**Recentering Infrastructural Unsustainability in East Africa: A Case Study of Sino-Africa Relation**

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### Abstract

This article assesses the role of strategic partnerships, i.e., Sino-African partnership, within the context of infrastructural development in East Africa. Emphasizing the themes of *sustainability and stakeholder (****negotiator****) engagement*, this paper utilizes a case study methodology to examine three major externally funded infrastructure projects: the Nairobi expressway (Kenya), Isimba Hydroelectric Power Station (Uganda), and Eastern Industrial Zone (Ethiopia). The analysis evaluates the long-term sustainability of these initiatives, and the influence of negotiators involved. Finally, the paper concludes proposing innovative pathways for future infrastructure development that will align with Sustainable Development Goal 9 (SDGs 9).

**Keywords:** *Sustainability; Sino-Africa; Infrastructure; East Africa; SDGs*

## Introduction

According to the SDG-9,

*"Build Resilient Infrastructure, promote Sustainable Industrialization, and Foster Innovation" (SDG-9.).*

The Programme for China-Africa Cooperation in Economic and Social Development, established in 2000 (*Africa - China | African Union*, n.d), set the pace for increased collaboration between Africa and China to promote economic and social development. As one of China's most robust and dedicated foreign policies, the country has funded and executed numerous African projects. However, the projects have also been characterized by challenges, not only in the execution but also in management once the projects are complete. The lingering question in this paper asks, **whether the unsustainability of the China-Africa constructed infrastructures is linked to faults of trade and development experts from both sides of the negotiating tables**.

This paper makes a valuable contribution to the ongoing discourse on Sino-African partnerships by critically examining the concept of sustainability – particularly in relation to SDG-9. We hope to make a clarion call to innovators/development organizations that while meeting SDG 9 is essential, there is a greater need to focus on actual sustainability (in terms of the long-term implications. For instance, it is not enough to embark on innovative projects without viable plans to sustain them for a long time. With the increasing awareness of sustainability discussions but with a limited focus on non-infrastructure domains, infrastructure sustainability stems from how infrastructural projects have longer lifespans and contribute towards greening and protecting the environment. However, there are a lot of infrastructure policies and programs that promote the enhancement of quality in an Earth-friendly manner. Within this context, we ask two questions:

1. How sustainable are the Sino-African infrastructural projects in East Africa?
2. To what extent are the trade experts involved in the negotiating process?

We will explore case studies highlighting development initiatives, specifically 'infrastructure innovations.' We hope to reveal situations where some infrastructural goals (SDGs) are being met but lacking in the 'sustainable or long term' component. Finally, the objective of this paper is not to tarnish the Chinese BRI goals but rather emphasize ‘sustainability component,’ which is key to African development and the Sustainable Development Goals (SDGs).

## Literature Review

East Africa's infrastructure remains underdeveloped as a third-world region, even though there has been an acceleration in infrastructure projects in the last few decades. Much of the infrastructure in East Africa is associated with the colonial governments, including roads, railways, dams, ports, and airports. This insinuates that the East African countries were not very aggressive in infrastructure development immediately after gaining independence, a factor that can be attributed to their poor economic states. In later years, infrastructure development in East Africa gained traction as countries invested more finances in infrastructural projects. These projects were funded through loans and grants from international finance organizations and developed countries. Most recently, China has emerged as a significant contributor to infrastructure development in East Africa, funding and implementing numerous infrastructure projects in various countries, including roads, railways, dams, ports, airports, telecommunications infrastructure, energy infrastructure, and water and sanitation infrastructure.

