (ADB, 2012; Penelope, 2017). Traditional bilateral and multilateral donors have given priority to overland (interior-to-interior) transportation networks between countries, while China has chosen to invest in interior-to-coast transportation networks (Bonfatti and Poelhekke, 2017). The improvement in infrastructure will reduce the cost of trade and potentially facilitate the volume of trade between China and the BRI partner countries. But this strategy of investing in interior-to-coast transportation corridors is viewed by some as designed to facilitate China's strategy of securing energy and natural resources need for China's domestic economy. Local businesses are troubled by the competition they encounter with the flood of Chinese goods and Chinese workers arriving in their countries (Vines et al., 2010; Brautigam, 2009).

China's preference for infrastructure construction can be attributed to China's own development experience in building transportation networks that connect inland or isolated areas with coastal regions and ports (Bonfatti and Poelhekke, 2017). In China's case, "Bringing in" (Yin Jinlai) foreign direct investment, technology and skills were core lessons for the rapid development when China opened the door in 1978 (Zeng, 2010). However, in Southeast Asia, the BRI is often seen as a means for China to increase its influence, competing with traditional donors like the United States and Japan. One example is the China-Myanmar railway, part of the Trans-Asian Railway. The China-Myanmar railway construction from Kunming to Kyauk Phyu was proposed in 2011. If completed, the China-Myanmar railway will link China, Southeast Asia, and South Asia, serving as a development corridor for economic integration (Cui, 2015). Three years later in 2014, however, Japan announced grants of 7.8 billion yen (about 472 million Chinese Yuan) to Myanmar to help build the railway and other facilities. In the same year, Myanmar announced the China-Myanmar railway project had been postponed and Chinese investment withdrawn. It was argued that Japanese bidding for the railway played a crucial role in Myanmar's retreat from Chinese investment, and geopolitical competition was thought to be the primary reason for Japan bidding for the project (Allendorf et al., 2018). A traditional donor like Japan used to be more influential in Southeast Asia than China. When China won the railway construction bid in Myanmar, China's influence, both soft power and hard, was seen as surpassing Japan's. The China-Myanmar railway project suggests a turning point in geopolitical relationships in Southeast Asia, transforming the economic and political landscape (Cui, 2015).

Geopolitical motivation is not unique in driving competition in infrastructure projects. Internal regime changes in BRI recipient countries and political instability play a significant role in the way countries respond to China's BRI (Debin and Yahua, 2015; Dollar, 2018).

Malaysia's East Coast Rail Link (ECRL) was endorsed by former Prime Minister Najib Razak (2009 to May 2018) during his weeklong visit to Beijing in 2016. This was the largest railway investment in Southeast Asia at the time but concerns were raised about the high costs, opaque bidding process, and environmental impacts (Lim et al., 2021). The general election in 2018 led to regime change in Malaysia, and the incumbent Prime Minister Mahathir Mohamad announced that ECRL would be "deferred until such time as we can afford it" (Oh, 2018). The Malaysian government ultimately announced that it had successfully renegotiated the terms of the project and had obtained lower costs and a joint venture arrangement for operation and maintenance.

The environmental costs of the BRI have also been an issue of concern (Hughes, 2019). The BRI has been criticized for causing severe and irreversible impacts on the environment and jeopardizing progress towards long-term sustainable development (Li et al., 2015). These concerns stem from broader challenges of reconciling economic development aspirations with environmental sustainability goals in the expansion and upgrading of transportation infrastructure in environmentally sensitive areas (Alamgir et al., 2017; Laurance et al., 2015; Riggs et al., 2020). For example, when built through areas of high environmental significance, transport infrastructure may result in habitat loss, the over-exploitation of resources, and the degradation of surrounding landscapes (Ascensão et al., 2018; Edwards et al., 2014).

Local and global concerns over negative social impacts of infrastructure construction have contributed, to some extent, to stalled railway projects. One of the more benign criticisms comes from the great bulk of non-Chinese commentary, which claims that China's economic BRI policy will generate material gains for China disproportionate to gains made in recipient countries (Alamgir et al., 2017). A more insidious critique is that instead of ensuring good governance for socially and economically inclusive development, the BRI will take a market approach that will lead to exclusion and will impact negatively on the rights, agency, and opportunities of local people (Debin and Yahua, 2015; Shahriar, 2019). Vietnam has been cautious about entering into agreements with China, taking over two years to negotiate and sign a Memorandum of Understanding supporting BRI (Dollar, 2018). Vietnam has been hesitant to accept large numbers of Chinese workers or take on large amounts of debt. Other countries, such as Cambodia and Laos, have less ability to negotiate (Pheakdey, 2012). In some BRI recipient countries, civil society has shown concern over China's perceived domination of commercial activities at the expense of local businesses. Civil society in many developing countries is organized and actively engaged in representing local people's rights, leading to severe conflicts over negative environmental impacts, labor conflicts, and corruption (Lechner et al., 2018; Nuramo and Haupt, 2017).

Methods

Impacts of BRI will evolve over time. Recognizing this, we took a case study approach to exploring the challenges and implications for China-built railway projects in Indonesia, Ethiopia, and Kenya. By selecting three case studies of railway construction in three diverse BRI recipient countries, we sought to understand and compare how local social, economic, and political contexts influence BRI implementation at different stages of railway construction and operation.

