

## **Enabling African Regional Infrastructure Renaissance through the China-Africa Partnership: A Trans-Continental Appraisal**

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### **Abstract**

The China-Africa partnership in infrastructure development has taken a transformational shift from a national orientation to a regional and continental approach. Traditionally, China had been engaging in bilateral agreements and Memorandums of Understanding (MoUs) with African countries in their individual capacities and construct cross-sectoral infrastructure projects at national level mostly through its state-owned enterprises (SOEs) within the construction sector and financial services sector. The African Union (AU)-China MoU to cooperate on major infrastructure networks and industrialization process in Africa signed on the 27th of January 2015 signals a serious commitment to close the continent's infrastructure deficiency gap and facilitate African regional infrastructure renaissance. This is aligned to AU's Agenda 2063 which affirms Africa's aspiration to have a "world class, integrative infrastructure that crisscrosses the continent" by the year 2063. The China-Africa partnership is poised to catalyze the physical integration of Africa through the joint development of trans-boundary infrastructure projects. This partnership is traceable back to the construction of the landmark Tanzania-Zambia Railway (TAZARA) Project, also referred to as the "Uhuru Railway", constructed between 1968-1976 to link the Zambian town of Kapiri-Mposhi and Tanzanian port of Dar es Salaam. This paper assesses completed and on-going major regional or trans-boundary infrastructure projects that have been developed through the China-Africa partnership across the continent in the 21st century since the landmark TAZARA project. It analyzes the possible impacts of the projects on the integration of African countries. The paper critically reflects on how the China-Africa partnership can be strategically strengthened for the realization of Agenda 2063 strategic goals, priorities and aspirations. It finally recommends strategies that can be adopted to strengthen the China-Africa partnership, and maximize the delivery of transnational/transboundary infrastructure on the continent.

**Keywords:** *China-Africa partnership, Trans-boundary/regional infrastructure, regional integration*

## 1. Introduction

The China-Africa partnership in socio-economic and political development has continued to strengthen since the early contacts between China and the African continent during the voyages undertaken by Admiral Zheng He in the early 15th century (see Harris, 2003; Jinyuan, 1994; Liu *et al.*, 2014; Vhumbunu, 2014; Wade, 2005; Yoshihara and Holmes, 2008). Since the attainment of independence in Africa, most countries on the continent partnered China in different areas of cooperation which intensified at the turn of the millennium following China's "going out policy". This fittingly complemented the equally intensifying African regional integration initiative whose approach followed the path of consolidating Regional Economic Communities (RECs) for the eventual integration of the continent into the African Economic Community (AEC) through a 34-year process as set out by the AEC Treaty (Abuja Treaty) of 1994. The Abuja Treaty foresees a fully integrated African Economic and Monetary Union with a single African currency, and an African Central Bank in the year 2018, having transformed through the various stages of sectoral integration, harmonization of policies, establishment of common markets (CMs), Free Trade Areas (FTAs) and Customs Unions (CUs) within RECs at first, and later at the continental level (Organization of African Unity, 1991).

One means of accelerating this continental integration initiative has been through the physical integration of the 54 African states through infrastructure development in the form of regional roads, railways, airways, waterways, energy infrastructure, among others. Since the construction of the landmark Tanzania-Zambia Railway Project, also referred to as the "Great Uhuru Railway", constructed between 1968-1976 to link the Zambian town of Kapiri-Mposhi and Tanzanian port of Dar es Salaam, the China-Africa partnership has strengthened, with China involved in several regional projects across the continent. This paper explores the major transnational or regional projects that have been undertaken through the China-Africa partnership at the turn of the millennium across the continent. It is organized as follows. Section two will focus on the historical context of the TAZARA project and its significance to the transformation of the China-African partnership in infrastructure development. The third section explores the post-TAZARA frameworks for China-Africa partnership on infrastructure development. A critical assessment of infrastructure development projects that are regional/trans-boundary in nature that have been delivered within the framework of China-Africa partnership are presented in section four of the

paper. The fifth and sixth sections of the paper focus on the prospects for the China-Africa partnership for infrastructure delivery and recommendations respectively.

## **2. The TAZARA Project: Its Significance to the China-Africa Partnership Transformation**

The history of China-Africa partnership in infrastructure development is usually traced back to the grand TAZARA project which stretched for 1,860 km from Dar es Salaam to the Zambian town of Kapiri-Mposhi. The TAZARA was a regional infrastructure project that linked Central and Southern African countries with East Africa thereby laying the foundation for closer inter-state cooperation, trade, and tourism between and amongst countries within these three African regions.

The railway was constructed by the China Engineering Construction Company (CECC) through an interest-free loan repayable in thirty years amounting to Yuan 988 million (around US\$500 million at that time) from the Chinese Government. According to the Tanzania Zambia Railway Authority (2016a), the loan was extended to cover costs of railway line construction (including 320 bridges, 22 tunnels and 2,225 culverts), supply of motive power and rolling stock, steel rails, equipment for signaling, cement sleepers, construction of stations, construction of a training school, workshops, and other related infrastructure in addition to 15,000 to 50,000 Chinese labour force (see also Arewa, 2016: 137).

Notwithstanding notable operational and viability challenges that has been faced by the TAZARA, which was established in 1968 to manage the railway project, the TAZARA railway has immensely contributed to regional integration through linking and connecting countries within the Southern African Development Community (SADC), Common Market for Eastern and Southern Africa (COMESA) and East African Community (EAC). To date, the railway has transported over 30 million metric tons of freight within the region through its freight services trains over and above transporting 30 million business and ordinary travellers through express and ordinary commuter trains, and commuting regional tourists through its special tourist trains (Tanzania Zambia Railway Authority, 2015).

Since 2010, China still extends financial and technical support to maintain and upgrade TAZARA for operational efficiency as the TAZARA infrastructure is unable to meet demand. From 2015-2016, the traffic handled by TAZARA was reported to have increased by 49 per cent to 130,000 tonnes as compared to 87,000 tonnes recorded between 2014-2015 whilst passengers transported between the two cities of Dar es Salaam and New Kapiri-Mposhi increased by over 20.2 per cent in the third quarter of 2016 to 133,863 from

111,335 in the third quarter of 2015 (see *Tanzania Invest*, 18 August 2016; *Zambia Invest*, 6 September 2016; *Zambia Invest*, 29 November 2016).

To date the TAZARA project has a lot of significance in terms of defining future partnership between China and Africa in economic, social and political development. Symbolically, TAZARA remains a symbol of friendship not only between China, Tanzania and Zambia, but also within the broader sense of China-Africa relations. It transcends beyond the founding fathers of the project, China's Mao Zedong, Tanzania's Julius Nyerere and Zambia's Kenneth Kaunda. The project also signalled the need for African countries to "think regional" in developing infrastructure whilst also proving beyond reasonable doubt the capacity and strength of Pan-African cooperation in the joint planning and implementation of mega infrastructure projects on the continent.