### 2.1 Historical Overview

#### 2.1.1 Colonial Era Infrastructure Developments

The history of Infrastructure in East Africa can be traced to the colonial era of infrastructure development, where colonists developed infrastructure to facilitate transportation and communication, making it easier to transfer economic resources from East African countries to their target markets. Enns and Bersaglio (2020) note that most railway lines in East Africa were constructed in the 19th century as European powers sought to dominate their colonial regions in the 'scramble for Africa.' At the same time, roads were built to connect remote areas with administrative centers to facilitate the movement of people and commodities to the ports instead of within the countries (Settles & McGaskey, 1996). The selective infrastructure development meant that only specific areas benefited from the infrastructure development, leading to uneven economic growth. Other forms of infrastructure, including bridges, schools, hospitals, and ports, were also constructed by colonial masters as they sought to control their acquired territories. Many colonial-era infrastructure developments are still in use in East Africa, which constantly raises the question of why countries continue to rely on old, dilapidated infrastructure despite gaining independence years ago. However, some colonial-era infrastructures have either been improved or modernized.

### 2.2 Post-Independence Era Infrastructure Developments

For a significant proportion of the initial years after independence, East African countries utilized the infrastructure set up during the colonial era. This can be attributed to the slow transition from the colonial governments and the need for adequate financing for further development (Mhlanga & Ndhlovu, 2023). With time, East African countries began advancing in infrastructure developments, mainly from external infrastructure funding, but still needed to catch up when compared with southern and western Africa. According to the World Bank (2011), East Africa must catch up, as evident in poor-quality and unpaved roads, limited railways, port delays, air transport structure, trade logistics, power generation, electricity access, and fixed-line telephones. However, East Africa is considered superior to Southern Africa, which is the subcontinent's leader in terms of water and sanitation, internet density, and the trucking industry. On the other hand, recent developments in East Africa demonstrate increased advancement and a move towards creating better infrastructure.

### 2.3 Nature of Infrastructure

#### 2.3.1 Roads and Highways

East African countries have invested highly in roads and highways, considered the main modes of transport. Among the major roads and highways connecting the countries include the Arusha-Namanga-Athi River Road (240km), Arusha-Holili-Taveta-Voi Road (260km), Malindi-Lunga Lunga and Tanga-Bagamoyo Road (400km), Luhasunga-Rusumo (91km) & kayonza Road (75km), Masaka-Mutukula-Kyaka (120 km) & Bugene-Kasulo-Kumunazi (45km) Road, and Nyakanazi – Kasulu – Manyovu (260 km) & Rumonge – Rutunga – Bujumbura (45km) Road. The East African Regional Road Network also consists of 10 main corridors, covering 15,000 km (East et al., 2024a).

#### 2.3.2 Railways

Railway transport is the second-largest mode of transportation in East Africa, mainly because of its significance in long-distance freight. The development of rail networks, including the Standard Gauge Railway (SCG), has been a major focus for East Africa in recent years. Tanzania has 3,676 km of railway lines, while Uganda has 1,250 km (East et al., 2024b). On the other hand, Kenya has 2,778 km of lines in addition to the 579 km Mombasa Standard Gauge Railway (SGR), which runs parallel to the Kenya/Uganda railway line. Besides the individual railway networks, the East Africa Railways Master Plan was created to rejuvenate the railways that serve Kenya, Tanzania, and Uganda, to extend them to Burundi and Rwanda and eventually to Ethiopia, South Sudan, and Beyond (CPCS, 2019). This would be done through the construction of the standard gauge railway.

#### 2.3.3 Airports and Ports

Despite continuous development, the airports in East Africa are grossly underdeveloped to deal with the larger capacity of traffic that they are currently receiving. According to the Africa Airlines Association (2024), air traffic volumes double every 15 to 20 years and this means that the heightened amount of aircraft movements have increased pressure on airport infrastructure. The infrastructural challenges point to the need to expand airport infrastructure in Africa to advance their performance. Currently, the major airports include Jomo Kenyatta International Airport (JKIA), Mombasa International Airport (MIA), and Eldoret International Airport in Kenya; Dar es Salaam International Airport (DIA), Kilimanjaro International Airport (KIA), and Abeid Amani Karume International Airport; and Entebbe International Airport in Uganda. East Africa is home to some of the largest ports in Africa, including the Mombasa Port in Kenya and Dar es Salaam Port in Tanzania. As such, they play a vital role as gateways for trade and connection with international markets. They also serve the needs of landlocked countries in the region including Uganda, Burundi, Rwanda, and South Sudan (Feltes & Schröder, 2023).