Our findings are the result of an extensive literature review and fieldwork focusing on railway construction and challenges encountered throughout the construction process. The literature review included journal publications, government policy documents and media sources. Fieldwork took place from June to July 2017 in Indonesia and August to September 2018 in Ethiopia and Kenya. In each country, we visited the areas where railway construction was taking place; the Jakarta-Bandung HSR, the Addis Ababa-Djibouti SGR, and the Mombasa-Nairobi SGR. We built a comprehensive profile of each study area and replicated our methods in each site. We convened focus groups and conducted 105 semi-structured interviews in the three countries. We consulted

representatives of think tanks, research institutions, and universities within the three countries. Our study actors comprised Chinese site managers, employees, both Chinese and recipient country workers of the project construction companies, and governmental representatives of both China and recipient countries. We mapped the routes of the railways in each country. Upon completion of fieldwork, we analyzed the drivers and motivations behind railway construction by Chinese State-owned enterprises. We identified challenges to the stalled Jakarta-Bandung HSR in Indonesia and to the operation of the Addis Ababa-Djibouti SGR and Mombasa-Nairobi SGR after construction was completed. Results of each case study are summarized below, followed by a discussion of challenges and implications.

China’s BRI in Indonesia, Ethiopia, and Kenya

Case 1 China’s BRI in Indonesia

The economic relationship between Indonesia and China has existed for centuries. In 2013, the 21st Century Maritime Silk Road, a part of China’s BRI, was launched during President Xi Jinping’s visit in Indonesia. Indonesia is the world’s largest archipelago and is the world’s fourth most populous country, it is home to a wide range of ethnic groups and cultures. As the largest economy in ASEAN (Association of Southeast Asian Nations), Indonesia is of great geopolitical significance for China’s 21st Century Maritime Silk Road. Indonesia is located at the crossroads of Southeast Asia. China is Indonesia’s largest export and import market and the way that the BRI is rolled out in Indonesia is expected to have an influential role in the implementation of the BRI throughout Asia. Thus, Indonesia is a representative country for analyzing the implementation of China’s BRI in Asia.

In 2014, Indonesian President Joko Widodo-Jokowi made

infrastructure a key priority of his administration (*The Economist, 2017a*). Indonesia’s participation in the BRI is seen by Jokowi as crucial to Indonesia’s national interests. Jokowi’s election manifesto committed to transforming Indonesia into a ‘global maritime axis’ (*The Economist, 2018c*). China’s infrastructure investments in Indonesia have been controversial among Indonesian government officials and civil society. One of the most contentious issues is the Jakarta-Bandung HSR (*The Economist, 2017a*) (*Fig. 3*). In 2015, Indonesia accepted a Chinese bid rather than a Japanese bid for a 142 km long rail connecting Jakarta and Bandung (*Japan International Consultants for Transportation, 2012*). The railway is Indonesia’s and Southeast Asia’s first high-speed rail project. In 2017, when Jokowi attended the BRI Summit in Beijing, a joint venture between a consortium of four Indonesian State-owned companies and the China Development Bank was signed, giving a loan commitment amounting of 75 percent of the \$6 billion total project cost (*Shao et al., 2018; Shang-Su and Chong, 2018*). The loan will mature in 40 years and includes a 10-year grace period.

The Jakarta-Bandung HSR is a flagship project for Indonesia and Jokowi’s ambition to upgrade Indonesia’s infrastructure (*Siwage and Suryadinata, 2018*). As a high-speed railway constructed overseas, it symbolizes how ‘high-speed rail diplomacy’ has become a prominent feature of China’s assertive expansion into the overseas infrastructure sector (*Shang-Su and Chong, 2018*). Indonesia’s preference for Chinese investment is likely because Japanese investment and aid programs tend to come with strict conditionality, for instance, Japan requested the Indonesian government to provide a sovereign guarantee and completion date of the Jakarta-Bandung HSR. In contrast, the construction cost provided by China is relatively lower and offers guarantee-free loans (*Lim et al., 2021*).

Problems have plagued the high-profile project since its inception. The progress of the Jakarta-Bandung HSR has stalled due to contested



Fig. 3. Jakarta-Bandung High-Speed Rail.

and lengthy land clearance disputes, including questionable benefits, lack of proper environmental impact studies, and lack of consistency with regional spatial plans.¹ As a result, the Jakarta-Bandung HSR endured close to two-and-a-half-years of delay before construction could begin (Salim and Negara, 2018). PT Kereta Cepat Indonesia China (KCIC), the project developer, claimed, as of September 2017, only around 55 percent of the total 600-hectares of land needed for the 142-kilometer railway project has been obtained (Athukorala and Narayanan, 2017). But this situation changed after 2019. After a long period of negotiation, around 95% of the land has now been acquired. The railway has been under rapid construction and by the end of 2020, the construction of the tunnels (No. 5, No. 3, No. 7, and No.1) provided a solid foundation for future development of the railway.²