However, this is not to imply that the TAZARA is operating smoothly. The project has been facing its own challenges, especially at the turn of the millennium. For instance, in "Defending the people's railway in the era of liberalization: TAZARA in southern Tanzania", Monson (2016) explores some of the challenges that have been encountered in the management of the mega railway authority, and these are still being faced even now, such as lack of capital for the rehabilitation and maintenance of the railway facilities, non-payment of employee salaries, insufficient locomotives, technical skills deficiencies, and general underperformance (see also *Tanzanian Affairs*, 1991; Tanzania Zambia Railway Authority, 2016b; *East African Business Week*, 1 March 2015; *New China*, 29 April 2016; *AllAfrica*, 26 February 2016; *China Daily*, 31 July 2015).

Despite these operation and financial viability constraints, TAZARA continue to manage to expand its regional network coverage to other countries in the region such as the Democratic Republic of Congo (DRC) and Malawi. For instance, in 2016 alone, TAZARA secured a deal to transport petroleum consignments to Malawi and petroleum products to DRC in June and July respectively (*Tanzania Invest*, 18 August 2016). The on-going efforts to resuscitate and revitalize TAZARA back to its peak performance of the 1980s will assist to sustain the railway project (see Tanzania Zambia Railway Authority, 2016c; *East African Business Week*, 1 March 2015; *New China*, 29 April 2016).

### **3. Post-TAZARA Frameworks for China-Africa Partnership on Regional Infrastructure Development**

Since TAZARA, the China-Africa partnership in infrastructure development, as argued above, has transformed with the orientation and focus increasingly shifting from national to regional, and gradually from regional to continental.

Most countries have started to revamp their “colonial” railway tracks, highways, sea ports, energy and water projects with a cross-border focus. This has resonated well with the African integration philosophy, approach and strategy. This development can be analyzed from different angles and perspectives. With heightened globalization, intensification of regional integration and increased global inter-dependence, Africa needs the partnership with China on infrastructure development. Likewise, China, just like any other rationale investor, is ready to grab this as an opportunity for investment and business as well as building its diplomatic capital. This therefore presents an opportunity for Africa to ease the “supply-side impediments to African integration” (Schiere, 2011: 95). Thus, the China-Africa partnership remains strategic and key in unlocking the continent’s socio-economic development potential as well as its capacity to industrialize.

The AU Action Plan for the Accelerated Industrial Development of Africa that was adopted at the First Ordinary Session of the AU Conference of Ministers of Industry on 27 September 2007 in Midrand, South Africa, implored the need to highly prioritize infrastructure development at regional and continental levels in order to accelerate industrial development and continental integration. The *Africa Infrastructure Knowledge Program Handbook on Infrastructure Statistics* (2011: 4) broadly defines infrastructure to entail “all the main networks that support economic and social activity including those associated with transport (including roads, railways, maritime and air), water, sanitation, power and information communications technology (ICT).” For effective regional integration, a focus on productive economic infrastructure is critical.

The World Bank analytical assessment report on African regional trade integration, *De-Fragmenting Africa* (2012: 74-75), cites the limited physical infrastructure as a major inhibiting factor to smooth integration, trade, growth and development. The continent’s physical and economic geography definitely requires efficient regional infrastructure across all sectors, such as rail, road, air, water, energy and telecommunications sectors. With a land cover area approximately 30 million km<sup>2</sup> and 16 out of the 55 African countries being landlocked, the rationale for improved infrastructure across the continent can never be reasonably contested.

The importance of infrastructural development in driving continental integration has been long acknowledged by African Heads of State and Government as affirmed, and re-affirmed, in the Abuja Treaty of 1991; Lagos Plan of Action for the Economic Development of Africa of 1980; Accra Declaration for Uniting Africa adopted by the 9th Ordinary Session of the AU Heads of Summit in July 2007; among other several summit declarations and decisions. The approval of the Programme for Infrastructure Development in Africa (PIDA) by the African Heads of State and Government in January

2012, Addis Ababa, Ethiopia, together with the AU Infrastructure Master Plan, New Partnership for Africa's Development (NEPAD) Short Term Action Plan (STAP), and Medium to Long-Term Strategic Framework (MLTSF), all signified the importance of regional infrastructure development as a key foundation for continental integration, and sustainable socio-economic development and cooperation.

The AU signed an MoU with China on the 27th of January 2015 to “cooperate on major infrastructure networks and industrialization process in Africa” within “the Framework of the Agenda 2063, High Speed Railway, Aviation, Road Highways and Industrialization Infrastructure” with the objective to accelerate the African integration process (AU, 2015: n.p.). With the AU taking the coordinator role in the implementation of infrastructure projects envisaged through the MoU, this signals a momentous shift from a national approach to a regional and/or continental approach in the China-Africa partnership in infrastructure development. As Anthony (2015: 1) puts it, the AU's engagement with China in this respect “resonates with this vision [of physically integrating and connecting African countries], but on a continental rather than regional scale”.

The Agenda 2063 presents the continental aspiration to have “world class, integrative infrastructure that criss-crosses the continent” (AU, 2015: 4). The same document further commits African countries to speed up actions to “connect Africa through world-class infrastructure, including inter-connectivity between island states and the mainland, and with a concerted push to finance and implement the major infrastructure projects” in transportation, energy and ICT (AU, 2015: 16-17). In addition, the 50th Anniversary Solemn Declaration of the Heads of State and Government of the AU adopted by the 21st Ordinary Session of the AU General Assembly in Addis Ababa, Ethiopia on the 26th of May 2013, committed to “[a]ccelerate Africa's infrastructure development to link African peoples” with a strategic focus on transport, ICT, energy and other social infrastructure (AU, 2013: 4).

Pursuant to Agenda 2063, the AU also made commitments within the Forum on China-Africa Cooperation (FOCAC) framework. This is reflected in the FOCAC Johannesburg Action Plan (2016-2018: n.p.), which notes:

The two sides agree that underdeveloped infrastructure is one of the bottlenecks hindering independent and sustainable development of Africa.... The two sides will take concrete measures and give priority to encourage Chinese businesses and financial institutions to expand investment through various means, such as Public-Private Partnership (PPP) and Build-Operate-Transfer (BOT), to support African countries and the African flagship projects, in particular the Programme for Infrastructure Development in Africa and the Presidential Infrastructure Championing Initiative, in their efforts to build railroad, highway, regional aviation, ports, electricity, water supply,

information and communication and other infrastructure projects ... and facilitate infrastructure connectivity and economic integration in Africa.

In the Action Plan, China and Africa will develop transnational and trans-regional infrastructure, transnational highway networks, railway networks, regional power projects, seaport and aviation infrastructure projects on the continent as well as cooperate on the joint development of ICT infrastructure in telecommunications (see FOCAC Johannesburg Action Plan 2016-2018, 2015).