### 2.4 Infrastructure Funding

East African countries have primarily depended on external funding from developed countries in infrastructure development in the form of grants and loans. In this regard, a majority of funding has been provided by the World Bank, the International Monetary Fund, The African Development Bank Group (AfDB), the U.S. Millennium Challenge Corporation (MCC), the European Union (EU), Eurobond, France, Japan, China, and non-governmental organizations. As a strategic multilateral organization, the World Bank is keen on promoting infrastructure development in developing countries. East Africa, for example was part of the region that benefited from the $425 million Regional Infrastructure Finance Facility (RIFF) Project approved in 2020, with the goal of advancing selected infrastructure projects in different sectors in the COMESA region (World Bank, 2024). The International Monetary Fund provided over $50 billion to sub-saharan Africa between 2020 and 2022 including East Africa (IMF, 2023). The U.S. Millennium Challenge Corporation (MCC) has invested more than $10 billion in 24 countries in Africa including infrastructure growth. In Kenya, MCC provided $60 million to improve transportation and urban land planning (MCC, 2024). AfDB, on the other hand, is a major multilateral lender in East Africa, having funded numerous infrastructure projects. Currently, AfDB is contributing in raising $3.2 billion for the East African standard gauge railway that links Tanzania, Burundi, and the Democratic Republic of Congo. In Kenya, AfDB has 51 ongoing projects as of July 2023, valued at Ksh. 629.7 billion (Mutua, 2024). AfDB has proposed a change in its approach to infrastructure funding, opting to support only transport, water, and sanitation, which will impact development in certain sectors (Mutua, 2024).

### 2.5 Recent Trends and Developments

#### 2.5.1 Chinese-Supported Infrastructure

In the last two decades, there has been an influx of Chinese-supported infrastructure across Africa, which has contributed significantly to infrastructure progress in these countries. China's economic progress has seen it become one of the most significant lenders in developing countries, probably in an attempt to increase its control as an upcoming world leader. According to Qingqing & Yunyi (2022), establishing the China-Africa Cooperation has led to the development of over 10,000 kilometers of railway, almost 100,000 kilometers of road, nearly 1,000 bridges, and over 100 ports, and dozens of schools and hospitals. In East Africa, infrastructure development through Chinese support is evident. In this regard, China has supported East African countries with funding, technical expertise, and labor, leading to a momentous growth in mega infrastructure. In Kenya, China has funded and facilitated the construction of roads including the $360 million Thika Super Highway, which was co-funded by AfDB, the $88 billion project Nairobi Expressway, and various bypass dual carriageways aimed at connecting different roads and easing traffic (AfDB, 2017; Andeso, 2024). It has also funded and undertaken the construction of the $4.7 billion Standard Gauge Railway, which has improved railway transport to a significant extent (Dahir, 2022). In Tanzania, various projects have been undertaken including the revamping of TAZARA Railway at a cost of $1 billion and the $30 million Wami Bridge (Nyabiage, 2024; Africa Buildmart, 2024). China is in talks with the country to participate in major infrastructure projects including the Central standard railway, Magufuli Bridge, and Nyerere Hydropower Station (Qingqing & Yunyi, 2022). China involvement in Uganda is evident through the $476 million Entebbe-Kampala Expressway, the $482.5m Isimba Hydroelectric Power Station project, and recently an expansion of the Entebbe International Airport, with $200 million funding from China (Uganda Ministry of Works and Transport, 2024; NS Energy, 2018; Uganda Civil Aviation Authority, 2018).

### 2.6 Challenges and Barriers to Infrastructure Development

#### 2.6.1 Economic and Financial Constraints

Financial challenges remain the greatest challenge in East Africa's infrastructural development efforts. Like many developing regions, East African countries face resource shortages that limit their ability to invest optimally in infrastructure. Etensa, Taye & Bersisa (2022) note that while infrastructure development is among the key economic growth drivers, East Africa continues to lag, and it is ranked fourth out of the five African regions. A major cause of poor infrastructure development is low economic growth levels, hence minimal infrastructure investment. For this reason, most of East Africa's infrastructure is developed with external funding.

