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Development Corridors in Kenya

A Scoping Study

Source: Ministry of Transport and Infrastructure GoK 2014

The Development Corridors Partnership is a research and capacity building collaboration among institutions from China, Kenya, Tanzania, and the UK. Its main purpose is to deliver effective research and build capacity so development corridor decision-making can be based on sound scientific evidence and effective use of available planning tools and procedures.

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Executive Summary

This report presents the results of the study ‘‘Development Corridors in Kenya: A Scoping Study”. The objective was to review the current baseline situation in relation to mega-scale development corridor projects in Kenya with regard to the people and society, environment, conservation and development. The work forms the basis for the planning and implementation of the Development Corridors Partnership (DCP) research programme that will offer innovative solutions towards achieving these mentioned goals both in Kenya and Tanzania but also aims to showcase best practice applicable to other countries and regions.

The scope of the report includes a conceptual framework for understanding development corridors in Kenya and related initiatives as outlined in the National Spatial Plan 2015-2045, with the Lamu Port and Lamu-Southern Sudan-Ethiopia Transport (LAPSSET) and Standard Gauge Railway (SGR) corridors being the two main corridors under consideration. It then reviews a broad array of stakeholders and their influence on Kenya’s development corridors. It analyses the development corridor implementation in Kenya by looking into Corridor Project Negotiation and Agreement Process, challenges to corridor implementation, litigation and resultant impacts. It goes further to highlight potential social and ecological impacts of development corridors, and climate change-related risks facing the development corridors.

The study applied several data collection and analysis tools. Literature review, stakeholder analysis and a critical review of relevant policies and legislation were completed to identify actors and policy, as well as legislative frameworks relevant to the development corridors in Kenya. Efforts were also made to collect data from selected government agencies and actors through telephone and email communications (Section 1.1 to 1.3).

Key Findings

1. **Development corridors in Kenya and related initiatives (Section 2.1 & 2.2)**

This study established that Kenya has two main development corridor projects. The first one is the Lamu Port-Southern Sudan-Ethiopia Transport (LAPSSET), a flagship project under Kenya’s Vision 2030, whose aim is to create seamless connectivity between the East African countries of Kenya, Ethiopia and South Sudan. The second is the Standard Gauge Railway (SGR), which is also a Vision 2030 flagship project as well as the East Africa Railways Master Plan (2009) project aimed at connecting Kenya, Tanzania and Uganda. Additionally, other development corridor related initiatives identified include dams and water transfers, Lake Turkana Wind Power Farm, oil and gas exploration and production, airports, resort cities and industrial park projects.

2. **Key Stakeholders and their influence in Kenya’s Development Corridors (Section 3.1 to 3.7)**

Over 100 stakeholders involved in the design, development and implementation of development corridors in Kenya were identified and documented. These include government ministries, parastatals and research institutions, industries, regional bodies, international/donor agencies, Non-Governmental Organizations (NGOs), and umbrella bodies (such as Kenya Private Sector Alliance (KEPSA) and Kenya Association of Manufacturers (KAM)). All these stakeholders have continued to influence policies towards development corridors in Kenya at varying levels as discussed in Section 3. The Office of the President (OP) features prominently as the key initiator and decision maker in the development corridor processes in Kenya. However, the government through its relevant ministries play a central role in providing strategic direction and support for the implementation of the projects.

3. Development corridor implementation in Kenya (Section 4.1 to 4.3)

The conceptual framework for the development corridors in Kenya is outlined in the National Spatial Plan 2015-2045. The study found that the process of initiation and implementation of development corridors in Kenya is guided by the Public Private Partnership Act No 15 of 2013. Moreover, the project execution process begins with the relevant government authority inviting proposals from potential project investors and contractors to show their interest and eligibility, and follows through eighteen stages. The conducive regulatory framework in the utility sectors facilitates Public-Private Partnerships (PPPs), supportive policy and legal environment, with several sectoral legal strategies and policy process.

4. Challenges to corridor implementation (Section 4.4)

The study established that there are several challenges faced during development corridors implementation in Kenya. These include: litigation and its resultant impacts, change to a devolved system of government, national and regional politics, management challenges due to human resource management issues, corruption and fraud during land acquisition and compensation, delay in passing of legislation, financial constraints resulting to delayed construction, insecurity due to presence of the Al-Shabaab, and climate change-related risks. These challenges have resulted mainly in the delay in the implementation of the corridor projects, lack of support by the local communities, loss of revenue and investor confidence, and conflict between different stakeholders.

5. Potential impacts of development corridors (Section 5.1, 5.2, 6.1, 6.2 & 6.3)

The study identified several potential impacts associated with the development corridors in Kenya. These include land and water scarcity, biodiversity loss, social marginalisation, economic displacement, resource-based conflicts, deforestation, threats to heritage sites, livelihood impacts and dilution of cultural identity, increased exposure to drugs and diseases (including HIV/AIDS expansion), and child labour and climate change related impacts. Although Kenya has put in place a comprehensive climate change strategy and climate change institutional structures, it was found that there is little evidence of the integration of climate risks into plans for Kenya's development corridor processes to foresee and mitigate climate change impacts. Apart from the negative impacts, the results of the study also showed that there are several potential positive impacts which include: opening of remote areas, economic growth and development of the area, more efficient modes of transport, improved security, reduced accidents in the highways, rapid growth of urban centres, and perhaps intensified agricultural activities.

6. Kenya's ESIA and SEA process (Section 7.1 &7.2)

The Environmental and Social Impact Assessment (ESIA) and Strategic Environmental Assessment (SEA) are anchored on the National Environment Management and Coordination Act of 1999 and revised in 2015 to both align it with the Constitution of Kenya 2010 and to incorporate some aspects such as Strategic Environmental Assessments. These processes are governed by the National Environment Management Authority (NEMA). As a party to international conventions, treaties and agreements on the management of the environment, Kenya through NEMA initiate legislative proposals to give effect to them. The objective of the SEA in Kenya is to systematically integrate environmental considerations into policy, planning and decision-making processes, such that environmental information derived from the examination of proposed policies, plans, programmes or projects are used to support decision making. This study established that the ESIA and SEA processes and results underestimated the actual impacts of the SGR and LAPSSET projects on nature and people, while the mitigation measures, their implementation, monitoring and evaluation were inadequate or non-existent.

