Sustainability of Chinese Railway Projects in Africa:
A Study in Progress

Dr. Ulf Henning Richter, Nottingham University Business School China
Ms. Yan Wang, Nottingham University Business School China
Dr. Ogechi Adeola, Lagos Business School, Pan-Atlantic University, Nigeria

This paper will examine the sustainability of Chinese railway projects in Africa with particular emphasis on the social and environmental impact of these projects. The authors will identify sectoral issues and challenges in project implementation particularly associated with civil dialogue and community engagements. Specific sustainability issues will include stakeholder engagement, human rights, health and safety, supply chain, innovation, and the environment. The findings of this study will enable an analysis of areas of improvement through eco-innovation, knowledge transfer, and capacity development. The results will be utilized to ascertain the social and environmental impact of Chinese railway projects in Africa and their potential for knowledge transfer and capacity development. Based on their findings, the authors will describe the benefits of implementing sustainability measures and elaborate on the implications for competitiveness of Chinese firms in the African railway sector.

This study will utilize both quantitative and qualitative research methods. Questionnaires and interviews will be used to collect data from Chinese companies and stakeholders operating in the African railway sector. This data will identify sustainability issues and potential for improvement of Chinese railway projects and how they contribute to or inhibit competitiveness in the African railway market. Additional data will be obtained from annual reports of companies, archival data, and national development plans.

It is expected that the findings will serve as a model for railway companies and other businesses on how to meaningfully engage with society to resolve identified, and perhaps controversial, sustainability issues.
INTRODUCTION

Transport is a vital sector in the African economy, playing a crucial role in the pursuit of poverty eradication and sustainable development as it increases the access of businesses and consumers to goods and services and provides the means for emerging markets to integrate into the global economy.

Amba and Danladi (2013) highlighted in their research that transport is one of the indices used in assessing the economic development of a country. Also, Salim (2003) and Lingaitiene (2006) noted that the advancement of any country depends on the development of its transport system. The rail transport contributes to the socio-economic development of Africa continents as it facilitates access to markets, jobs, health care, education and leisure activities. Olievschi (2013) reported that rail transportation has played a crucial role in economic development as it supports low cost movement of freight and passengers and contributes to the growth of mining and agriculture.

Railway sustainability is understood to mean the development of a railway system that caters to the travel needs of society without putting their quality of life in jeopardy in the immediate or distant future. Sustainable transport systems align economic growth with social and environmental priorities as it provides the physical networks and services upon which a nation depends.

The development of sustainable rail transport which actually meets the mobility and access desires of African people and businesses and at the same times reduces or eradicates greenhouse-gas emissions is the goal of every African head of government. Ongoing improvement of railway systems in Africa will facilitate the transportation of goods and raw materials, boost tourism, enhance trade and generally improve standard of living of the populace.

Inefficient and inadequate railroad transport contributes to the high cost of doing business and stifles sustainable development in the African continent. There are many reasons
for the failure of the African rail system to measure up to that of developed countries: The government has given high priority to road transportation, limited financial resources have blocked funding of railway projects, good railway expertise is in short supply, and political conflicts and natural disasters have created barriers.

Reports delivered at the 2014 Africa Sustainable Transport Forum (2014) held, in Nairobi, Kenya, concluded that the African continent faces numerous challenges when it comes to sustainable transport. Despite the goals of sustainable and inclusive transport systems in developing countries, the lack of a strong political and economic infrastructure and affordable services have been major obstacles to the development of the Africa continent. The challenge for African government is to create a sustainable rail system that will serve the transportation needs of individual firms and society that at the same time protects the quality of life for future generations.

According to the African Development Bank, the majority of Africa’s railways are in a bad state and need investments in the billions of dollars to maintain rail tracks and signaling systems, most of which were constructed during colonial years to connect mines and other natural resources to seaports.

Deutsche Bank estimates that about US$50 billion investment is required in Africa to construct 4,000km of Greenfield railway lines to fully exploit its iron reserves (Africa Development Report, 2014). As African governments and their development partners seek to secure safe, adequate, and affordable railway systems, they are still faced with major challenges (as noted in the Africa Review Report on Transport, 2009): unsuitable national policies; limited implementation of national, sub-regional, and regional agreements; poorly built and maintained railway networks; inadequate human and institutional capacity; negative effects on the natural environment; poor railway safety and security; poorly developed railway information systems; and limited financial resources.
Chintu and Williamson (2013) included environmental and labor concerns as one of the major problems confronting State-Owned Enterprise (SOE) in Africa, a choice based on observations of the lax nature of enforcement of environmental standards, concerns about weak environmental standards, and poor labour relations in China. This focus of our research, therefore, is to examine the sustainability of Chinese railway projects in Africa with particular emphasis on the social and environmental impact of these projects.