Previously, in the Beijing Action Plan (2013-2015), which was an outcome of the Fifth Ministerial Conference of the FOCAC held in Beijing, China from 19-20 July 2012, the Chinese Government agreed to support and partner Africa in financing the construction of regional infrastructure and transnational projects under PIDA and the Presidential Infrastructure Championing Initiative so as to achieve connectivity and continental integration through Chinese enterprises and financial institutions. Under Section 4.3 on Infrastructure Construction of the Beijing Action Plan (2013-2015: n.p.), the Government of China had committed:

[To] support Africa in achieving connectivity and integration and developing more integrated infrastructure within the framework of the Programme for Infrastructure Development in Africa and the Presidential Infrastructure Championing Initiative ... and continue to encourage capable Chinese enterprises and financial institutions to participate in transnational and trans-regional infrastructure construction in Africa and provide preferential loans to support infrastructure building in Africa.

Thus through the above discussed frameworks such as FOCAC Declarations, agreements committed through the AU and at times directly with RECs and member states, the China-Africa partnership has made strides in developing regional infrastructure since the TAZARA project of the late 1970s. There has been notable progress thus far across all infrastructure sectors. In the railway construction sector, for instance, “rail projects planned or underway in Africa are enough to connect Cape Town [at the tip of South Africa] to Copenhagen [on the eastern coast of Denmark]” (*Mail and Guardian*, 8 April 2016).

According to the China-Africa Economic and Trade Cooperation White Paper for 2010, by the end of the year 2009, China had provided assistance for the construction of over 500 infrastructure projects in Africa. Further to that, the China-Africa Economic and Trade Cooperation White Paper for 2013 also revealed that the Chinese Government approved concessional loans worth a total of US\$11.3 billion for 92 African projects between 2010 and May 2012 alone. The White Paper also expresses China’s intention to “push forward Sino-African transnational and trans-regional infrastructure

construction partnerships” to further continental integration and development. The increased presence of Chinese enterprises on the continent is a true sign of the involvement in infrastructure development. The Chinese Ministry of Commerce (MOFCOM) says by the end of the year 2013, more than 2,500 Chinese companies were operating in Africa across all sectors.

It is worthwhile to highlight and discuss some of the major trans-regional infrastructure projects that have been initiated and developed through the China-Africa partnership ever since the TAZARA railway project. This paper focuses on projects that are mainly regional and continental both in significance and outlook. An attempt is made to have a balanced presentation of infrastructure projects in terms of sectoral and geographical balance.

#### **4. Assessment of Regional/trans-boundary Infrastructure Projects**

##### ***4.1. The Merowe Dam Hydropower Project in Sudan***

The Merowe Hydropower Dam Project (or Hamdab Dam) is a multi-purpose dam constructed along the Nile River in Northern Sudan with an installed electricity generating capacity of 1,250 megawatts. Construction of the dam commenced in 2004 and was completed in 2009 with a total cost of the project valued at US\$1.8 billion (Xinhua, 3 March 2009). The China Export-Import Bank financed 240 million Euros with the Sudanese Government together with Arab financial and development institutions also contributing to the project. Chinese corporations, the China International Water and Electric Corporation (CWE) and China National Water Resources and Hydro-power Engineering Corporation constructed the dam, with Harbin Power Engineering Company and Jinlin Province Transmission and Substation Project Company undertaking the transmission system extension works (*People's Daily*, 1 February 2007). French and German companies assisted with project management, civil engineering and installation of generators and turbines.

In addition to the Merowe Dam, the Chinese Government has facilitated the financing and/or construction of several hydro- and solar-energy projects in many African countries such as Algeria, Angola, Burundi, Botswana, Central African Republic (CAR), Cameroon, DRC, Ethiopia, Gabon, Ghana, Guinea, Kenya, Madagascar, Malawi, Mozambique, Nigeria, Sierra Leone, Sudan, Tanzania, Uganda, Zambia, and Zimbabwe among others. These projects have been undertaken by Chinese corporations such as Sino-Hydro Corporation, Shenzhen Energy Group, China International Cooperation Group (CHICO), Shandong Electric Power Construction Corporation (SEPCO), Harbin Power Equipment Company, China Machine Building International Corporation, China National Machinery and Equipment Import Export



Corporation (CMEC) with preferential loan facilities mainly provided through the China Export-Import Bank.

Most of the above energy projects are very vital not only in assisting the beneficiary countries to meet their energy demands, but also go a long way in assisting countries to realize regional energy visions and milestones. Addressing national energy production capacities is the first stage of achieving sustainable regional energy integration and cooperation before the development of cross-border/trans-boundary energy inter-connection infrastructure. The energy infrastructure development projects by the Chinese will boost the potential and generating capacity of national power plants to feed into their respective power pools, namely the Association of Power Utilities in the Maghreb (APUA) established in 1989, the Central Africa Power Pool (CAPP) created in 2003, the East African Power Pool (EAPP) created in 2005, the Southern African Power Pool (SAPP) created in 1995, and the West African Power Pool (WAPP) established in 2001. Given the limited energy currently being traded within, between and among African regions,<sup>1</sup> regional energy infrastructure development through the China-Africa partnership will integrate Africa quicker whilst assisting the continent to realize its development goals.

#### ***4.2. The Unity Bridge Construction Project between Mozambique and Tanzania***

The two-lane 720 metres long Unity Bridge (Ponte da Unidade/Umoja) was a cross-border infrastructure project linking Tanzania with Mozambique across the Rovuma River. The project was undertaken by the China Geo-Engineering Corporation through funding from the governments of Tanzania and Mozambique at a total cost of US\$26.8 million (*East African*, 2010). The bridge was inaugurated in May 2010 and facilitated an easier and shorter transportation route for trade in goods and services between Southern Africa and the East African Community thereby significantly reducing the cost of doing business in the region.

The Unity Bridge cuts the distance between the respective capitals of the two countries, Dar es Salaam and Maputo, by about 1,000 km. Chinyemba and Sikuka (2010) stated that the Unity Bridge is expected to boost development within the Mtawara Development Corridor<sup>2</sup> in Tanzania and Mozambique, together with the rest of the SADC region concluding that it was a milestone towards deeper regional integration. According to the authors, during the opening ceremony of the Unity Bridge on 12 May 2010, the President of Mozambique, Armando Guebuza, stated that the “benefits [of the bridge] will not be limited to bringing closer the people of our region [Eastern and Southern Africa], but also the whole of Africa with all the resulting

positive spins towards development” (Chinyemba and Sikuka, 2010: 5). This is so because the bridge’s spatial development initiative corridors dimension is very broad since it feeds into transnational transport routes via the Nacala Corridor and Maputo Development Corridor<sup>3</sup> both of which widen the scope of regional integration within and between EAC, COMESA and SADC.