### 2.7 Geo(Politics) of Infrastructure

Infrastructure development has historically been highly politicized and as noted by Eickhoff (2022), political interests in infrastructure development significantly influences factors such as location, financing, and maintenance. Notably, infrastructure development is often strategic, mainly with the goal of promoting global trade and development, hence resulting in geoeconomic competition. In East Africa and Africa in general, geopolitical interests have led to increased competition among developed countries including China, Europe, United States, Japan, and the G7 among others, which aim to create connectivity with the countries and create a competitive edge to serve their strategic and economic interests. Accordingly, (geo) political risks are likely to emerge as major financiers compete over strategic partnerships, which could potentially result in conflict of interest and hence jeopardize infrastructure development. It could also mean that the East African countries have to prioritize projects based on the interests of the funders, which may lead to lesser control over their own development (Eickhoff, 2022).

### 2.8 Coloniality of New Infrastructure

Despite the considerable growth in infrastructure in East Africa, an issue that has emerged from the recent development of mega infrastructure projects is the concept of coloniality. Enns and Bersaglio (2020) explore the intricacies of political interests in the development of the recent 'mega' infrastructure in East Africa, establishing that the projects to a great extent serve the interests of global capital and hence maintain the principles of coloniality. Likening the developments with colonial times, Enns and Bersaglio note that the projects reveal a focus on profit-making and the exploitation of economic potential, while disregarding the needs of those who live in the areas where the infrastructure is developed, which to a great extent reflects the colonial legacy. The other concern is the burgeoning Chinese investment in Africa's infrastructure. As noted by Regilme and Hodzi (2021), developed countries' support for developing countries mostly results in tied aid, which raises questions about the intentions of China as an emerging power.

## Methodology

We employed a case study to analyze infrastructural projects in three (3) different African countries. These projects include the Nairobi expressway (Kenya), Isimba Hydroelectric Power Station (Uganda), and Eastern Industrial Zone (Ethiopia). This analysis would reveal underlying imbalances in China-Africa infrastructure trade and development partnerships, emphasizing the significance of sustainable aspects outlined in SDG 9 (Infrastructure) within the context of Sino-African relations and development endeavors across Africa.

### 3.1 The Case of Nairobi Expressway, Kenya

***Background***

In its quest to fulfill its commitment to the SDGs, Kenya's government has emphasized infrastructure development, especially in the transport sector. The Nairobi Expressway is a notable project done in partnership with the Chinese government, with the goal of addressing the traffic challenges in the country's capital city, Nairobi. Motorists would have the option of using the elevated 27 kilometer ExpressWay at a cost as opposed to following their normal routes, thereby minimizing the time spent on the road to a significant extent (Andeso, 2022). The toll charges collected from motorists is to be used for financing the loan and maintaining the highway. The $88 billion project, which was both funded and built by the Chinese government through the state-owned China Road and Bridge Corporation (CRBC), was completed in June 2022 (Andeso, 2022; Nyabiage, 2022). Kenya directly contributed a quarter of the cost of construction (Gathara, 2019).

***What Went Wrong with the Project?***

The project faced some challenges, both during the construction and operation after its completion. These include issues with land acquisition, poor execution of some deliverables, financial challenges, logistical issues, availability of materials, focus on Chinese workforce, and maintenance issues. When the project was first proposed, the major issue was its potential to take up 23 meters of Uhuru Park, which is considered a road reserve and which has also been historically used as a recreational park. The proposed road also faced major backlash from the citizens, given that it appeared only to benefit the rich who were capable of paying for the Expressway at the expense of the majority of low to middle-income earners (Gathara, 2019). Due to the expensive charges, the question was whether the money will be sufficient to repay the loan or whether the government would be forced to use taxpayers' money, yet a majority of them are not benefiting from its use. Upon completion, there is an evident issue with the design as evident by the numerous accidents that have already occurred. Some of the identified design flaws are the lack of rubble strips near the toll stations, risky spots, and traffic congestion at the exit points (Kimuyu, 2022). In terms of maintenance, there may be a need to have the Chinese experts constantly on site, an issue that exposes inadequate knowledge and workmanship transfer to the locals, hence leading to eternal control and reliance on China.