**CHINA’S ENGAGEMENT WITH AFRICA IN THE RAILWAY SECTOR**

China’s investment in Africa has a long history. Mohan and Power (2008), however, noted that the China–Africa relationship was born out of demand and supply considerations, not political and economic affinities. The Chinese quest for African resources and markets was reciprocated by the African quest for Chinese products and markets (Zeleza, 2014). Chinese hunger for resources provided the motivation for investment in Africa (Bohlund, & Orlik, 2015).

The construction industry, a backbone of the Chinese economy, has historically been largely state-owned. However, the increased privatization of some state-owned enterprises and the recent surge of private firms has diversified the market (Center for Chinese Studies, 2006). According to the report of Centre for Chinese Studies, Chinese firms have become an important player in the construction sector in Africa.

China’s entrance into the African market began with the construction of Tanzania-Zambia railway in the 1970s, and this symbolized China’s contribution to Africa economic development (Corkin, Burke, & Davies, 2008). It was estimated that by the end of 2006, 800 Chinese firms were active on the African continent, engaging in various sectors, mostly construction and infrastructure (Corkin et al.).

According to the German newspaper Der Spiegel, some 2,000 Chinese firms are in Africa, with the majority involved in roads and rail construction. In the Democratic Republic of
Congo (DRC), two Chinese construction firms and a copper mining firm, all state-owned, signed a US$9 billion contract for the construction of rail and road networks (Nirit, 2014).

China’s investments in Africa fall into four economic categories: Large Private Enterprise with close ties to government; State Owned Enterprise (SOEs); Small and Medium Enterprises (SMEs); and Independent Chinese Entrepreneurs (Zeleza, 2014). According to China’s Import Bank, about 800 Chinese firms were in Africa as of 2006, of which approximately 85% were privately owned. In 2009, that number grew to 2000 and by 2011 there were about 4,600 Chinese firms in Africa (Shinn & Eisenman, 2012).

By 2004, Chinese investments in Africa were present in finance (20%); construction (16%); manufacturing (15%); business and lending services (5%), and other sectors 13% (Zeleza, 2014). By 2007, the value of construction contracts won by Chinese firms in Africa amounted to US$30 billion (Dent, 2011).

In 2007, in a bid to promote investment in Africa, the Chinese government created the China-Africa Development Fund (CADF), and created banks which included China Development Bank, China Export Import Bank, and China Agricultural Bank.

Although there have been several projects embarked upon by Chinese SOEs in their relations with Africa, our focus in this literature review will be the sustainability of the Chinese railway project. In recent years China has contributed significantly to Africa’s economic growth both in terms of trade and large scale infrastructure projects (e.g., the rehabilitation of the 840 mile Benguela railway line connecting Angola’s Atlantic Coast to the Democratic Republic of Congo and Zambia [Eigen, 2012] and the expansion of the East Africa railway which to connects Kenya, Ugandan, Rwanda and South Sudan).

In Libya, the China Railway Construction Corporation (CRCC) won two contracts in 2008 with a combined value of US$2.6 billion to build the rail connection from the east to the west of the country. In January 2009, the China Civil Engineering Corporation signed a US$805 million contract with the Libyan government to build 172km of railway lines in the North Africa country.
In September 2012, the China Railway Construction Corp. (CRC) signed a US$1.5 billion contract for the rehabilitation of a railway system in Nigeria (Cottie, 2014).

The majority of the rail systems in Africa have their root in the early 20th century during which the European colonial power built railways to aid military movement and the transportation of goods produced in the mining and farming operations (Africa Development Bank, 2015). After the attainment of independence, the railway networks were broken up.

The Africa Development Bank (2015) report highlighted major drivers of railway development in Africa:

- The need for better and more integrated logistics
- Increased demand in transportation due to the growth of Africa economies
- The need to provide new urban mass transport
- The need to build high capacity infrastructure capable of handling mining in bulk volumes.
- The need to provide access to the sea with capacity and reliability.

Strengths contributing to railway development in Africa (Africa Development Bank, 2015)

- Increase in the African integrated trade
- Increased environmental and social sensibility
- Direct and indirect creation of jobs
- Better control of urbanization
- Becoming more attractive for freight transportation.

Other benefits of using railway include reduction of road casualties and related costs, far less air pollution than other modes, and less noise pollution than road modes.

Chintu and Williamson (2013) pointed out that there have been concerns about the operation of Chinese firms in Africa in terms of environmental and labour issues. The leniency in environmental laws in China and lack of adequate labour laws in hosting countries were said to
be responsible for these problems. In some instances, Chinese firms are known to employ more of their own citizens than the citizens of their host countries.

However, the much-welcomed development was offered by Schneidman (2014, n.p.) “Chinese officials are recognizing the need to participate more actively in the African communities in which invest. In fact, while corporate social responsibility is still a new concept for many Chinese companies, it received attention in the 2013 report on China-Africa Trade published by the Chinese Academy of International Trade and Economic Co-operation (CAITECH)”

CHINA’S ENGAGEMENT WITH NIGERIA IN THE RAILWAY SECTOR

The growing trade relationship between China and Nigeria is an indication that both countries have economic complementarities (Foster Butterfield, Chen, & Pushak, 2008; Oyeranti, Babatunde, & Ogunkola, 2011). Nigeria is a resource-rich country with inadequate technology or infrastructure and China is in dire needs of resources (raw materials) to assist its industries. The implications for China–Nigeria trade relations is that primary products are moved to China and finished products are imported to Nigeria, particularly the finished goods which Nigeria lacks the technological know-how to produce (Akongbowa, 2008).