Challenges and implications

The implementation of the Jakarta-Bandung HSR in Indonesia has been delayed by political and social challenges. Land acquisition has been a significant constraint. Previous studies highlighted land as a significant issue for Indonesia's infrastructure development, reflecting broader land tenure and agrarian reform challenges throughout Indonesia (Gold et al., 2015; Sahide et al., 2015). The Chinese central authorities are able to allocate land for projects, whereas in Indonesia, the developer must negotiate directly with landowners. Negotiations can be lengthy and challenging due to the lack of land registration and frequent overlapping ownership claims. As Chinese firms are unfamiliar with this process, there is potential for misunderstanding between Chinese and Indonesian stakeholders. For instance, Chinese enterprises attempted to invite President Jokowi to visit the construction site, to encourage local people to negotiate for land acquisition, but relying on political leaders' authority did not work in Indonesia.³ The landowners either refused to sell their land or demanded a very high price. Chinese firms wished to expedite the process, but the Indonesian government was unable to resolve all land issues. This led to project cost escalation and construction delays.⁴ Apart from the land acquisition, the use of Chinese labor also caused controversy for both the Chinese and Indonesian governments. Indonesia has a population of 270 million, the largest among ASEAN countries, more than half of the population is below 30 years of age. Although the unemployment rate in Indonesia has continued to fall from 10.3 percent in 2006 to 5.6 percent in 2016, the current rate of unemployment among youth is still high compared to other countries in the ASEAN region (Indonesia Jobs Outlook, 2017). Many young Indonesians are moving to West Java and actively seeking work and this has caused frustration when the Indonesians find themselves competing for jobs with Chinese immigrants.

In 2015, to attract more foreign capital to Indonesia, the 'Minister of Labor Ordinance No. 16 of 2015' eliminated restrictions that foreign workers have to participate in the Bahasa Indonesia language training program. In addition, for tourism development, the Indonesian government announced a short-term visa-free policy to 30 countries, including China. These two policies led directly to many foreign laborers entering Indonesia for employment. The arrival of Chinese enterprises is subject to two opposing discourses. One discourse holds that foreign-investments would alleviate poverty and improve livelihoods by providing jobs. The alternative is that the need to speed up the implementation of projects increased the presence of Chinese laborers, displacing jobs of Indonesians. Tensions occurred between the Chinese

laborers and local Indonesians seeking jobs.⁵

The implementation of the BRI in Indonesia has raised environmental concerns among academics, think tanks, and government officials in Indonesia. Environmental Impact Assessments (EIAs) are intended to identify the risks and potential liabilities of infrastructure projects and minimize such dangers with suitable mitigation and offset measures. However, EIAs often lack consistency across local or national political boundaries, limiting their utility and comparability.⁶ In our interviews, the former Minister of National Development Planning in Indonesia stated: "China is experiencing severe environmental pollution domestically, and Indonesia already has severe ecological problems. China should develop the BRI within the framework of strategic social and ecological assessments with high environmental standards the same as at home".⁷ In Indonesia, the government environmental impact management system for development projects, Analisis Mengenai Dampak Lingkungan (AMDAL), regulates conditions for facilities and activities and sets rules for procedures and compliance. Interview respondents generally believed that proper environmental impact studies were absent for the BRI project. This raised concerns that environmental concerns were not receiving adequate attention.

Progress has been made in construction of the railway in 2019. The year 2020 was regarded as a milestone for this project when construction advanced quickly. A Chinese journalist responsible for tracking the project's progress argued that although almost 95% of the land has been acquired for rail construction. The remaining 5% of land acquisition will remain a significant obstacle. Current progress doesn't ensure that the project will be completed as expected. It is still not certain when the railway will be completed and put into operation.⁸ The complicated and prolonged land acquisition process will always be the primary constraint. The decentralization of Indonesia's state structures following the 1997 financial crisis has complicated the efforts of land acquisition (Lim et al., 2021). Internal political differences and factional rivalry within the Indonesian government have exacerbated tensions and conflicts over social and environmental issues.

Case 2 China's BRI in Ethiopia

The commercial relationship between China and Ethiopia is not new. Bilateral trade between the two nations began in 1956, during the era of Chairman Mao's 'third world solidarity' (Alemayehu and Gebremeskel, 2009). Ties have grown much stronger in recent decades as Ethiopia seeks to replicate the accelerated economic development experienced by China and replicate China's development path in Ethiopia (Nicolas, 2017). Ethiopia has maintained over 7% GDP growth for 13 consecutive years since 2004, making it one of the world's fastest-growing countries (Nicolas, 2017). Chinese investment in Ethiopia has been growing rapidly since the turn of the century.

In 2011, China's Export-Import Bank (EXIM Bank) and the Chinese Civil Engineering and Construction Corporation (CCECC) signed an approximate US \$3.8 billion contract for the construction of the Addis Ababa-Djibouti Railway (Fig. 4). The main engineering tasks were completed in 2017, and the railway was opened late that year. The approximate 752 km railway connects the capital of Ethiopia and Djibouti, with 662 km of the track laid in Ethiopia and 90 km in Djibouti. In 2016, the State-owned China Railway Group Ltd. (CREC) and CCECC signed a six-year operation and maintenance contract plus a two-year technical service contract to bring China's railway operation and

¹ Interviewed the Country manager of China Railway Group Limited.