7. Priority research areas and capacity needs in Kenya (Section 8.1 & 8.2)

Based on the findings of the scoping study, several priority research areas are proposed with themes that are centred on corridor impacts, mitigation and sustainable management. These are biodiversity and conservation, water resources and supply-demand assessments, livelihoods, climate change adaptation in corridors, and scenarios of land use in the corridors. The study identified some capacity needs and are as follows: training for professionals in carrying out EIAs and SEAs, training for regulators in ESIAs and SEAs, training of Post-Doctoral Research Assistants and Research Assistants on quantitative and qualitative research methods, stakeholder engagement skills, land use scenarios analysis, image processing and GIS, modelling, climate change and adaptation skills, and scientific writing skills.

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List of Abbreviations

AfDB- African Development Bank
ASALs- Arid and Semi-Arid Lands
AU- African Union
COMESA- Common Market for Eastern and Southern Africa
CRBC- China Road and Bridge Corporation
CRDC- China Railway Design Corporation
CSOs- Civil Society Organizations
DCP- Development Corridors Partnership
EAC- East African Community
EIA- Environmental Impact Assessments
ERS- Economic Recovery Strategy for Wealth and Employment Creation
ESIAs- Environmental and Social Impact Assessments
EU- European Union
FoNNAP- Friends of Nairobi National Park
GDP- Gross Domestic Product
GIS- Geographic Information System
GoK- Government of Kenya
HIV/AIDS- Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
IGAD- Intergovernmental Authority on Development
INGOs- International Non-Governmental Organizations
JICA- Japan International Corporation Agency
KALRO- Kenya Agricultural and Livestock Research Organization
KAM- Kenya Association of Manufacturers
KEPSA- Kenya Private Sector Alliance
KRB- Kenya Roads Board
KWCA- Kenya Wildlife Conservancies Associations
LAPSSET- Lamu Port-Southern Sudan-Ethiopia Transport
LCDA- LAPSSET Development Corridor Authority
MoICNG- Ministry of Interior and Coordination of National Government
MoNTP- National Treasury and Ministry of Planning
NCTTA- Northern Corridor Transit and Transport Agreement
NEMA- National Environment Management Authority
NGO- Non-Governmental Organizations
NLC- National Land Commission
NNP- Nairobi National Park
PIDA- Programme for Infrastructural Development in Africa
PPP- Public Private Partnership Act
UNDP- United Nations Development Programme
RAs- Research Assistants
SADC- Southern African Development Community
SDGs- Sustainable Development Goals
SEAs- Strategic Environmental Assessments
SGR- Standard Gauge Railway
STE- Save The Elephants
USAID- United States Agency for International Development
VDS- Vision 2030 Delivery Secretariat
WB- World Bank

1 Introduction

The Kenya Vision 2030 is Kenya's long-term development blueprint that "aims to transform Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment" (GoK-NESC 2007). The Kenya Vision 2030 was launched on October 30, 2006 and is based on three 'pillars': the economic, the social and the political. The adoption of the Vision follows the successful implementation of the Economic Recovery Strategy for Wealth and Employment Creation (ERS) launched in 2002 (GoK 2003). The Vision is being implemented in successive five-year medium-term plans, with the current third plan covering the period 2018-2022. The economic, social and political pillars of the Kenya Vision 2030 are anchored on macroeconomic stability, continuity in government reforms, enhanced equity and wealth-creation opportunities for the poor, infrastructure, energy, science, technology and innovation, land reform, human resources development, security, and public sector reforms. Being a top priority government plan and with mandates cutting across multiple ministries, it is nested in the Office of the President (GoK-NESC 2007).

The Vision has identified several flagship projects in every sector to be implemented over the Vision period and to facilitate the desired growth rate. In the Vision 2030 Sessional Paper No. 12 of 2012, one of the goals/strategies is to build infrastructure development to support identified flagship projects, to ensure contribution to the economic growth and social equity goals. It also calls for the strengthening of the institutional framework for infrastructure development and accelerating the speed of completion. This development must be assessed against the backdrop of "Isolation, insecurity, weak economic integration, limited political leverage, and a challenging natural environment that combine to produce high levels of risk and vulnerability", as noted in the Vision 2030 Development Strategy for Northern Kenya and Other Arid Lands (GoK 2012).

More recently, Kenya launched the Big Four Agenda and Action Plan to guide the development agenda of the country in the period 2018-2022. The Agenda is closely aligned to the Vision 2030 and is focused on following topical issues: manufacturing, affordable housing, universal health care and food security. Manufacturing has the potential to advance socio-economic development through increased and diversified exports, reduced import bills and enhanced employment creation (KIPPRA 2018). But it, along with housing and food security, are associated with buildings and associated structures that occupy land spaces and host activities that impact on the environment. Likewise, a clean environment and universal access to safe water can greatly improve public health and minimise costs related to health care services. In this manner, well designed Environmental Impact Assessments and Strategic Environmental Assessments for development corridors and auxiliary infrastructure can play a critical role in meeting the goals of the Big Four Agenda.

Corridor developments, which comprise the installation of linear or polygonal megastructures, have direct and indirect impacts on the four "spheres" of planet earth: the biosphere, hydrosphere, atmosphere and lithosphere. As well as impacting on people and their diverse societal structures and interactions, including socio-ecological interdependencies, within their known, predicted, and unknown spheres of influence. Given these actual and potential effects, it is important to ensure that corridor developments are undertaken ensuring that a balance is maintained between conservation and development, and that generational and inter-generational benefits are at least sustained, or better still accrue with time. This Scoping Report reviews the current baseline situation in relation to mega-scale corridor development in Kenya with regard to society, environment, conservation, and development. This report forms the basis for the planning and implementation of the Corridors Development Partnership (DCP) research programme that will offer innovative solutions towards achieving these mentioned goals, both in Kenya and globally.