#### ***4.3. The West-East Expressway in Algeria***

Chinese corporations have also been involved in deepening regional integration through regional infrastructure development in North Africa. In the 1,216 km long 6-lane West-East Expressway which connects Algeria’s eastern border with Tunisia and western border with Morocco, passing through the country’s 24 provinces, the China International Trust and Investment Corporation (CITIC) and China Railway Construction Company (CRCC) constructed the longest section (the central and western section) which measured 528 km.<sup>4</sup> The eastern section of the highway was allotted to a Japanese Consortium, COOJAL and local contractors.

The West-East Expressway was launched in March 2007 and is part of the envisaged 7,000 km long Trans-Maghreb Highway that runs through the Maghreb states from Egypt to Mauritania in North Africa through Libya, Algeria, Tunisia and Morocco. The Algerian Government is funding the overall project costs of US\$11.2 billion and was initially scheduled for completion by 2010. The West-East Expressway project was scheduled to be completed in 2014 (Union for the Mediterranean, 2014). The project’s key role as a vital component of the Trans-Maghreb Highway will definitely contribute hugely to the physical integration of North Africa and feed into the Algiers-Lagos Highway which is part of the Trans-Africa Highway network that link African capitals with major production areas to promote continental integration (AfDB, 2013).

Over and above the West-East Expressway Project in Algeria, the Chinese Government has been involved in funding the construction of the 84 km long Addis Ababa Expressway in Ethiopia in 2010 linking Adama (in Central Ethiopia, South-East of Addis Ababa) with the Ethiopian capital city. The project was constructed by the Chinese Communication and Construction Company (CCCC) and completed in 2014 at a cost of over US\$600 million funded through a US\$350 million concessionary loan from the China Export-Import Bank.<sup>5</sup> Besides reducing congestion and accommodating more traffic volumes, the Addis Ababa Expressway is part of the Cape Town-Gaborone-Cairo Highway section that feeds into the Trans-Africa Highway network.

Through loans from Chinese banks, several road projects have been completed in many African countries. According to the “China White Paper on China-Africa Economic and Trade Cooperation” (China State Council

Information Office, 2013), the China Road and Bridge Corporation (CRBC) was involved in the road reconstruction in Angola whilst the Belet Uen-Gulcaio section of the Belet Uen-Burao Highway in Somalia was completed through Chinese aid. Road projects in Ghana that fall along the Tweneboa-Enyenra-Ntomme Corridor in West Africa, such as the Ofankor-Nsawam Highway which was constructed in 2004, were also financed through Chinese loans through the China EXIM Bank and were constructed by Chinese companies including the China Railway Engineering Corporation Limited.

Countries such as Angola, DRC, Kenya, Mozambique, Namibia, Sudan, Tanzania and Zambia have also benefited from extended financial aid for road infrastructure development. Most of these roads are feeder roads into the main development corridors being pursued at regional level by African RECs and they are valuable components of Africa's main multi-modal transport corridors.<sup>6</sup> This will strengthen Africa's pursuit of the Almaty Declaration and Programme of Action of August 2003, which implored the need to improve transit transport connectivity as one of the mechanisms of broadening regional integration, expanding regional markets and enhancing intra-regional trade.

#### ***4.4. The Nouakchott's Friendship Port (PANPA) in Mauritania***

The Autonomous Port of Nouakchott (PANPA), also referred to as the Friendship Port Project, in Mauritania's capital on the Atlantic coast was undertaken by a Chinese enterprise, China Harbour Engineering Company (CHEC), which is a subsidiary of CCCC, through a preferential loan of two billion Yuan from the China Export-Import Bank (*Xinhuanet*, 26 September 2009; *China Daily*, 26 September 2009). The project involved the extension of the Nouakchott Port by 900 metres, upgrading of petroleum berths, water break point and port protection infrastructure.

PANPA is a key infrastructure not only for Mauritania as it handles over 90 per cent of its imports, but also for the West African region as a whole. The Nouakchott Port expansion will serve as a hub of regional importation and exportation in the envisaged Trans-West African Coastal Highway that will link twelve Economic Community of West African States (ECOWAS) member states from Nouakchott (Mauritania) to Lagos (Nigeria) through Dakar (Senegal) and it will feed into the Pan-African Road network extending from Mauritania to the Port of Mombasa in Kenya (ECA, 2010). This will deepen and widen both intra-ECOWAS trade and economic cooperation whilst also opening opportunities for inter-regional cooperation and integration between ECOWAS and EAC.

The Chinese Government has provided financial facilities with regional integration benefits of similar magnitude in Africa such as the Kribi Deep-Water Port of Cameroon. Phase 1 of the project started in 2011 was funded

through the China Export-Import Bank and constructed by the China National Electric Equipment Corporation and the China Harbour Engineering Company Limited. It was completed in 2014, paving way for Phase 2 of the project that comprise the construction of a quay, berths and 20 terminals (*Construction Review Online*, 26 February 2016; Xinhua, 16 February 2015).

Other seaport projects constructed by Chinese companies and/or being funded through Chinese financing facilities include the Bangamoyo Port in Tanzania (partially funded by the China Merchants Holdings (International) Company), the new Port of Maputo in Mozambique (in which the China Harbour Engineering Company is part of the contracted consortium) as well as the Lamu and Mombasa ports expansion projects in Kenya (in which CCCC Group and CRBC are involved with larger share of financing from China Exim Bank). All these port projects are crucial in pursuit of the AU's African Maritime Transport Charter of 2009 which acknowledges the critical role of maritime infrastructure in the African integration.

#### **4.5. The Mombasa-Kigali Railway Project in East Africa**

The Mombasa-Kigali Railway Project, which is also referred to as the East African Railway Project, seeks to construct a 2,935 km long high-speed standard gauge railway line that runs from the Kenyan Port of Mombasa to Kigali, Rwanda through Nairobi and Uganda with future plans of extending the line to Juba in South Sudan (EAC, 2012; *International Railway Journal*, 16 June 2016). The total project cost is estimated at US\$13.5 billion and the targeted completion year is March 2018. Each country is expected to finance a portion of the railway within its territory. The railway line, which is for both passengers and freight, will significantly assist in facilitating the smooth movement of goods and services within the East African sub-region.

There has been notable progress within the Kenyan section. The Kenyan section has been divided into two phases, that is, Mombasa-Nairobi and Nairobi-Malaba where it connects the Uganda SGR line. The first phase of the project, which started in 2014 and scheduled to be completed by June 2017, comprised the construction of a 609 km Mombasa-Nairobi Standard Gauge Railway (SGR) line. This section was reported in December 2016 as "98 per cent complete" and "on schedule" to be completed by June 2017 (*Construction Business Review*, 4 December 2016: n.p.; see also *Daily Nation*, 29 May 2016: n.p.; *International Railway Journal*, 16 June 2016: n.p.). The Government of China, through the Export and Import Bank of China, will finance 90 per cent of the total project costs for the Mombasa-Nairobi SGR Project Phase estimated at US\$3.8 billion, with the Kenyan Government catering for the remaining 10 per cent (Government of Kenya, 2014; *International Railway Journal*, 16 June 2016; Kenyan Railways Corporation, 2016).