² Interviewed the Chinese journalist at Xinhua news agency based in Jakarta who is responsible for reporting Jakarta-Bandung HSR. The source of information was also reported by Chinese media.

³ Interviewed the Country manager of China Railway Group Limited.

⁴ Interviewed the Indonesian manager of China Railway Group Limited.

⁵ Interviewed the manager of China Bridge and Road Group Limited.

⁶ Interviewed the scholar at the Center for Strategic and International Studies in Indonesia.

⁷ Interviewed the former Minister of National Development Planning in Indonesia.

⁸ Interviewed the Chinese journalist who is responsible for reporting Jakarta-Bandung rail.



Fig. 4. Addis Ababa-Djibouti Standard Gauge Railway.

maintenance experience to Ethiopia. The deal enabled China's railway construction and operation capacity to advance the 'Going out' policy beyond simply 'made by China' to 'operated by China' (Cheru, 2016; Liu et al., 2018). The Growth and Transformation Plan II (GTP II 2015–2019) seeks to transform Ethiopia into an industrialized economy and create a manufacturing hub in Africa. In 2016, Ethiopia's GDP surpassed that of Kenya and it became the largest economy in East Africa. A surge of investment from foreign companies into Ethiopia followed the railway network's opening, which has fueled further development of the country's transport infrastructure (Flint and Zhu, 2019).

Challenges and implications

The Addis Ababa-Djibouti railway is the first multinational electrified railway built and operated by China in Africa (Fowler, 2019). This route is a major artery connecting Ethiopia's economy to the outside world, since Eritrean independence interrupted the only access to the sea from Addis Ababa in 1993. The new railway line connecting Addis Ababa to Djibouti will be a large step forward in Ethiopia's attempts to become an attractive destination for foreign investment (Cheru, 2016; Shang-Su and Chong, 2018). The Addis Ababa-Djibouti railway is a product of strong political and economic relations between China and Ethiopia. Strong political ties helped to facilitate economic cooperation and the ease of Chinese operations within Ethiopia. The low initial bidding price and construction cost offered by Chinese firms and the concessional loan provided by China to the Ethiopian government have led to growing development partnerships. Chinese technological advantages over Ethiopian counterparts are also crucial for driving Chinese investment in Ethiopia. Ethiopian personnel had limited negotiation,

technical and managerial skills and little experience in dealing with foreign firms. The result has been that Chinese personnel have played a large role in negotiating and managing Chinese investments. The high level of Chinese control contributed to the successful completion of the Addis Ababa-Djibouti railway on schedule.

Although the railway was completed on schedule, the operation of the railway faces several challenges. Power shortage has become a normal situation and difficulty in the maintenance of railway facilities and equipment have hindered the railway's efficiency. According to the technical services contract, the operation of vehicles, maintenance facilities, and equipment for the railway will need to be financed by the Ethiopia Djibouti Railway Company (EDR), the owner of the railway. Due to a lack of foreign exchange, the locomotive and rolling stock cannot be purchased and repaired by EDR. Thus, Chinese enterprises have to pay for spare parts in advance. Second, because there are insufficient passengers and freight, transportation capacity is not fully utilized. Last, capital financing has restricted the operation and maintenance of the railway. The total investment in railway construction is an approximate US \$4 billion, approximate 80% of which is provided by the Export-Import Bank of China with commercial loans. Due to a lack of foreign exchange, the Ethiopian government has failed to make the loan payments to China in time. It remains unclear whether the Ethiopian government is able and willing to service these loans.

Ethnic conflicts have become significant obstacles for operation of the railway. There are about 80 ethnic groups in Ethiopia. The main ethnic groups are Oromo (40%) and Amhara (30%), who are competing for influence. Political turbulence has led to the railway becoming the "impact object" and "scapegoat" for ethnic rivalry (Cheru, 2016; Alemayehu and Gebremeskel, 2009). The political system in Ethiopia has also exacerbated these problems. Ethiopia has a federal system of government and each state has its regional interests, the railway complicates these regional tensions. With complex relations, great contradictions, and deep historical grievances, the Addis Ababa-Djibouti railway has become the 'targeted object' of ethnic conflict.

Political stability will be a prime determinant of economic development in Ethiopia. The divisions in political power, distribution of profits among the different ethnic groups are all the root causes of the 'dilemma' of the Addis Ababa-Djibouti railway. The railway was a major project supported by the government of Prime Minister Meles, but the subsequent change of government influenced perceptions of the railway. After more than 20 years of a Tigre dominated political regime power has now shifted to the Prime Minister of Abiy Ahmed Ali, from the Oromo ethnic group. After Abiy came to power in 2018, he proposed changing the longstanding policy of investing in mega-infrastructure construction for economic growth. To prepare for the 2020 election, Abiy wished to sacrifice the Addis Ababa-Djibouti railway to cater to the people living along the rail line. The Chinese State-owned enterprise, the CCECC, the Addis Ababa-Djibouti railway has been promoted as a flagship project. Success of the railway was important for the image of China in the region and flagship projects, like the Addis Ababa-Djibouti railway, became politicized and were used as 'bargaining chips' amongst the internal elites in Ethiopia.⁹

Case 3 China's BRI in Kenya

The Sino-Kenya relationship, first established in 1964, centered initially on promoting trade (Onjala, 2008). Since the Forum on China-Africa Cooperation (FOCAC) was launched in 2000, infrastructure has become the largest proportion of Chinese financial flows to Kenya (Wissenbach and Wang, 2017). In 2014, Chinese Premier Li Keqiang and

⁹ Bargaining power: By offering alternatives to recipient countries, emerging donors are introducing competitive pressure to the existing aid system, thus weakening the bargaining position of traditional donors in respect of their aid recipient countries and enhancing recipients' bargaining power (Qian, 2017).