2 Methodological approach to the scoping study

2.1 Literature review

The DCP Kenya team conducted a detailed review of relevant open access published papers; government documents, policy papers, reports and strategies; private sector reports, documents and strategies; and media reports and commentaries related to development corridors. In particular, the team reviewed documents relating to the planning process, implementation and impacts of the installation of the Standard Gauge Railway (SGR) and the Lamu Port South Sudan Ethiopia Transport (LAPSSET) corridor and their related initiatives in Kenya.

2.2 Stakeholder analysis

The stakeholder analysis was conducted systematically based on Mitchell's taxonomy of stakeholders (Mitchell *et al.* 1997). Stakeholders were identified and mapped based on their interaction either with the SGR and LAPSSET directly, or with the communities living in the corridor areas. Power-influence mapping was undertaken based on the perceived authority of the stakeholder in the corridor area. For example, government parastatals and ministries with representatives on the LAPSSET Corridor Development Authority Board would be considered to have high power and influence.

2.3 Observations and interviews

The foundation laid by the literature review and the stakeholder analysis made it possible for the research team to carry out visits to the field, where primary data was collected. Formal and informal interviews with corridor institutions such as LAPSSET, Konza Technopolis Development Authority (KOTDA), Kenya National Highways Authority (KeNHA), Geothermal Development Company (GDC) and SGR were conducted as were opportunistic interviews with individuals interested in development corridors in Kenya. This included groups such as Kenya Wildlife Conservancies Association (KWCA), Save the Elephants (STE), Amara Conservation, Friends of Nairobi National Park (FoNNAP) and other stakeholders.

3 Development corridors in Kenya and related initiatives

In 1985, the countries of Burundi, Democratic Republic of Congo, Kenya, Rwanda, and Uganda signed the Northern Corridor Transit and Transport Agreement (NCTTA) and its associated protocols to implement the Northern Corridor. The Northern Corridor is a multimodal trade route linking the landlocked countries of the Great Lakes Region with the Kenyan maritime seaport of Mombasa[1]. South Sudan acceded to the Agreement in 2012. The Northern Corridor was envisaged to facilitate regional economic development. Implementation of the Agreement was vested in the Northern Corridor Transit and Transport Coordination Authority which is based in Mombasa, Kenya. This is partly the context within which the national development corridors have been framed (Figure 1).

[1] http://www.ttcanc.org/page.php?id=11

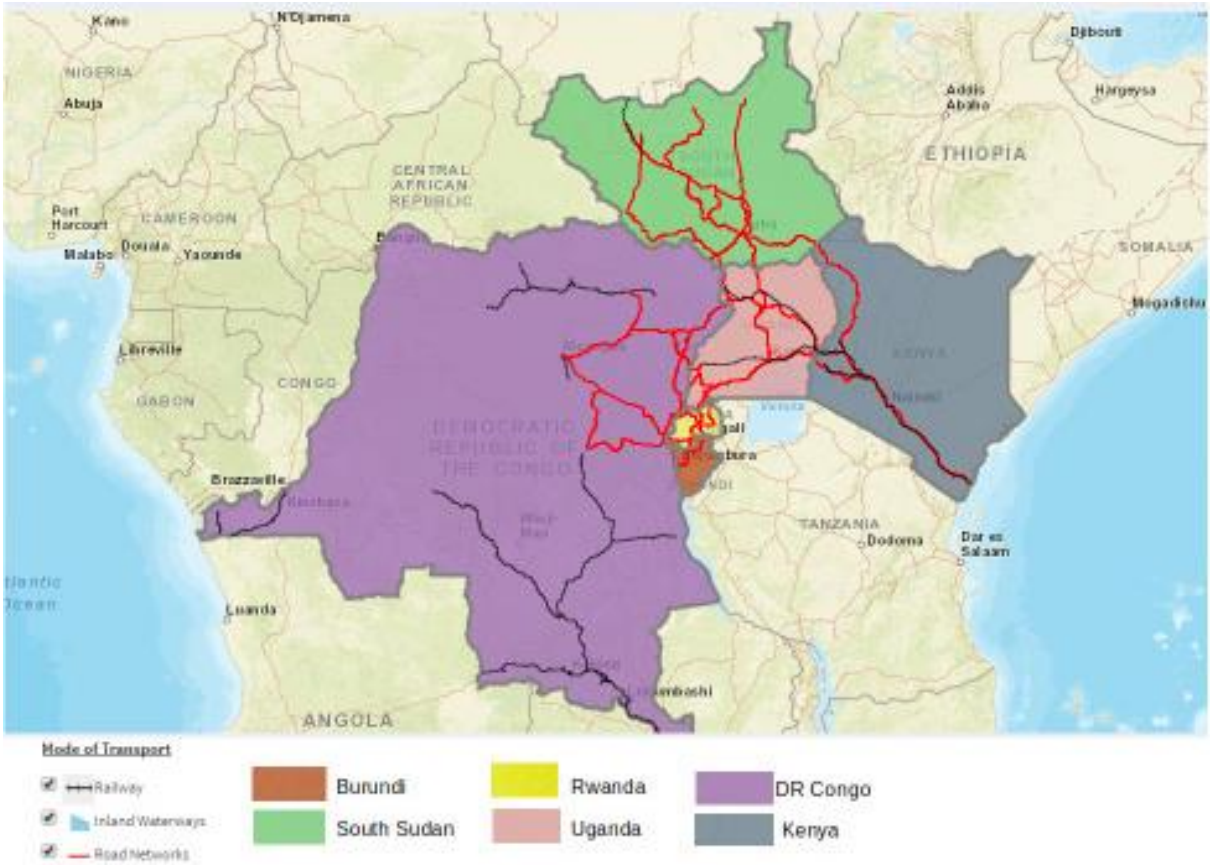

Figure 1: The northern corridor member states and envisaged transit and transport links.

Source: Northern Corridor Transit and Transport Coordination Authority website[2]

The conceptual framework for the development corridors in Kenya is outlined in the National Spatial Plan 2015-2045, with the LAPSSET and SGR corridors being the two of focus (GoK 2015). Development corridors in Kenya are diverse, ranging from linear infrastructure such as rails, roads and pipelines, to spatially spread nodes such as business hubs, ports and luxury cities (*Figure 2*). Today, several projects have been proposed and are either ongoing or planned. Four projects have featured prominently. These are 1) The LAPSSET Corridor; 2) SGR Corridor; 3) KOTDA, and 4) the Resort Cities. Other associated projects include the expansion of existing highways in the country, installation of wind power projects in Northern Kenya and the construction of dams to aid water transfer in the country. These projects are outlined briefly below, and more details are presented in the Appendices.