Zelesa (2014) perceives mixed reactions to Sino–Nigeria relations. The relationship is seen in some quarters as new colonialism in Africa; exploitation without transparency or good corporate citizenship (Chintu & Williamson, 2013). However, in reality, the reverse is the case as China’s foreign policy is based on socialism that believes in equal justice for all. As claimed by Mohan and Power (2008), China’s relationship with Africa are not based on giving political and economic conditionalities to Africa; rather, it is based on supply and demand considerations. In other words, China’s contractors in Africa disregard ideology but attach importance to political risk and stability in host countries (Oyeranti et al., 2011).
In their quest for resources and their bilateral relations with African countries, China has engaged in what is tagged “resources for infrastructure.” This implies the provision of infrastructure such as roads, bridges, and rails in payment for resources acquired from Africa. There have been mixed reactions to this plan. For example, in the case of Nigeria, an inquiry into the oil block auctions in 2007 shows that the Nigerian government disapproved the oil-for-infrastructure approach because they were aware that some of China’s State-Owned Enterprises (SOEs) did not deliver on previously promised infrastructure projects (Egbula & Zheng, 2011).

In the area of railway construction, the dominant company in Nigeria is the China Civil Engineering Construction Company (CCECC), with contract awarded for the rejuvenation of the Nigerian rail systems (Ogunkola, 2008), the modernization of the Nigerian one-track rail line to a standard gauge rail project (Siaka, 2009), amongst others. Notably, in October 2006, the Nigerian government signed a US$2.5 billion loan facility with China, with a substantial portion used for the financing of the railway system refurbishment (Emeje, 2006). The first phase of the contract included the 1,215 kilometre double track standard gauge line from Lagos (southwest) to Kano (northwest) with a branch in Minna and Abuja (Rindap, 2015). Upon completion it is expected that the railway modernization and expansion project will have the capacity to operate 36 trains per day from Lagos to Kano (Rindap, 2015). Therefore, it can be argued that China has indicated a strong financial commitment to the Nigerian rail sector, especially the Lagos-Kano rehabilitation project, the Abuja Rail Mass Transit System, amongst others (Oyeranti et al., 2008).
RESEARCH DESIGN AND METHODOLOGY

Our approach is based on findings from a 2014 study by Network for Business Sustainability (NBS) Canada, “A dialogue about Sustainability in Canada’s Railway Sector” (NBS, 2014). The report identified the most relevant sustainability issues relating to the sector as Emissions, Safety, Ecosystem and other environmental issues, Employees, Stakeholders/Communities, Climate adaptation, Governance/ethics and Customers. Using the eight themes, we developed questionnaires which will be administered to the following stakeholder groups:

- Community and Government
- Industry Partners
- Employees
- Climate Change Specialists
- Customers

The main objective of this work is to assess the applicability of these eight sustainability issues to Chinese railway projects in Africa, and propose suggestions on how to improve the social and environmental performance of the projects. The data gathered from Chinese and African stakeholders using questionnaires and personal interviews data as well as information obtained from annual reports of companies, archival data and national development plans will contribute to an understanding of how such projects may advance or inhibit competitiveness in the African railway market.

The study will focus on Chinese railway projects in Kenya (East Africa), Ghana and Nigeria (West Africa), and South Africa.

Conclusion
Despite the negative effect of rail transport on environmental human health (such as air and noise pollution, destruction of forests and wildlife habitat, land degradation through soil erosion of drainage system and geological formations associated with the construction of railways) railway still plays a vital role in the development of African economies by transporting freight and passengers at low cost and enabling the growth of the mining and agriculture.

African nations need to develop policies that strengthen their ability to monitor and enforce capabilities labour, safety, and environmental protections (Shinn & Eisenman, 2012) by ensuring that Chinese firms involved in the construction of railways in Africa adopt global standards and abide by the rules of the International Labour Organisation. The African government should create an enabling environment that will encourage investment in the continent. Sustainable transport development thrives best in an environment of good governance, peace, and security.

The findings of this study will provide practitioners with assessment tools for the evaluation of railway projects in Africa and offer effective ways for stakeholders to eradicate or minimize the environmental impact associated with the construction and maintenance of railways, including issues on staff welfare, community development, and stakeholder engagement. The study will also identify social corporate responsibilities (community services) that should be adopted to enhance relationships with host communities. It is expected that the findings will serve as a model for railway companies and other businesses on how to meaningfully engage with society to resolve identified, and perhaps controversial, sustainability issues.
References