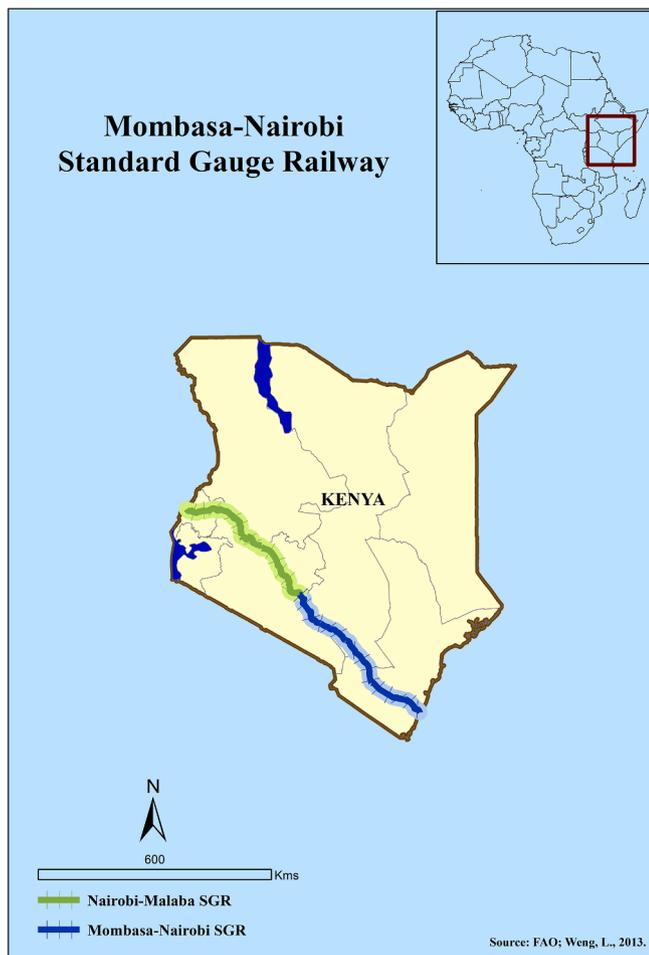


Fig. 5. Mombasa-Nairobi Standard Gauge Railway.

the leader of Kenya signed an agreement in Nairobi to fund the construction of a new East African railway, which is eventually planned to connect the six East African countries (Wissenbach and Wang, 2017). The proposed Mombasa-Nairobi Standard Gauge Railway (SGR) was to be the first rail line in this system (Fig. 5). The contractor, China Road and Bridge Engineering Co., Ltd., a subsidiary of China Communications Construction Co., Ltd. (CCCC), declared that ‘Chinese Standards, Chinese Technology, Chinese Equipment and Chinese Operation’ were to be the used for the railway (The Economist, 2017b). In 2014, the Kenya government reached a financial agreement with China for a total investment of 3.8 billion US dollars, approximate 90% of which was provided by China EXIM Bank and 10% from Kenyan financial resources. Although the construction was originally planned to be completed in five years, trial operations began in 2017, and the railway entered commercial operation in 2018. For the first five years, CCCC will manage the railway’s operations while training local engineers and staff (The Economist, 2018b).

Kenya has become a key focus of China’s international trade and economic strategy as China views Kenya as a gateway to East Africa (Wissenbach and Wang, 2017). Completing the Mombasa-Nairobi SGR was a clear sign of Chinese commitment to strengthen infrastructure connectivity with Kenya. According to the East African railway master plan, the Mombasa-Nairobi SGR construction will continue to extend northward, connecting Naivasha to Malaba where Kenya’s railways connect with those of Uganda, South Sudan, and Rwanda (Government of the Republic of Kenya, 2007). In 2016, the first phase of the Nairobi-Malaba Standard Gauge Railway (SGR) project officially started. With a total length of 487.5 km, the Nairobi-Malaba SGR is the extension from the Mombasa-Nairobi SGR (Fig. 5). When interviewed, the project

manager from CCCC stated that China would finance \$3.6 billion to extend the line by 250 km (155 miles) between Naivasha in central Kenya and Kisumu. CCCC will implement the whole line in three phases, integrating design, construction, procurement, operation, and maintenance, with the adoption of Chinese engineering standards. Thus, according to the Kenya Vision 2030, this project will rapidly advance East Africa’s economic integration process and drive regional economic development (Government of the Republic of Kenya, 2007).