[2] http://www.ttcanc.org/

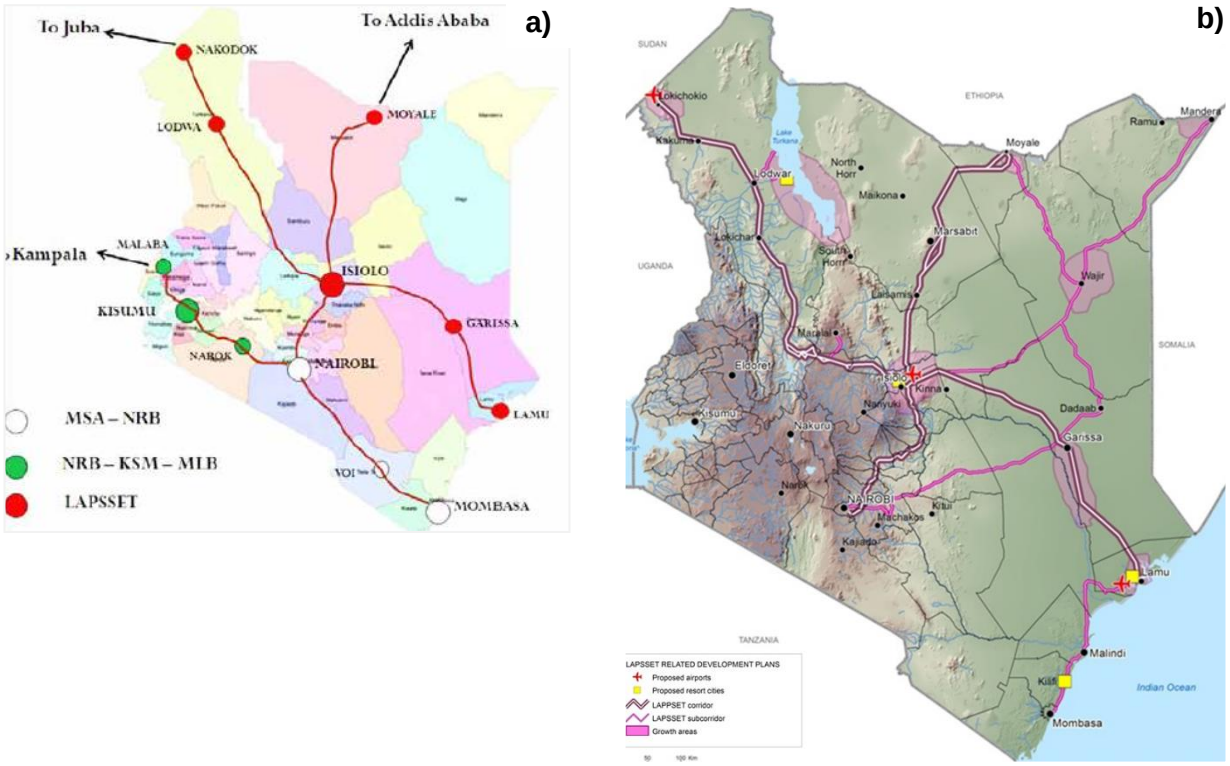

Figure 2: Position of the SGR (Phases I & II) (a) in relation to the LAPSSET and (b) location of the LAPSSET Corridor including roads, proposed resort cities and proposed airports

Source: Kenya Railways 2013, Letai and Tiampati 2013

3.1 LAPSSET corridor

3.1.1 How it came about, where and what it is

The Lamu Port-Southern Sudan-Ethiopia Transport (LAPSSET) corridor was initiated under Kenya's Vision 2030. The project aims to create seamless connectivity between the Eastern African Countries of Kenya, Ethiopia and South Sudan, connecting an estimated population of 160 million people across these three countries. Further, the corridor is part of the larger land bridge intended to connect the East African coast from Lamu Port to the west coast of Africa at Douala Port, Cameroon. Regional economic bodies such as COMESA-EAC-SADC Tripartite and the Intergovernmental Authority on Drought and Development (IGAD) are involved in the extension efforts (Lapsset Corridor Development Authority 2016).

LAPSSET comprises Lamu Port, a railway line, road network, oil pipeline, oil refinery, airports (e.g. at Isiolo, Lamu), and resort cities (e.g. Isiolo). Some of these elements are in progress. For instance, the Lamu Port construction was launched on 2nd March 2012 and is still ongoing, whereas an airport in Isiolo is already complete although is not yet operational. The road that links Isiolo with Moyale on the Ethiopian border was 85% complete by 2016 (Lapsset Corridor Development Authority 2016).

During the African Union (AU) Summit held in Johannesburg, South Africa in June 2015, LAPSSET was endorsed and added to the AU Presidential Infrastructure Championship Initiative (PICI) project. Further, the project's admission to the African Union PIDA project (Programme for Infrastructure Development in Africa) elevated its financial support from continental institutions

such as AU/NEPAD (New Partnership for Africa's Development) (Lapsset Corridor Development Authority 2016).

3.1.2 LAPSSET past and current stretch

The only extensive infrastructure prior to the implementation of the LAPSSET corridor project was the road network, but it was poorly to moderately developed, comprising mainly of marram. The envisioned corridor, when complete, will have a length of over 2,000km, from the coastal town of Lamu and extending into the hinterland, to the Sudan border through the Isiolo, Lodwar and Nakodok, and with a branch from Isiolo extending northwards to the Ethiopia border via Moyale. It traverses the following counties: Lamu, Garissa, Isiolo, Meru, Laikipia, Samburu, Baringo, Marsabit and Turkana (*Figure 2*). Further, LAPSSET will consist a 1,710km long railway line, a 2,240km long oil pipeline, and a dual carriageway of 880km (REPCON Associates 2017).