***What was Done to Rectify the Issue and the Outcomes***

To address the issue of the road reserve, the plan of the Expressway was done in a way that would ensure that it would circumvent the Park and, hence, not affect it. As a result, the construction was initiated and completed in 2022. However, there were still more concerns about its effect on green life and its design, which was not considered futuristic in terms of the sustainability of the traffic issue. In relation to the benefits to the citizens, the issue was not really resolved, and the government continued to justify the construction based on the proposed savings from its use. Currently, motorists who can afford it are the ones who use the highway, and this points to an issue in social equality. Additionally, the traffic snarl-ups remain a major cause of concern as the rest of the motorists remain on ordinary roads while the Expressway is barely used to its potential. The design flows are being slowly addressed as the management seeks to create more slow down signs and warnings near toll stations and areas that are considered unsafe (Kimuyu, 2022). This has led to a reduction in the number of accidents. However, the confusion at entry and exit points are still evident and so are areas where some roads end abruptly.

***The Perspective of the African Side & Chinese***

The nature of the contract for construction of the ExpressWay was consensual between Kenya and China. Under the guidance of former President Uhuru Kenyatta, Kenya made a deal with China in 2018 for the financing and building of the road (Nyabiage, 2022). The justification for the project was fuel conservation and time savings, which would reduce the impact of the Ksh 18.25 billion lost by the city annually from fuel wastage and traffic snarl-ups. Modernization of the city and progressive infrastructure development was also a major goal, as Kenya gears up towards its own Vision 2030. Therefore, the choice to have China complete the project was premeditated. Kenya has historically relied on its local contractors to develop the country's roads, a phenomenon that was always characterized by poor workmanship and issues of corruption. The entry of the Chinese contractors completely revolutionized infrastructure development in Kenya as evident in the use of state-of-the-art technology and novel ideas for development. Having constructed various roads in the country, including the famous Thika Super Highway, the decision to consider the Chinese for the Nairobi Expressway was well thought of by the Kenyan government. The availability of funding from the Chinese government also made the deal more lucrative, given that the highway could be constructed in advance to benefit Kenyans. Given the limited resources available to the government, such a project would take years to initiate, let alone complete in a span of two years. On the Chinese side, the deal was an opportunity to advance the Belt and Road Initiative in Africa by having Kenya as an ally (Nyabiage, 2022).

### 3.2 The Case of Isimba Hydroelectric Power Station, Uganda

The Isimba Hydroelectric Power Station project was initiated with the goal of reducing power challenges in Uganda by creating a consistent power source to service the country. It is located approximately 50 kilometers downstream of Jinja on the Nile River and occupies approximately 2,867.6 acres of land (NS Energy, 2018; Power Technology, 2015). Officially commenced on 21 March 2019, the 183.2 megawatts Isimba Hydroelectric Power Station is expected to provide 1,039 gigawatt hours (GWh) of electricity annually (NS Energy, 2018). China International Water & Electric Corporation (CWE) was awarded the contract for the project, whereby the Chinese government through the Export-Import Bank of China provided a loan of $482.5m while the Government of Uganda covered 15% of the project (equivalent to $85 million).

***What Went Wrong with the Project?***

Construction defects remain one of the main challenges facing the dam. One example is the flooding of the powerhouse that occurred due to human error during maintenance in August 2022, leading to a nationwide blackout. This led to the plant's shutdown and plans to import 60 MW of electricity from Kenya. The shutdown illuminated the numerous design challenges of the dam only two years after it commenced operations, which pointed to poor quality workmanship (Hako, 2022). According to Chimp Corps (2023), the plant is known to have over 300 that are yet to be rectified. Examples include the structural defects on the spillway, embankment dam, draft tube concrete treatment, and spiral case, and incomplete works on safety measures such as the log boom. Supervisory laxity could also have contributed to the high number of faults. Since the Chinese undertook the project, its repair and maintenance are completely under their control. This means that there has to be an eternal link with the Chinese contractors, who are familiar with the technical design details and hence hold the capacity to conduct any repair and maintenance works effectively. An attempt to engage local contractors could result in challenges that could considerably impact its performance. The other challenge with the project was the question of financial liabilities, with major questions being raised on whether the government should fund the restoration of the plant when the contract defect liability period was still valid until March 31, 2023.