Challenges and implications

As China regards Kenya as the gateway to East Africa, Kenya has become the focus of China’s economic and trade strategy (Wissenbach and Wang, 2017). Completing the Mombasa-Nairobi SGR is a clear sign of China’s commitment to develop closer ties and economic cooperation with Kenya. China and Kenya collaboration will not be limited to the ‘contractor’ and ‘builder’ of simple infrastructure projects. China sees infrastructure construction as an opportunity to expand investment and even build industrial parks, manufacturing, real estate, logistics, ports, and other forms of infrastructure. As China expanded into global markets in the 1980s, economic cooperation and technological exchange increased between them. When President Uhuru Kenyatta secured funds from China to build the East African railway, the political and economic frameworks were already in place. However, rapid construction raised a series of problems (Wanjiru et al., 2013).

The completion of the railway is a double-edged sword for Kenya. The railway improved public transportation and shortened the travel time between Nairobi and Mombasa. However, the railway exacerbates the current debt crisis for the government of Kenya (Hurley et al., 2018). In Kenya, external debt accounted for 57 percent of the total debt by 2019. China’s debt from Kenya reached KSh 661,058.54 million in 2019 from just KSh 252,039.33 million in 2015 and KSh 36661.87 million in 2012 (Kenya National Bureau of Statistics Economic Survey, 2020). At the end of June 2020, China accounted for 21% of Kenya’s external bilateral and multilateral debt (The National Treasury of Kenya, 2020). The Mombasa-Nairobi SGR has been criticized for its cost and the burden it places on the country’s public finances; approximate 80 percent of it was funded through mixed concessional and commercial loans from China, which already holds over half of Kenya’s external foreign debt (Hurley et al., 2018). Thus, the Mombasa-Nairobi SGR has been described by western media as a ‘China debt trap’.¹⁰

The real situation is far more complicated. In 2020, the railway constructor CRBC, Kenyan Railways Corporation, was sued by Kenyan activist Okia Omtata and the Kenya Law Association, calling for the suspension of construction because the China Road and Bridge Corporation (CRBC) won the project without open competition. Kenya’s court ruled that the Mombasa-Nairobi railway’s procurement procedure violated Article 227 of Kenya’s Constitution because the procedure did not require public bidding, with fairness, justice, transparency, competitiveness, and cost-effectiveness. The court also ruled that the contract violated Kenya’s 2005 ‘Public Procurement and Disposal’ rules, designed to ensure that public companies bid for public tenders (Seetao, 2020). The CRBC didn’t respond to this suit ultimately, claiming that both governments negotiated the agreement to the railway construction, and they strictly followed Kenya’s legislation. The Export-Import Bank of China which provided the loan requires that a Chinese contractor must be appointed to build and operate the rail line, which meant that the line could not be openly tendered. Signing the MoU between governments, conducting a feasibility study commissioned by a construction company, and then seeking financing support from China’s policy banks such as EXIM bank has been a model applied to most Chinese

¹⁰ ‘China debt trap’ refers to China deliberately seeking to entrap countries in a web of debt to secure some kind of strategic advantage or an asset of some kind (Brautigam, 2020).

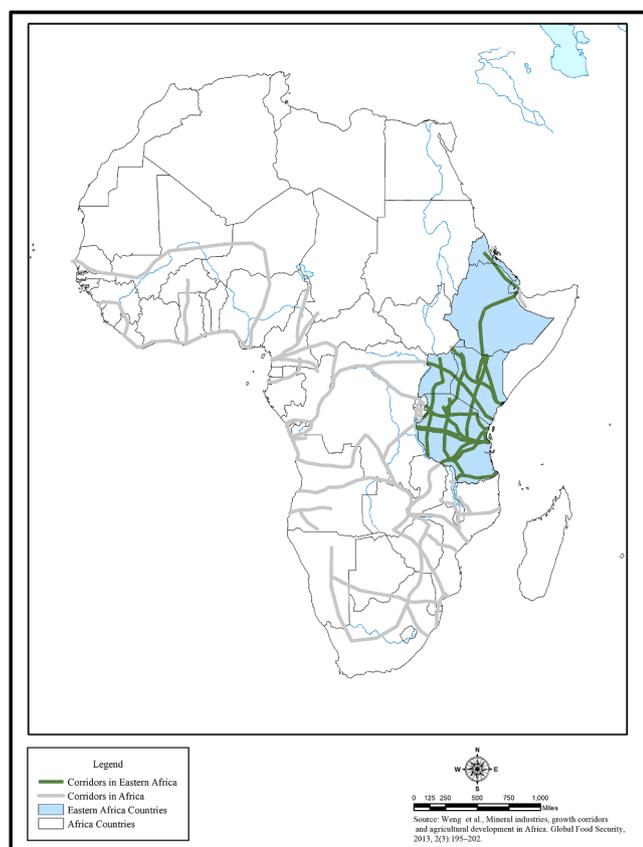


Fig. 6. Railway corridors crosses through Eastern Africa.

overseas construction projects, particularly for State-owned enterprises (Brautigam, 2009). Approaches to financing overseas infrastructure under the BRI has been debated among Chinese government departments.¹¹

Issues relating to Environmental Impact Assessments (EIAs) were also raised in the 2020 lawsuit. 8% of Kenya's land area is designated as national parks or wildlife reserves. The most controversial dispute of environmental concern is that over 100 km of the rail line traverses the Nairobi National Park. This provoked protests in Nairobi and an appeal to the National Environmental Tribunal in 2016. The need to balance infrastructure needs and environmental protection to ensure green and sustainable construction remains a challenge in Kenya. As a senior environment specialist at UNDP based in Nairobi argued, "China's BRI is still new to Africa; it is early to conclude whether there are more negatives than positives, but certainly, environmental impacts need to be addressed before infrastructure construction."¹²