3.1.3 LAPSSET key decision makers

There are multi-level, and multi-sectoral stakeholders involved with key decision making process at various stages of the LAPSSET project. They included: The Office of the President (OP) which initiated and is leading the process, as well as government ministries, parastatals, umbrella bodies, regional and international agencies, and Non-Governmental Organisations (NGOs), among others. In March 2013, through the Presidential Order Kenya Gazette Supplement No. 51, Legal Notice No. 58, the LAPSSET Corridor Development Authority (LCDA) was established. The agency is charged with steering the LAPSSET corridor project working in conjunction with the Office of the President and key stakeholder ministries as key decision makers. The ministries that sit on the LCDA board, and that can, therefore, be considered as the core ministries, are the National Treasury, Transport, Infrastructure, Housing and Urban Development, Energy, Tourism and Wildlife, and Lands and Physical Planning. The ministries have associated parastatals such as Kenya Ports Authority (KPA), National Environment Management Authority (NEMA), and the National Land Commission (NLC) that are also key decision makers since they are directly involved in the project implementation and sit on the Board of the LCDA. NGOs and Civil Society Organisations (CSOs) such as Save Lamu and Muslims for Human Rights (MUHURI) have attempted to shape the implementation of LAPSSET. Organisations, from an African, East African and international perspective, including the African Union (AU), Inter-Governmental Authority on Development (IGAD), East African Community (EAC) and international donor organisations and investors, have had variable levels of influence on the LAPSSET project decision making, as reflected in Section 3 below.

3.2 SGR corridor

3.2.1 How it came about, where and what it is

The standard gauge railway (SGR) is another large flagship project conceived under the Kenya Vision 2030 development agenda. It followed the recognition that the old railway system that was fully established by the early 1900s, running westwards to Uganda from the coastal town of Mombasa and through the central and western parts of Kenya, was aged and unable to sustain the ideal load capacity of the region (AWEMAC 2012). Regionally, the SGR forms part of both the East Africa Railways Master Plan (2009) and the Eastern African SGR regional network. This master plan aims to rejuvenate existing railways serving Tanzania, Kenya and Uganda, and make extensions to Rwanda, Burundi, South Sudan, Ethiopia and beyond (CPCS Transcom International Limited 2009).

On 1st October 2009, Kenyan and Ugandan governments signed a memorandum of understanding for the construction of the SGR from Mombasa to Kampala. On 28th August 2013, Rwanda came on board, and the three governments (Kenya, Uganda and Rwanda) signed a Tripartite Agreement commitment to fast track the SGR development to their respective capital cities. South Sudan later joined as an interested stakeholder in the project. The government of Kenya has completed the first phase of the SGR project from Mombasa to Nairobi. The construction of the second phase from Nairobi to Naivasha has begun (Ministry of Transport and Infrastructure, 2014).

3.2.2 SGR past and current stretch

Prior to the conception of the SGR project, Kenyan railways had a total network length of 2,210km. The main network, covering 1,083km, runs from Mombasa through Nairobi and Nakuru, to Malaba at the Uganda border point. Another 217km branch line run from Nakuru to Kisumu, linking with the ferry service on Lake Victoria (Berger 2011). Another additional set of branch lines, of 618km in total length, runs from Nairobi to the towns of Magadi, Taveta (Tanzania border), Kitale and Butere (western Kenya), and to Nyahururu, Nanyuki and Solai (central Kenya) (Berger 2011).

Kenya's SGR, commonly referred to as the Mombasa-Nairobi-Kisumu-Malaba SGR, is to be implemented in two phases. Phase 1 is the Mombasa-Nairobi railway covering a total length of 485km. The phase traverses eight counties of Mombasa, Kwale, Kilifi, Taita-Taveta, Makueni, Kajiado, Machakos and Nairobi, passing through 31 towns, with 33 terminals. The Phase 1 subgrade length is 427km and comprises 98 medium and large bridges, 969 culverts, and 77 overpasses across roads (AWEMAC, 2012). The SGR Phase 1 route generally runs parallel to the Mombasa-Nairobi Highway (A109), which is 482km long. Full operation of this phase was intended in December 2017 (Habitat Planners 2016), but the passenger component was launched earlier by Kenya's President on 1st June 2017.

Phase 2 is divided into sub-components A and B. Phase 2A has already begun. It starts at Nairobi South Station and will terminate at Enoosupukia in Narok County covering a total length of 120km. This phase will pass through five counties, namely: Nairobi, Kajiado, Kiambu, Nakuru and Narok, in that order. There will be six terminals and four tunnels built along the corridor. The first tunnel will be built at a length of 4.5Km. Phase 2B is set to undergo a separate Environmental Impact Assessment (EIA) study and report from Phase 2A. When completed, the SGR will connect Mombasa city port with the interior part of the country (Habitat Planners, 2016).

3.2.3 SGR key decision makers

The SGR project has been led by the Office of the President under the Vision 2030 development programme. Kenya Railways Corporation (KRC), as the implementing agency, is mandated to work in liaison with such players for successful implementation. The following two ministries sit on the board of the KRC and are therefore regarded as the primary decision-makers in its implementation: The National Treasury, Transport, Infrastructure, Housing and Urban Development ministries. The key parastatals include KeNHA, NEMA, and NLC. International donors such as China Exim Bank, World Bank (WB), and the African Development Bank (AfDB) have directly funded roads and energy infrastructure along the corridor. Umbrella bodies such as KCC, Kenya Association of Manufacturers (KAM), conservation groups, CSOs, and other stakeholders' efforts may also contribute to some of these decision-making situations. These are discussed further in Section 3 below.