The project will be undertaken by the China Road and Bridge Corporation (CRBC) whilst the Kenyan Railways Corporation (KRC) and China Communications Construction Company Limited (CCCC) have entered into a contract to develop the 490 km Nairobi-Naivasha-Kisumu-Malaba SGR line section, Kisumu Port and expansion works at the Embakasi Inland Container Depot in Nairobi under Phase 2 of the project (Kenyan Railways Corporation, 2016). The project scope involves building a total length of 609km rail SGR track, installing electrification and water infrastructure, building freight exchange and passenger stations, marshalling yards, underpasses for wild animals in game parks, installing and supplying locomotives, passenger coaches, freight wagons, signalling and communication facilities (*Construction Business Review*, 4 December 2016: n.p.; *Daily Nation*, 29 May 2016: n.p.; Government of Kenya, 2014: 8; *International Railway Journal*, 16 June 2016; Kenyan Railways Corporation, 2016: n.p.).

The Mombasa-Kigali Railway Project will definitely deepen economic exchanges and cooperation in East Africa through the improvement of transport connectivity amongst Kenya, Rwanda, Uganda and South Sudan as envisaged within the Northern Corridor Integration Projects Initiative (NCPI) vision. This will reduce transportation costs, improve market accessibility and boost intra-EAC trade. Within the Kenyan section, for instance, freight trains have a cargo carrying capacity of 22 million tonnes per annum whilst the passenger locomotives will have a carrying capacity of 1,096 passengers with a speed of 120 km per hour (see *Daily Nation*, 29 May 2016; *Construction Business Review*, 4 December 2016; *International Railway Journal*, 16 June 2016; Kenyan Railways Corporation, 2016). This will reduce the cost of doing business especially considering the cost efficiency of rail transport. The Mombasa-Kigali Railway Project may also be taken as a step in the right direction towards the harmonization of railway gauges in Africa into a common seamless rail network against a background where different rail gauges exist in different regions across the continent. This is imperative in light of the progression towards inter-regional railway connectivity.

The Chinese have been involved in different phases of similar ventures in EAC and beyond. For instance, the Chinese consortium of companies under CCCC is involved in expansion projects at Lamu Port in Kenya. The Lamu Port expansion project is one of the key components of the Lamu Port-Southern Sudan-Ethiopia-Transport (LAPSSET) Corridor Project that seeks to develop a connecting oil pipeline, road and railway lines from Lamu in Eastern Kenya to Juba in Sudan through Ethiopia by the year 2030.

According to the LAPSSET Corridor Development Authority (2013), the project seeks to facilitate trade within the East Africa and Great Lakes sub-region and promote regional economic integration and interconnectivity between African countries. Within the same corridor, there are also plans to

construct international airports, oil refineries and resort towns including future plans to further extend the LAPSSET Transport Corridor to connect East Africa with the Douala-Lagos-Cotonou-Abijan Corridor in West Africa which links Benin, Cameroon, Cote d'Ivoire, Ghana, Nigeria and Togo (United Nations Conference on Trade and Development (UNCTAD), 2013).

#### **4.6. The Ethiopia-Djibouti Railway Project**

The Ethiopia-Djibouti Railway Project is another regional infrastructure development project in which the Chinese were involved. The 752.7 km long electrified railway, which was completed in September 2016 and inaugurated on 5 October 2016, connects the Ethiopian capital of Addis Ababa with the Port of Doraleh at the Red Sea coast in Djibouti. It was reported as “the first standard gauge electrified railroad on the continent built with Chinese standards and technology” (*Railway Gazette*, 5 October 2016: n.p.; see also *BBC News*, 5 October 2016; *China Daily*, 11 November 2016; *Sudan Tribune*, 25 September 2016; *The Guardian Newspaper*, 5 October 2016; *Xinhuanet*, 6 October 2016).

The Ethiopian section of the railway project cost around US\$3.4 billion, with the China Exim Bank, the China Development Bank and the Industrial and Commercial Bank of China financing 70% of the costs whilst the Government of Ethiopia funded the remaining 30% (*China Daily*, 11 November 2016; *Railway Gazette*, 5 October 2016; *Sudan Tribune*, 25 September 2016). On the other hand, the Djibouti section was also funded through a US\$505 million loan facility from China (*Railway Gazette*, 5 October 2016).

The railway line had been in operation since 1917 until it later halted its passenger and freight operations in 2010 due to lack of maintenance caused by funding shortages (World Bank, 2013: 9; see also *Railway Gazette*, 5 October 2016). The railway cuts across 30 per cent of Ethiopia's population and 70 per cent of the population of Djibouti (Mohapatra, 2016). In addition, the Ethiopian industrial centres of Addis Ababa, Akaki, Awash, Debre Zeit, Dire Dawa, Metehara, and Mojo are all located along the railway line which makes the project a strategic export and import connecting link as it constitutes a shipping route to the Red Sea (see Mohapatra, 2016).

A briefing memorandum of the Infrastructure Consortium for Africa (ICA) Meeting in 2007 reported of the Ethiopia-Djibouti Railway Line:

The Djibouti-Ethiopia Railway (Chemin de Fer Djibouti-Ethiopien, or CDE) Project consists of a 25-year railway operating concession for the 780 km railway running from Djibouti to Addis Ababa through Dire Dawa. The railway, constructed at the beginning of the 20th Century, has deteriorated

due to lack of maintenance, poor management, and a lack of commercial focus (ICA, 2007: n.p.).

The project was therefore aimed at creating “a reliable, safe, economical and sustainable transportation corridor that acts as a competitive alternative to road transportation in providing access to the Red Sea port” (ICA, 2007: n.p.). In terms of its intended social and environmental impact, the report stated:

[The project will connect] Ethiopia’s industrial centers and large portions of both countries’ populations, the project is expected to contribute to poverty reduction by improving market access and transport conditions. Port and transit services, including road and rail links, are major sources of income and employment for Djibouti: approximately 10,000 jobs are in transport-related activities, and transportation is one of the primary activities of Djibouti’s services sector, which accounts for 70 percent of GDP. Improving the competitiveness of the railway will also support the operations of the port (ICA, 2007: n.p.).