***What was Done to Rectify the Issue and the Outcomes***

The emergency shutdown of the Isimba Hydroelectric Power Plant was a major wake-up call in relation to the project design and possible defects that could render the plant ineffective in achieving its objectives. In this relation, investigations commenced after the incident to establish the cause of the fault and also identify other potential issues that needed to be addressed. The power plant was reopened in phases after the fault was corrected. However, most of the faults remain unaddressed, and there is considerable uncertainty over the plant's future, which was estimated to have a lifespan of 50 years (Chimp Corps, 2023).

***The Perspective of the African Side & Chinese***

The plan to construct the Isimba Hydroelectric Power Plant is considered a well thought out strategy for Uganda, a development which is backed by the National Development Plan NDP II and Vision 2040 (NS Energy, 2018). With the goals of easing severe power shortages and promoting economic growth, the power plant was considered a necessary investment for Uganda. On the other hand, China could provide the financial, technical, and manpower support necessary for the execution of the project, as part of its international policy where it supports African countries in economic development projects.

### 3.3 Eastern Industrial Zone, Ethiopia

***Background***

The Eastern Industrial Zone (EIZ) is a Chinese-built and operated industrial park that started its operations in 2009. Located approximately 40 kilometers south of Addis Ababa, the industrial park was built with the objective of creating employment in Ethiopia. It has been lauded for its contribution to the country's industrial development, which has been instrumental in maintaining economic growth. The construction of the 500-hectare project was spearheaded by Qiyuan Group, Yangyang Pipe-making Company, and Jianglian International Trading Company. Despite the financial challenges catalyzed by the 2008 economic crisis, the industrial zone was completed and opened up for business. The main investors deal with footwear, textiles, auto assembly, and construction, with over 80% of the factories being owned by Chinese firms (Giannecchini & Taylor, 2018).

***What Went Wrong with the Project?***

The Eastern Industrial Zone started facing challenges during its execution, leading to its failure to achieve the desired outcomes. Yonggang Group, one of the operating partners, left the project midway and this led to financial and strategic planning challenges (Giannecchini & Taylor, 2018). Furthermore, the plan to attract an additional 80 separate investment projects never materialized, meaning that the project did not achieve its initial objective of creating more jobs for Ethiopians. Another challenge that emerged was the uncertainty for investors. Fei and Chuan (2019) note that Chinese investors were more concerned about Ethiopia's law on sub-leasing of lands and the slow bureaucratic approvals, which made it difficult to settle. Furthermore, insufficient knowledge on economic zones by the Ethiopian side meant that the national policy did not match the Chinese dynamism, leading to challenges in support.

***The Perspective of the African Side & Chinese***

The Eastern Industrial Zone is a product of the Programme for China-Africa Cooperation in Economic and Social Development, whose objective is to contribute to Africa's development as part of its foreign policy. This insinuates that the project is more of the government of Ethiopia taking advantage of the opportunity for an investment that promised to create over 20,000 jobs and contribute to economic growth. The Chinese firms not only had the resources but also the technical know-how that was not present in Ethiopia to execute such a project (News Africa, 2024). The government, based on its economic growth objectives, considered the investment as having potential to promote the country's development with minimal investment. On the Chinese side, it was also viewed as part of the national foreign policy and therefore encouraged.