3.3 Related initiatives

3.3.1 Dams and water transfers

The National Water Master Plan (NWMP) 2030 is aligned with Vision 2030 and aims to develop the country's available surface and groundwater resources to the fullest extent possible. In order to meet water demands and mitigate drought impacts through multipurpose development, inter- and intra-basin transfers, as well as through promotion of water saving, reuse of water, roof and rock catchments for water harvesting, among others (MEWNR and JICA 2013). For example, activities proposed along the yet to be constructed western sector of the SGR are: a multi-purpose (domestic, irrigation, hydropower) dam in the Nandi hills to transfer 189 million cubic metres per year (MCM/yr) of water to Lake Victoria South Catchment Area, including Kisumu City (MEWNR and JICA, 2013); Itare and Londiani dams will be built in the Lake Victoria South Catchment Area (Mau) which will transfer 41MCM of water per year to the Greater Nakuru area; and augmentation of groundwater supplies to Nakuru town from three major well fields of Kabatini, Baharini, and Olobanita (15,000 m^3/day). In association with the LAPSSET corridor, it is proposed for Wajir town to pipe water from the Merti aquifer in Habaswein area, 110km south of Wajir, to relay a total of 2.2MCM/year of potable water to Wajir (Luedeling *et al.* 2015). This plan illustrates the significant role of groundwater storage in water security assurance (Foster and MacDonald 2014), particularly in the arid and semi-arid lands (ASALs). Further, in the Lamu area where the port construction is taking place, it has been estimated that the water demand for the port construction will be 1200m^3/day, against a supply of 450m^3/day from the ten boreholes at the Hindi-Magogoni water supply. This water deficit will be worsened by the expected growth in the population of Lamu area, from 16,146 people in 2009 (with a demand that is not being met of 181,550m^3/day) to 450,000 people by 2030 (County government of Lamu 2013).

3.3.2 Lake Turkana Wind Power Farm

The Lake Turkana Wind Power project which was commissioned in 2018 is of significant strategic benefit to Kenya and is one of the largest private investments in Kenya's history. The wind farm site is in Marsabit District in northern Kenya, approximately 50km north of South Horr Township and 8km east of Lake Turkana. The farm consists of three interconnected components: a wind farm at Lake Turkana, Lake Turkana to Suswa transmission line, and road adjustments, upgrades and construction. It aims to provide 300MW of reliable, low-cost wind energy to the national grid, equivalent to over 20% of the current installed electricity generating capacity. The project includes rehabilitation of the existing road from Laisamis to the wind farm site, approximately 200km, as well as plant and equipment lay-down areas, and access road network in and around the site for construction, operations and maintenance purposes. The construction of the transmission line is the responsibility of the Kenyan Government through the state-owned Kenya Electricity Transmission Company (KETRACO). KETRACO will own the transmission line and have a tolling arrangement with Kenya Power (Lake Turkana Wind Power Project 2011).

3.3.3 Oil and gas exploration and production

In 2012, Tullow Oil made the first discovery of crude oil in the South Lokichar Basin at the Ngamia-1 well. Since then, Tullow drilled more wells in Turkana County and determined that they are economically viable, with an estimated 600 million recoverable barrels of crude oil. Tullow oil has already improved the road infrastructure to support the pilot transfer of 2000 barrels of oil per day by road to the coast, which started at the end of 2017. Eventually, pipeline infrastructure

extending to Lamu port, with a transfer capacity of 200,000 barrels of crude oil per day, will be built to replace the road transportation[3].

4 Stakeholders and their influence in Kenya's development corridors

The importance of including stakeholders in a project has been widely recognised. According to Freeman (1984), a stakeholder is *"any group or individual who can affect or is affected by the achievement of an organisation's objectives".* Stakeholders can range from individuals to formal and informal groups and institutions, directly or indirectly involved with an organisation and its activities. Stakeholder analysis is an essential part of stakeholder management.

Within the Kenyan development corridor context, a wide range of stakeholders have been identified (Appendix 2.) with varying degrees of involvement in the development corridor processes. Some inferences have been made specific to LAPSSET and SGR in Section 2 above. This section examines the broader stakeholder pool and how they inter-relate. The power and influence of stakeholders are also illustrated in this section. In this context, power is the level of authority a stakeholder has in relation to the corridor development project, while influence is the level of involvement of the stakeholder in the project, and/or the degree to which they can influence those with power to change the course of the proposed development.

4.1 Government Ministries and county governments

The government of Kenya through the Office of the President and various ministries has developed multi-sectorial initiatives towards the realisation of the development needs of the country. Under the Presidency, the Vision 2030 which is the national development blueprint, and the Constitution of Kenya, 2010 have been key milestones in the organization and coordination of the government's input towards the development agenda. More recently, the Big Four Agenda that was launched by the President, comprising manufacturing, housing, universal health care and food security, and underpinning job creation, health, food security and development, has added on to the Vision 2030's 3rd Medium Term Plan (MTP) targets and tangible achievements expected by 2022.

To promote and spur sustainable socio-economic activities countrywide, and in resonance with the United Nations Sustainable Development Goals (SDGs) and the African Union Agenda 2063, Kenya has reviewed and streamlined its policies, strategies and plans. This is in order to inspire coordination between national and county governments, and national growth in all sectors, including: transport and development, environment and forestry, energy, agriculture, water and sanitation, industrialization and development, and extractives. Some of the intended transformative flagship projects include LAPSSET, the SGR, and the Northern Corridor and their associated nodes. To ensure sustainable implementation and actualization of the desired economic transformation, the National Treasury and Ministry of Planning (MoNTP) has sought partnerships with local and international monetary funds and donors to mobilize projects' finances, while the LAPSSET Development Corridor Authority (LDCA) and the Vision 2030 Delivery Secretariat (VDS), both domiciled in the Office of the President, were established to

[3] www.tullowoil.com

oversee the implementation, hence they have both high power and influence in corridor development projects (*Figure 3*).