Ultimately, as the Yehualaeshet (2012) stated, the Ethiopia-Djibouti Railway Line will assist to cope with the growing demand for railway services due to economic growth against a background of outdated railway network, limited connectivity and generally poor transport services in the Horn of Africa. The project anticipated such a significant impact and boost on the two countries’ socio-economic growth and development through reducing road maintenance costs, saving fuel, generating employment, reducing pollution and generating revenue (see Mohapatra, 2016). The author’s economic analysis of the Ethiopia-Djibouti Railway Line project within the next 25 years from 2016 revealed that “the NPV [net present value] of the cost streams at 12% calculated to be \$6831,30 million” and that “[t]he economic internal rate of return of investments will be 18.90 percent” (Mohapatra, 2016: 11376).

Although the project is owned by the Ethiopian Railways Corporation (ERC), it has been contracted to two Chinese enterprises, that is, the China Railway Engineering Corporation (CREC) and the China Civil Engineering Construction Cooperation (CCECC) which are constructing two segments of the railway line (*AllAfrica*, 2013: n.p.). The Ethiopia-Djibouti Railway Line was divided into three sections and the China Railway Engineering Corporation constructed the 317 km from Mieso to the town of Dewelle whilst the China Civil Engineering Construction Cooperation (CCECC) constructed two sections with a total length of 439 km from Mieso to the Port of Doraleh in the Red Sea (*AllAfrica*, 2013; *The Guardian Newspaper*, 5 October 2016; *Railway Gazette*, 5 October 2016).

Given the magnitude of the project, the project financial costs were expectedly high as this would involve planning costs, huge infrastructure

construction bill for rails, water supply and drainage, buildings, tunnels and bridges, culverts, preparation of the site, costs of land acquisition and compensation as well as purchase of freight and passenger locomotives, communication and signal equipment.

As the Ethiopia-Djibouti Railway Project has been completed, it will thus be highly significant in socio-economic terms as it will facilitate Ethiopia's access to the sea thereby enhancing the country's logistical capacity whilst at the same time assisting Djibouti to be connected inland for regional trade facilitation purposes. From a spatial development perspective, there will definitely be opportunities for urbanization, boosting of economic activities and job creation. When the project was reported to be completed in September 2016, it was stated:

...1,171 wagons with a capacity to transport 3,500 tons at once and 41 locomotives will be in full service when the Ethiopia-Djibouti railway line enters into full operation following 3-6 months trial rides. The freight trains can ride at a speed of 90 kilometres per hour whilst passenger trains which can carry over 1100 people at once can hit at 120km/hr. It will take around 10-12 hours for the electrified trains to reach Addis Ababa from Djibouti. It used to take 3-7 days for the former diesel locomotives to cover the same route (*Sudan Tribune*, 25 September 2016; see also *BBC News*, 5 October 2016; *China Daily*, 11 November 2016).

The Ethiopia-Djibouti Railway is part of the Djibouti-Libreville Transportation Corridor that is being proposed under the NEPAD Infrastructure Project Preparation Facility (NEPAD-IPPF). Thus the project is extra-regional in outlook. This will therefore assist in intensifying economic exchanges and facilitate more trade between EAC and ECOWAS. Perhaps, that is why Wang Yang, the Chinese Vice Premier, referred to the project as "the TAZARA railway in a new era" (Xiangjiang *et al.*, 2016).

Over and above the Ethiopia-Djibouti Railway project, the Chinese have funded and constructed major trans-continental railway projects in Africa, through partnerships, which include the Abuja-Kaduna-Kano Railway Project and the Lagos-Port Harcourt-Calabar Coastal Railway Project both in Nigeria, Addis Ababa Light Rail Transit Transportation System in Ethiopia, the Lobito-Congo Railway Project between Angola, Zambia and DRC, the Benguela Railway Project in Angola, the Chad-Sudan Railway Project between Sudan and Chad, and the Mombasa-Nairobi Railway Project (see *Sudan Tribune*, 1 August 2011; *China Daily*, 17 August 2016; *China Daily*, 27 August 2016; *New China*, 5 October 2016).

The recently signed agreement on Africa's High Speed Railway Network between the AU and China in Addis Ababa on the 5 October 2016 (AU, 2016), sets a key framework on integrating and modernizing the railway



network in Africa through collaboration and cooperation in the funding, construction, management and operation of regional rail infrastructure.

#### **4.7. The Maputo International Airport Project**

One of the biggest beneficiaries of massive Chinese investments in African aviation industry infrastructure was Mozambique. The Phase I of the Maputo International Airport Expansion and Rehabilitation Project began in 2007 and was completed in November 2010 with funding from the Chinese Government through a concessional loan of US\$75 million (*AllAfrica*, 2012; *African Avian Tribune*, 2012; *Macau Hub*, 9 December 2015). The project, which was carried out by China's Anhui Foreign Economic Construction (Group) Company (AFECC), involved the construction of a new cargo and passenger terminals, control tower and other supporting airport facilities. Upon completion, the Maputo International Airport doubled its carrying capacity from 300,000 passengers to 600,000 passengers. AFECC will also undertake Phase II of the Maputo International Airport Rehabilitation and Expansion Project (*African Avian Tribune*, 2012).

The Chinese Government have also displayed a commitment to develop the air transport infrastructure across the continent as evidenced by several airport upgrading projects such as the Victoria Falls Airport Expansion Project in Zimbabwe (financed by the China Jiangsu International Group through a US\$150 million loan facility from China Export Import Bank); Anhui Civil Engineering Group (ACEG) and the China Aero-Technology International Engineering Corporation (CATIC) were jointly contracted to work on the "Greenfield Terminal" at Jomo Kenyatta International Airport in Kenya; the New International Airport of Luanda in Angola is also being constructed by the China International Fund (CIF) Limited with other Chinese companies namely CATIC, China Tiesiju Civil Engineering Group (ETSC) and China Highway Group Limited engaged on supporting projects on the airport; and in Malawi, Seirra Leonne, among others (*China Daily*, 19 November 2016; *New China*, 22 October 2016; *China Daily*, 30 January 2015; *Macau Hub*, 14 September 2016).

All these efforts being made through the China-Africa partnership will lay the foundation for the implementation of the Yamoussoukro Declaration which was adopted by the AU member states in 1999 to liberalize access to intra-African air services in Africa. Such liberalization will only produce effective integration results only if the proper air transport infrastructure is in place. The development of air transport infrastructure is also the first step necessary for the implementation of the African Civil Aviation Policy of 2002 whose ultimate thrust is to develop an integrated transportation system

that links the air transportation system for smooth movement of goods and services in Africa.

In light of accelerated globalization, the role of airport infrastructure is vital in integrating African countries not only amongst themselves but also with the outside world. Airports facilitates what Derruder (2012) terms “global inter-city networks” and what Boloukian and Siegmann (2016) refers to as “airport-centric development”. Moreover, studies by Florida *et al.* (2015) in the United States (US), for instance, have confirmed that airports significantly contribute to regional development, and that maximum regional development benefits and impact of airports can be unlocked when the airport infrastructure is expanded to increase the potential capacity of traffic handled as well as cargo and passengers transported. Thus, airport projects in Africa will foster integration through increasing the continent’s hub-and-spoke network or connectivity, cutting costs of doing business and associated inconveniences incurred through unnecessary flight transfers that are a manifestation of Africa’s heavy dependence on foreign hubs and/or few continental “switchboards” discussed above.