Rapid construction also resulted in subsequent challenges, largely due to social-political issues. The railway has struggled since its operation, creating uncertainties for building the extension line, a component of the Eastern railway plan that links Eastern African countries (Fig. 6). With infrastructure as a national development priority, political commitment laid the foundation for signing the construction contract until the railway was completed. The presidential election was held in 2017, at the same time that the Mombasa-Nairobi SGR came into operation. Expediting completion of the railway before the 2017

¹¹ Open speech by the Director of China national development and reform committee at Kunshan Duke University, 2018.

¹² Interviewed a senior environment specialist at UNEP, Nairobi, Kenya in 2018.

election may have helped Uhuru Kenyatta to win a second presidential term.¹³ However, ethnic loyalties have always been central to the shift of political power in Kenya. Competition for limited resources often becomes the cause of ethnic conflicts, and obtaining access to resources by winning the election often intensifies the scale of the conflict. In addition, allegations of corruption and widespread bribery, have been identified as the most significant obstacles among Chinese enterprises in Kenya.

Why are railway projects built in developing countries challenging for Chinese contractors?

Potential benefits delivered through Chinese infrastructure investments are significant. The rulers of African countries welcome the fact that China is willing and able to finance roads, bridges, railways, and ports when Western donors and lenders are not (Dollar, 2018). Through a long term partnership between China and Africa, China has applied its own experience of infrastructure-led development in Africa. China appears willing to take much higher risks in lending to African countries and waive debts when difficulties arise. One recent example was the announcement by Chinese President Xi Jinping in June 2020 that China would cancel the debts of some African countries including Ethiopia by the end of 2020 (MOFCOM, 2020). In addition, studies have revealed that China has been more efficient than traditional donors and lenders in implementing transportation infrastructure projects. One quote is that "if a traditional donor wants to build a road in 2012, the process needed to start in 2007. If the Chinese are going to build the same road, they need to start in 2011, and it will be finished in 2012" (Swedlund and Lierl, 2019). The former Finance Minister of Nigeria, Ngozi Okonjo-Iweala, who is the Director-General of WTO, said, "if you want to help Africa, create jobs in Africa for youngsters, build infrastructure for Africans. Health and education cannot be sustainable without infrastructure. That is why China is becoming popular in Africa" (TED, 2007).

However, studies have also demonstrated that Chinese-funded infrastructure projects produce several negative externalities, including local corruption, environmental degradation, lower levels of trade union participation, and labor employment conflict (Brazys et al., 2017; Isaksson and Kotsadam, 2018). There are also claims that Chinese financing may impose unsustainable financial burdens on recipient governments and their taxpayers (Hurley et al., 2018).

In general, political trust has shaped how recipient countries, particularly their rulers, perceive China's BRI as providing support for their political ambitions. However, the extent to which governments have promoted BRI projects' is significantly linked to national interests, development priorities, and economic dependence on China. Comparing the three railway projects, we found that although the rulers in the three countries generally welcomed China's BRI, the complex interplay of each of these social, political, and environmental aspects influenced the benefits of BRI.

Indonesia's embrace of China's BRI is rooted in its longstanding efforts to address its infrastructure and financial deficit. Political willingness is the pivotal driving force for building consensus for implementing China's BRI in Indonesia. China has committed significant financial resources to building several transportation projects aiming at improving interregional connectivity in Indonesia (Arase, 2018). The prolonged negotiations over the Jakarta-Bandung High-Speed Rail revealed Indonesia's cautious approach to project financing. Historical and geopolitical disputes have caused Indonesians to be very careful about Chinese enterprises in Indonesia. There is a longstanding tension between the Chinese business community that dominates the economy and indigenous Indonesians (Lim et al., 2021). Perceptions of China's projects do not always match their eventual delivery. Indonesia's

¹³ Interviewed the area manager in charge of Mombasa-Nairobi SGR.

decentralized power structures lead to delays and uncertainties in negotiations. Political parties are prone to take conflicting positions on Chinese initiatives. Although ruling parties often recognized the value of large infrastructure projects, subnational officials may not share their views. Indonesian provincial administrations enjoy more autonomy and may find ways to hinder project implementation. Indonesia's decentralized structure has increased coordination costs and led to bureaucratic competition. The Jokowi administration has not fully succeeded in integrating policy direction from different line ministries and this has led to project delays.

Railway construction in Ethiopia and Kenya has been completed within the expected construction schedule. The successful construction of the two railways in Ethiopia and Kenya is claimed as an example of 'China speed' (Onjala, 2008). Both Ethiopia and Kenya experienced sustained and robust growth over the last decade, with infrastructure development as one of the main economic growth drivers. Infrastructure was prioritized in national development plans. The political ties between China and Africa's governments laid the foundation for the completion of the railways. In Southeast Asia, the geopolitical situation is different. Intra-African geopolitical competition will hinder China's influence in Africa where extremely high costs and risks have discouraged investment in multi-national projects from many traditional donors.