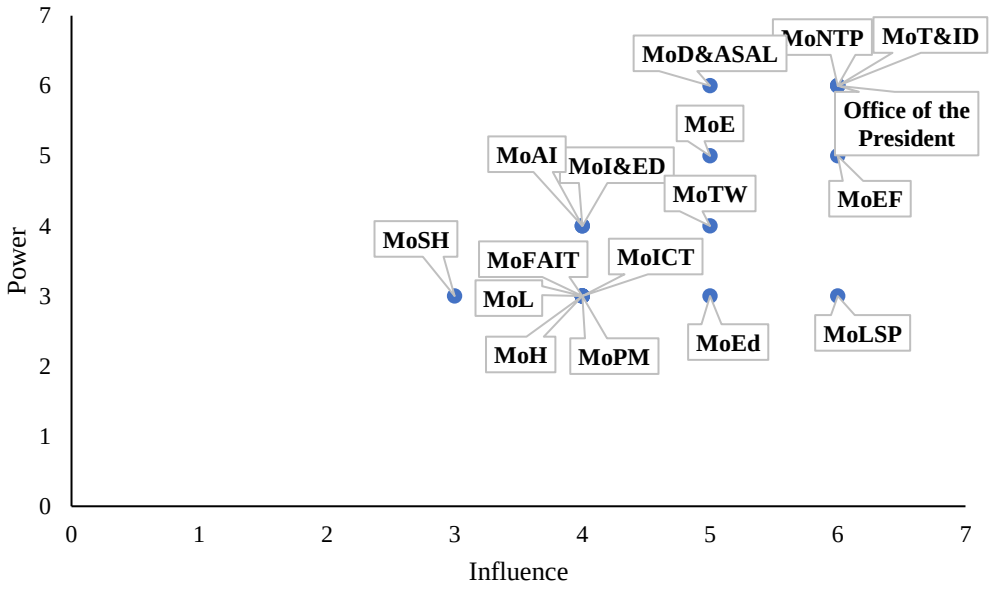

Figure 3: Power vs influence diagram for government ministries in corridor development processes.

MoSH= Ministry of Sports & Heritage, MoL= Ministry of Lands, MoH = Ministry of Health, MoFAIT = Ministry of Foreign Affairs & International Trade, MoAI = Ministry of Agriculture & Irrigation, MoPM = Ministry of Petroleum & Mining, MoICT = Ministry of Information, Communication & Technology, MoI&ED = Ministry of Industrialization, Enterprise and Development, MoEd = Ministry of Education, MoTW = Minstry of Tourism and Wildlife, MoE = Ministry of Energy, MoD&ASAL = Ministry of Devolution and Arid and Semi-Arid Lands, MoLSP = Ministry of Labour and Social Protection, MoEF = Ministry of Environment & Forestry, MoNTP = Ministry of the National Treasury & Planning, MoT&ID = Ministry of Transport & Infrastructure Development.

Those ministries in whose dockets implementing agencies fall, and those that sit on the boards of such agencies, tend to have both high power and influence. As a major mobilizer of funds across the mega projects, the Ministry of the National Treasury and Planning (MoNTP) also has a lot of power and influence on the projects' implementation. This is however intertwined with the mandates, roles and responsibilities of at least twelve other ministries and the shared sustainable development agenda within and across sectors. For example, the Ministry of Information Communication and Technology (MoICT) might be particularly needed for effective telecommunication infrastructure installation along the corridors, just as the Ministry of Interior and Coordination of National Government (MoICNG) would ensure security and safety which is important for successful projects' implementation, especially during site works.

The government works with global finance organisations such as the World Bank and African Development Bank, international agencies such as the UN and powerful International Non-Governmental Organisations (INGOs) such as Japan International Corporation Agency (JICA), the United States Agency for International Development (USAID) and the European Union (EU). However, there are concerns of the low level of partnership with the private sector and NGOs with a national and subnational scope.

4.2 Parastatals and research institutions

Under the Ministry of Transport and Infrastructure Development, the Kenya Roads Board (KRB) has the mandate to oversee the national road network and co-ordinate its development, rehabilitation and maintenance. KENHA plays an important role in highways. When the Kenya Roads Bill 2017 transitions into an Act, there will be established an overall Public Roads Standards Board with representation from some of the smaller existing and proposed new institutions and other stakeholder groups. Other parastatals such as the Kenya Rural Roads Authority (KERRA) and Kenya Urban Roads Authority (KURA) are also involved, but due to their more restricted jurisdictions, they have less power and influence over the overall corridor development (*Figure 4*).