Post implementation, the main problem of the Eastern Industrial Zone is the fact that it is run exclusively by Chinese firms, which essentially means that they have control over how business is run and they also take a considerable percentage of the profits. While the industrial zone creates jobs for Ethiopians, there have been concerns about lower-than-average compensation despite the high workload. The second challenge is the risk of pollution, with concerns being raised about waste management in the area. Thirdly, the presence of the zone has led to unprecedented population growth and development, which has a major impact on the habitat through deforestation and damage of the indigenous lands. Rapid development in the area means that the amenities that were originally allocated are now inadequate to serve the population. According to Tang (2023) there was no proper social impact assessment when the project was being developed and there was a lack of effective control over the area's development.

***What was Done to Rectify the Issue and the Outcomes***

In order for the Eastern Industrial Zone to operate effectively, some changes were needed to address the challenges. One area that the Chinese and Ethiopian partners made progress was in prioritizing economic zone development through more accommodative laws and policies. Engagement with the Ethiopian government led to increased institutional support and recognition of economic zones in national development plans. Its 2012 Investment Proclamation (No. 769/2012) recognized the role of industrial parks, while the 2014 amendment allows private investors to operate independently by removing government control over economic zones. (Fei and Chuan, 2019). The Ethiopian Industrial Development Strategic Plan (2013–2025) was also impactful, having shown the government's commitment to create conducive conditions for economic zones. These changes may have impacted how the Eastern Industrial Zone is run to a great extent. However, the other challenges are still rampant and there is a need for further assessment on what can be done to ensure workers are adequately remunerated, infrastructure amenities are improved to cater to the rapid growth in the area, and that the economic gains from the zone benefit the country more.

## Theory

We utilized the Sustainable Development theory (SDT) to situate the importance of ‘infrastructural sustainability.’ In this context, we define **infrastructural sustainability** as the ability of infrastructural projects to possess long-term economic, social, and environmental values. This paper aims to emphasize the importance of sustainability within the realm of infrastructure. As re-iterated in previous sections, we aim to amplify the significance of 'sustainability' within the infrastructure development concept. More specifically, we aim to emphasize sustainability while striving to meet the ninth (9th) Sustainable Development Goal (SDGs). Before situating SDT into this context, clarifying the concept of *Development* and *Sustainable Development Goals* is essential (SDGs).

The concept of Development has undergone several interpretations over the years. It is a broad concept used across different disciplines. For instance, Rist (2019) asserts that different definitions of development may capture elements of social evolutionism, individualism, or economism based on different views, i.e., implicit or explicit (p.9). Similarly, Kleine (2003) and Avgerou (2010) support this by claiming that there is no consensus on the definition of development. However, for this paper and situating infrastructures within the realm of Development, we adopt Todaro and Smith's (2016) definition as a “multi-dimensional process that involves major changes in social structures, attitudes, and institutions, as well as economic growth, reduction of inequality, and eradication of absolute poverty” (p.4). Similarly, the Sustainable Development Goals (SDGs) were borne out of the need for strategic development. Capturing some challenges with the Sustainable Development Goals (SDGs), Mensah (2019) asserts that several stances have been taken that SDGs have competing stakeholder interests. Other scholars, like Keitsch (2018), also mentioned the lack of accountability and responsibility. However, to maintain a standard, scholars such as Mohieldin (2017; Taylor (2016), and Yin (2016) advocate for establishing more transparent indicators, which could be key for measuring inputs and outputs to check if the goals are being achieved (Mensah 2019).

Sustainable Development Theory (SDT) emphasizes the need for development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This theory is grounded in three core pillars: economic growth, social inclusion, and environmental protection. When applied to infrastructure development in East Africa, it highlights the importance of long-term planning and sustainability. From the **economic perspective**, it fosters economic growth, i.e., constructing roads or railways can facilitate trade or attract foreign investment. From the **social perspective**, sustainability can address disparities in infrastructure access, ensuring that rural and underserved communities benefit alongside urban areas. From an **environmental perspective,** it can employ practices that align with the principle of sustainability. For instance, sustainable construction materials should be considered in the building process when constructing infrastructural projects like roads. With the increasing concern about global climate change, adopting and implementing the environmental perspective would help mitigate these risks.