Industrialization policies catalyzed the completion of both the Ethiopia and Kenya railways. In Ethiopia, nineteen industrial parks have been planned along the Addis Ababa-Djibouti rail line. Some are already in operation and others are under construction. These parks are consistent with government's ambitious scheme for clustered industrial development. Part of this process involves Chinese support for developing corridors of 'infrastructure-facilitated industrialization,' an initiative that, if successful, may become a model for implementing the BRI in other developing countries.¹⁴ The same strategy has been formulated in the "Kenya Vision 2030" which aims to make Kenya into a newly industrialized, middle income, and internationally competitive country by 2030. The railway and the industrial parks will be jointly constructed and the zones along the railway will be promoted to form a benign development pattern of 'one corridor and three circles', including the East African Economic Corridor, Mombasa economic zone, Naivasha Industrial Park, and the Kisumu Special Economic Zone."¹⁵

Challenges of project management and operation faced by Chinese firms exist in all three railroad projects, and these reflect the common challenges faced throughout the implementation of BRI in recipient countries. Chinese enterprises found local management to be one of the most significant obstacles, mainly due to different management styles and cultures.¹⁶ Lack of capacity building, technology transfer, and engagement of more local enterprises in railway operation also resulted in setbacks. From the Chinese perspective, these difficulties could be attributed to lack of overseas business management experiences, lack of familiarity with recipient countries' laws and legislation, and the lack of sustainable financing model.¹⁷ Ways to tackle such constraints have been placed on the government agenda. In 2018, partnering with the UK, a set of principles on green investments for "the Belt and Road Initiative" (BRI) was announced by the Green Finance Committee (GFC) of the China Society for finance and banking in London. There are seven principles at three different levels: strategy, operations, and innovation. The principles call for top-down implementation of the incorporated strategy, communication among stakeholders, and utilization of green financial instruments and green supply chain practices, as well as knowledge sharing and capacity building. Among the seven principles,

understanding environmental, social and governance risks, embedding sustainability into corporate governance, and utilizing green financial instruments are the three key pillars (GIP, 2018). However, implementing these principles throughout project construction will require appropriate assessment frameworks, consistent with the goals set by the international agreements such as Paris climate change agreement and UN Sustainable Development Goals. Top-down strategies will need to be considered in the context of local social-economic-environment conditions, adapted to local systems, stakeholders, and their aspirations.

Conclusion

'The Belt and Road Initiative' emerged globally as a massive infrastructure-led economic integration plan. This study investigated railway projects in Indonesia, Ethiopia and Kenya, analyzing the motivations and challenges of the three railway projects built by China's State-owned Enterprises. Despite some progress, each railway demonstrates important lessons for construction projects at different stages under the implementation of BRI. For Ethiopia and Kenya, China's effort to develop East Africa's (and the continent's) infrastructures and catalyze more overseas investments are clear. The new approach to infrastructure construction aligns with Africa's and China's development interests. Railways in Ethiopia and Kenya are now operating; however, uncertainties remain for sustainability in terms of the railway maintenance and feasibility of functioning of the Eastern African railway network. Political and environmental issues shed light on the challenges African countries might confront in the future. In Indonesia, the Jakarta-Bandung HSR is still under construction. Negotiation on how to complete construction will be a challenge for both the Chinese and Indonesian governments.

The BRI is a continuation and exportation of the development practices that China has experienced since the early 1980s. Thus, China targets investment and loans through high-level discussions that focus on infrastructure, enabling China to draw on its recent development history. The study indicates that China's development experiences cannot simply be transferred overseas. Environmental concerns, displacement of local populations, and ethnic tensions are some of the issues that have hindered the BRI in Indonesia, Kenya, and Ethiopia – these are challenges that Chinese firms had not directly encountered before expanding overseas. Effective implementation of the BRI will require a stronger emphasis on the interactions between Chinese involvement and improved relations with local people living in recipient countries and other important stakeholders will be necessary to deliver sustainable and inclusive benefits.

To successfully implement BRI globally, all actors involved need to strengthen their awareness of the specific social, political, cultural, economic, environmental and demographic contexts of the proposed projects (Wissenbach and Wang, 2017). Each intervention needs to be carefully tailored to the recipient country. Gaining support from national labor unions and key national actors will be essential to create acceptance among local communities and the people who are directly affected by the BRI. More effective implementation of BRI infrastructure projects in the future will require better understanding of local governance systems, specifically through working in harmony with the institutional and political arrangements in partner countries.

CRedit authorship contribution statement

Lingfei Weng: Conceptualization, Writing – original draft. **Lan Xue:** Supervision, Conceptualization. **Jeffrey Sayer:** Supervision, Conceptualization. **Rebecca Anne Riggs:** Writing – review & editing. **James Douglas Langston:** Writing – review & editing. **Agni Klintuni Boedihartono:** Editing.

¹⁴ Interviewed the director of Eastern Industrial Park in Ethiopia.

¹⁵ Interviewed the manager in charge of Mombasa-Nairobi SGR.

¹⁶ Interviewed the operation manager in charge of Mombasa-Nairobi SGR.

¹⁷ Interviewed the Chinese engineer who takes in charge of the design and construction of Mombasa-Nairobi SGR.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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