## **5. Prospects for the China-Africa Partnership for Infrastructure Delivery**

The China-Africa Partnership in infrastructure development has therefore grown and evolved, spanning over four decades since the TAZARA project. Notwithstanding the invaluable contributions and concerted efforts by China towards de-fragmenting Africa through regional infrastructure development across all sectors as explored above, the continent still faces the reality of a huge infrastructural deficit. As presented by NEPAD, the 51 NEPAD–Pan African Parliament projects cost a total of US\$68 billion from 2012-2020 whilst the World Bank (2012) estimated that Africa needs US\$93 billion per year to close its infrastructural deficit.

The announcement by Chinese President Xi Jinping at the FOCAC Second Summit in Johannesburg, South Africa in December 2015 that China pledges US\$60 billion funding support to Africa including interest-free loans, free aid, preferential loans and export credit, and expanding the China-Africa Development Fund is a boost to African regional infrastructure development plans. The further launch of the Africa-China Growing Together Fund through the People’s Bank of China and the AfDB in May 2014 will also provide wide opportunities for infrastructure projects in Africa. Whilst this may easily be criticized as a potential trigger to a debt crisis in Africa, the ability of African countries to embark on productive and economically strategic regional infrastructure is the key determinant factor.

The January 2015 AU-China MoU on Continental Transport infrastructure development will accelerate the physical integration of Africa. As we reflect on China's experience in deepening and widening regional infrastructure development within the framework of China-Africa Partnership for Cooperation, it is prudent to consider the following recommendations that may assist in shaping and reshaping the different approaches whilst informing perceptions and misperceptions that have always clouded the China-Africa Development Partnership.

## **6. Recommendations**

### *a) Collective emphasis on regional/continental approach to regional/continental infrastructure development*

With clearly defined infrastructure projects' priorities under the AU Infrastructure Master Plan, PIDA, NEPAD-AAP, NEPAD-STAP, NEPAD-MLTSF, Agenda 2063, together with Regional Infrastructure Development Master Plans in all the African RECs, African governments need to collectively think regional in their engagement with China than thinking local by not allowing their National Development Plans (NDPs) to override regional and continental frameworks for infrastructure development in terms of priority and emphasis. Rather, NDPs on infrastructure should be aligned with, and feed into, regional infrastructure plans, priorities and frameworks. Given the nature of regional or transnational infrastructure delivery, African governments need to consider negotiating loan deals for such infrastructure as RECs. This will allow for an integrated and well-coordinated approach that will ensure that the infrastructure projects will adopt a corridor approach so as to speed up African regional integration and structurally transform African economies for sustainable development whilst at the same time providing a platform for interstate or cross-border cooperation which builds trust amongst states germane for regional integration.

### *b) Complementing Chinese assistance with innovative local financing mechanisms in Africa*

Africa's annual infrastructure needs currently stand at US\$93 billion but the continent mobilizes and spends US\$45 billion leaving an annual deficit of US\$50 billion (Economic Commission for Africa Report, 2015). The fact that African countries, according to Deloitte in its *Africa Construction Trends Report* (2015: 5), collectively spend over US\$230 billion in 2015 to construct infrastructure in the transportation, energy and power, and telecommunications sectors, is very commendable. Whilst the Chinese Government is playing an

insurmountable task as a financier of regional infrastructure projects, over and above national projects, African governments need to individually and collectively explore different regional infrastructure financing mechanisms to complement the Chinese support for the purposes of sustainability and to close up the apparent infrastructure deficit on the continent. At regional level, the “Africa 50 Fund”, for example, is an innovative facility to finance infrastructure development on the continent.

Regional mechanisms can be implemented to harness toll fees for further upgrading, rehabilitation and maintenance of the regional highways, progressive and fairer resources-for-infrastructure financing models, Sovereign Wealth Funds (SWFs), Pension Funds, Insurance Funds, the development of attractive PPP models, among others, have never been fully explored. These and other strategies can also be devised at national level. The Government of Kenya, for instance, came up with a strategy to finance its 10% share of the SGR Project through instituting a Railway Development Levy (RDL) of 1.5 per cent on all imports so as to complement the 90% funding secured from the China Exim Bank (Government of Kenya, 2014: 7). Such innovative and inward looking strategies assist to reduce over-reliance on foreign funding and reduce the unsustainable accumulation of foreign debt.

c) *Maximizing the extraction of benefits from the use of productive economic infrastructure*

Despite the often flexible loan repayment plans associated with Chinese loans for infrastructure development, there are genuine fears that the increased borrowing of loans by African countries may ultimately result in the accumulation of huge debts on the part of African governments which will reverse development milestones achieved so far and ultimately scupper the integration momentum through debt entrapment. It is recommended that African countries guard against the “white elephant syndrome” through rushing to secure loans for unviable projects that are not of regional and national economic importance. Regional project design and preparation should be broadened to ensure that infrastructure projects are intertwined with industrialization strategies and Spatial Development Initiatives (SDIs) to create wider socio-economic opportunities so as to avoid the “white elephant” trap. Thus, there is a need to invest in detailed economic analysis of proposed projects before approval for funding. This process must be carried out with due diligence at regional level by all the relevant stakeholders in an inclusive manner. To this end, African countries may need to fully utilize their REC institutions to carry out detailed project feasibility analysis and ensure that regional projects are well assessed and packaged before securing funding. REC institutions such as the ECOWAS Projects Preparation and Development

Unit (PPDU), the SADC Projects Preparation and Development Facility (PPDF), and the COMESA-EAC-SADC Tripartite Project Preparation and Implementation Unit (PPIU), among others, are fundamental in this respect.

d) *Strengthening negotiations for financial assistance and local empowerment components*

It is not a secret that the China-Africa Partnership has been sustained by deep political trust, and has been based on the principles of common development and mutual benefit. Pursuant to these values and principles, the negotiation for infrastructure development loans should also continue to explore the options of subcontracting local players in the African construction sector. This will ensure greater win-win benefits through technology transfer/sharing between Chinese SOEs and local firms so as to invest in the development of local capacities.

An encouraging case is that of Kenya in the construction of its SGR Project: KRC and CRBC agreed on a local procurement formula to the effect that “40 per cent of local content in terms of construction materials [that are locally available], civil works and job” will be procured and/or secured within the country (Government of Kenya, 2016: 8). This is the key to socio-economic empowerment. The Mombasa-Nairobi SGR Project was reported to have created about 30,000 jobs in Kenya (*China Daily*, 13 December 2016). In another case, the Ethiopia-Djibouti Railway Project reportedly employed “over 20,000 local workers in Ethiopia and 5,000 in Djibouti” (Ministry of Foreign Affairs, 2016).