As discussed above, we emphasized the importance of sustainability in infrastructure projects in Africa. As we see more often, while short-term projects might be temporary solutions, they may lack a solid foundation and durability. On the other hand, the sustainable approach or long-term approach ensures durability. This incorporates the principles of sustainable development by considering the economic, social, and environmental components.

## 5. Discussion

In this paper, we asked two central questions:

1. How sustainable are the Sino-African infrastructural projects in East Africa?
2. To what extent are trade negotiators involved in the decision-making process of development projects?

The case studies examined in this paper reveals a recurring pattern of infrastructural unsustainability in East Africa, which are heralded by frequent breakdowns and maintenance highlighting critical issues. For instance, the burden of repairs often falls on African governments, which must secure additional loans or divert limited resources to sustain projects (AfDB, 2020). This dependency is further mounted by the lack of local expertise, resulting in continued reliance on Chinese contractors and raising concerns about long-term viability.

In actuality, Sino-African infrastructure projects are intended to be mutually beneficial—enhancing Africa’s development capacity while advancing China’s foreign policy objectives. However, the effectiveness of these partnerships’ hinges on the role of trade negotiators. These experts are vital in shaping equitable agreements and ensuring that both parties’ interests are protected. Yet, the outcomes of several projects suggest an imbalance. For instance, the Nairobi Expressway’s post-construction phase required ongoing Chinese oversight, indicating insufficient knowledge transfer to local professionals. This not only undermines local capacity-building but also encourages dependency. Moreover, the need for additional funding to maintain newly built infrastructure raises questions about the strength of African representation during negotiations. If these projects cannot meet basic sustainability standards, their long-term value becomes questionable. What is the point of engaging in infrastructural development if it cannot pass the sustainability test?

## 6. Conclusion

This article stresses the importance of infrastructural sustainability in Africa. While development goals may have several objectives, we believe, particularly within the context of infrastructural development, that the more imminent lies in the proliferation of unsustainable infrastructure that fails to support long-term growth. Hence, as part of the recommendation, we propose two approaches that incorporates both sector specific and continent-wide strategies.

**1.** We strongly counter an isolated sector-based approach and advocate for a more sustainable, holistic plan, which would involve integrating various sectors to create synergies. A holistic approach factors in different components that help achieve a central aim. By fostering cross-sector collaboration, a holistic plan can address the population's diverse needs and promote economic inclusivity.

**2.** On a continent-wide strategy:

**a.** We propose establishing a 'comprehensive program' designed to monitor, evaluate, and guide infrastructure projects. This platform would serve as a centralized forum for sharing lessons, aligning strategies, and ensuring that African nations remain at the center of their development agendas. By creating such a program, African development leadership can take on the crucial role of mediator. This means ensuring that all voices are heard and that a balanced approach to development prioritizes the needs and aspirations of African nations. This initiative would foster a sense of ownership and empowerment among African countries, reinforcing that sustainable development should be driven by those most affected.

**b.** Reversing the unsustainability of infrastructural development projects and programs in Africa requires an innovative region-wide infrastructure sustainability center of excellence (CoE) initiatives at the national and regional (COMESA, ESA, SADC) Departments of Science, Innovation, Transportation, and Development Research. Lastly, equipping domestic infrastructure-related SMMEs with entrepreneurial, technical, and tendering skills will better position them to contribute effectively to infrastructural development while also recentering long-term infrastructure. Etensa and Bersisa (2022) establish that in order for infrastructure development in East Africa to contribute to economic growth, both the quantity and quality dimensions must be addressed.

At the recent Forum on China -Africa Corporation Conference (FOCAC) in 2024, Zainab Usman, the Director of the Africa Program at the Carnegie Endowment for International Peace, asserts that Chinese President Xi Jinping unambiguously framed the relationship between China and Africa as one focused on a “joint pursuit of modernization” and announced the elevation of bilateral ties with all African countries that recognize the People’s Republic of China to the level of “strategic relations. While several African countries, including Kenya, Zambia, Nigeria, etc, have renewed their partnerships, it is critical to place ‘sustainability’ at the heart of these engagements.

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