Progressive technology transfer arrangements should be sustained whenever partnership infrastructure projects are undertaken. The arrangement made for the Ethiopia-Djibouti Railway Project in terms of local staff training and transitioning of the handover process is commendable. In this project, Chinese staff will manage the project operations for the first five years upon completion of the railway line in October 2016 and will hand over all the railway operations management to local staff who would have undergone specialist training in China and Russia within the transitional period (*Railway Gazette*, 5 October 2016).

Similarly, for the Mombasa-Nairobi SGR Project, CCCC will operate the railway facility for five years, upon project completion, before handing over to KRC. In 2015, the CRBC also established a Technology Transfer Competence Training Centre in the town of Voi, in Taita Taveta County, to train both skilled and unskilled local SGR employees, engineers and artisans through capacitating them with physical operational skills, technical skills, soft skills, occupational safety, and theoretical studies as part of the SGR project (*Daily Nation*, 3 July 2015; *New China*, 12 August 2015; Xinhua, 1 August 2015). A more or less similar model was also applied in the TAZARA

railway project whereby the TAZARA Training Centre (TTC) was constructed in Mpika District, Zambia; in 1975 by the Chinese as part of the project for railway-specific training and other related capacity building. The TAZARA also employed 38,000 Tanzanians and 13,500 Zambians at the “height of [its] construction” (Tanzania Zambia Railway Authority, 2016d: n.p.).

Besides flexibilizing the loan repayment mechanisms, this sustainably empowers African artisans and experts, and ensures smooth handover thereby guarding against interruptions or destabilization of project operations management.

Adhering to Common Investment Policies and Regulations in regional communities where they are existent, such as in COMESA, is very critical. Related to this, African governments need to improve on upholding highest standards of transparency in negotiating for financial assistance for infrastructure development so as to allow space for legitimate public scrutiny. It is not common knowledge that most of the negotiations for concessional loans or grants seem to be consistently opaque and remain shrouded in bureaucratic secrecy with partial disclosure. The continuation of such opacity may conveniently provide room for kleptocratic tendencies within African governments which obviously encumbers the pursuit of the African regional infrastructural development agenda.

The scope of negotiations for financial assistance may need to be broadened to include enforceable mechanism for African governments to monitor every stage of the project implementation cycle with a view to attend to issues regarding quality assurance, local procurement quotas, labour relations issues, environmental management and protection, among other issues. These issues have tended to be sensationalized and over-exaggerated especially by some sections of the media in Africa and beyond thereby nurturing unnecessary and destructive perceptions and misperceptions around the China-Africa Partnership.<sup>7</sup>

## **7. Conclusion**

The trans-continental appraisal has revealed that China is playing a critical role in enabling African regional infrastructure renaissance through the China-Africa partnership across all sectors of road, rail and sea transport, energy, and ICT. This is largely through facilitating low interest loans and grants to finance regional infrastructure projects in all the RECs on the continent. There is a notable shift of focus and prioritization in China-Africa partnership in terms of infrastructure development projects from national to regional/trans-boundary infrastructure. This is aligned to the Agenda 2063 and various REC Infrastructure Development Master Plans which all accelerate connectivity and regional integration in Africa. It can be noted from the completed

projects as well as ongoing projects that the infrastructure projects borne out of the China-Africa partnership are stimulating interstate cooperation in terms of trade and industrialization, movement of people and reducing drastically the cost of doing business in Africa. To complement China's efforts, and for the purposes of sustainability, it is incumbent upon African governments to explore alternative infrastructure financing mechanisms such as new and attractive PPP models, establishment of regional infrastructure development funds, regional infrastructure tolling systems, among others within the framework of the AU Infrastructure Master Plan, PIDA, NEPAD-AAP, NEPAD-STAP, NEPAD-MLTSF, and respective REC Infrastructure Development Master Plans.

## Notes

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1. Against a background of foreseen increase of energy demand in Africa from 590 terawatts per hour to 3,100 terawatts per hour as noted in the *2011-2040 PIDA Energy Outlook*, the African Development Bank (AfDB) pointed out that despite recognizable efforts to increase intra-REC Power Pool, the energy traded in the year 2009 was ranging between 0.2 per cent in the Central Africa Power Pool and 7.5 per cent in the Southern African Power Pool (Kambanda, 2013).
  2. A development corridor is a combination of interconnected transport routes that connect centres of economic activity across one or more adjoining countries thereby promoting trade, investment and regional integration. The Mtawara Development Corridor links Malawi, Mozambique, Tanzania and Zambia.
  3. Nacala Corridor connects Malawi, Mozambique and Zambia whilst the Maputo Development Corridor links South African Provinces of Gauteng, Limpopo and Mpumalanga with Maputo Port of Mozambique.
  4. The China Railway Engineering Corporation Limited website reported on 17 April 2011 that they had completed the Western section of the project in April that year.
  5. The *China Daily* (2014) reported that the Addis Ababa-Adama Expressway was constructed at a cost of more than US\$709 million.
  6. Africa's main corridors consist the following; Trans-Maghreb Corridor (stretches from Rabat-Algiers-Tunis-Tripoli-Cairo), Abidjan-Lagos Corridor (stretches from Abidjan-Accra-Lome-Cotonou-Lagos in West Africa), Northern Corridor (stretches from Southern Sudan-Bujumbura-Kinshasa-Ethiopia-Kigali-Northern Tanzania-Kampala-Nairobi-Mombasa), Central Corridor (stretches from Uganda-Burundi-Rwanda-DRC-Tanzania), Dar es Salaam Corridor (stretches from Dar es Salaam-Lusaka-Lilongwe), Walvis Bay Corridor (stretches from Walvis Bay-

Botswana-Zambia-Zimbabwe connecting to the Trans-Kalahari, Trans-Caprivi and Trans-Cunene Corridors), Maputo Development Corridor (links Maputo Port in Mozambique with South Africa's Gauteng Province), North-South Corridor (stretches from Dar es Salaam to Durban going through eight countries, namely Botswana, DRC, Malawi, Mozambique, South Africa, Zambia, Zimbabwe, and Tanzania). Compilations extracted from ECA (2010).

7. In an interview with China.org.cn on 23 of February 2013, Liu Youfa, Vice President of the China Institute of International Studies, noted that there are several politickers, academics and theoreticians who consistently mix up development issues in China and Africa thereby distorting the China-Africa story for political reasons. Unsubstantiated and/or over-exaggerated reports on poor labour relations have been reported in almost all African countries where Chinese enterprises are undertaking infrastructure projects (FOCAC, 2011).

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