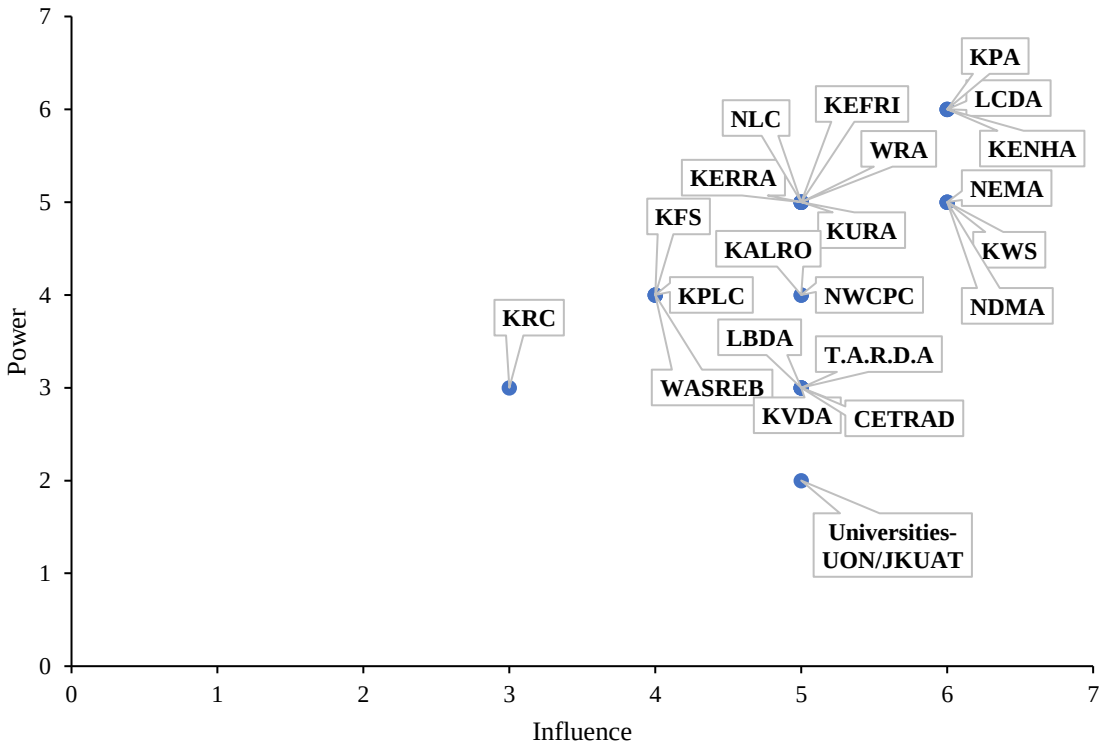

Figure 4: Power vs influence diagram for parastatals and research institutions

KRC = Kenya Railways Corporation, WASREB = Water Services Regulatory Board, KPLC = Kenya Power & Lighting Company, KFS = Kenya forest Service, KVDA = Kenya Valley Development Authority, LBDA = Lake Basin Development Authority, KALRO = Kenya Agricultural & Livestock Research Organisation, KERRA = Kenya Rural Roads Authority, NLC = National Lands Commission, UON = University of Nairobi, JKUAT = Jomo Kenyatta University of Agriculture and Technology, CETRAD = Centre for Training and Integrated Research, T.A.R.D.A = Tana & Athi River Development Authority, NWCPC = National Water Conservation and Pipeline Corporation, KURA = Kenya Urban Roads Authority, WRA = Water Resources Authority, KEFRI = Kenya Forestry Research Institute, NDMA = National Drought Management Authority, KWS = Kenya Wildlife Service, NEMA = National Environment Management Authority, KENHA = Kenya National Highways Authority, LCDA = APSSET Corridor Development Authority, KPA = Kenya Ports Authority.

The National Environmental Authority (NEMA) and Kenya Wildlife Service (KWS) which mainly deal with environmental and biodiversity conservation, also play a huge role in the establishment of large transport corridors. NEMA requires that Strategic Environmental Assessments (SEAs) and Environmental and Social Impact Assessments (ESIAs) are carried out for all projects that are implemented in the country. KWS manages over twenty national parks and reserves in the country, which cover a considerable area of the national land mass and contribute significantly to the national Gross Domestic Product (GDP) through tourism. The organization also has high visibility due to the international profile of its parks and partnerships and holds a high-power vs influence standing (Figure 4).

Kenya Railways Corporation (KRC) is responsible for the supervision of the construction of the SGR but seems to have both low power and influence in the current scheme of things, being more of a recipient of the finished product to manage (Figure 4). The parastatals such as NEMA, KURA, KERRA, KWS, among other parastatals generally partner with international organisations such as the United Nations Development Programme (UNDP) and United Nations Environment (UNEP), as well as national research institutes such as Kenya Agricultural and Livestock Research Organisation (KALRO), Kenya Forestry Research Institute (KEFRI), and universities. They do this to promote research and build capacity in development sectors such as agriculture, water, biodiversity, energy, and transport and infrastructure. Due to this, the research institutions have relatively high influence, but because they are far removed from the actual corridor implementation and development process, they have low power (Figure 4).

4.3 Industries

Several industry stakeholders are working in the development corridors particularly in the construction and extractives (cement and quarry, mining, and oil and gas) sectors. However, the Chinese companies that have been awarded construction contracts are dominant. These are the China Road and Bridge Corporation (CRBC), China Railway Design Corporation (CRDC), and the CRRC Corporation, which manufactures locomotives. These companies all fall within the low power-low influence quadrant as they are the recipients of contracts with more operational rather than decision making roles in the projects (*Figure 5*). The Kenya based cement manufacturers, including Bamburi Cement Company, have the same influence but higher power than the Chinese construction companies. In part because they have established track records within the country. Amongst the industry group, Tullow Oil Company scores highest on both power and influence, particularly because fossil fuel is still a major energy source and a pipeline is to be constructed to transport the resource from Turkana area to the Lamu Port (*Figure 5*).

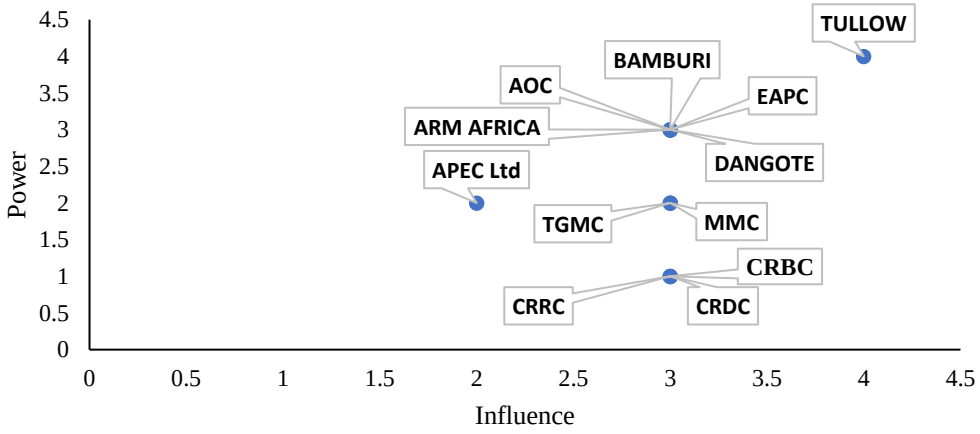

Figure 5: Power vs influence diagram for industries

APEC Ltd = APEC Consortium Ltd, ARM AFRICA = ARM Cement Ltd, AOC = Africa Oil Corporation, CRRC = CRRC Corporation Ltd, TGMC= Turkana Gold Mining Company Ltd., BAMBURI = Bamburi Cement Company, CRDC = China Railway Design Corporation, CRBC = China Road and Bridge Corporation, MMC = Mayfox Mining Company, DANGOTE = Dangote Cement Plc, EAPC = East African Portland Cement, TULLOW = Tullow Oil Company

4.4 Regional bodies

East Africa has three regional bodies, the African Union (AU), East African Community (EAC[4]) and the Intergovernmental Authority on Development (IGAD[5]) whose main mandates are to deepen socio-economic, political and cultural ties, and promote regional cooperation and integration. There are already tangible efforts to create an East Africa common market. Conceptions of joint mega projects such as LAPSSET and the SGR from the port of Mombasa, Kenya all the way to the Democratic Republic of Congo can be a major boost to the region's economy.

The EAC has developed and reviewed various multi-sectoral policies to guide a common development agenda in key sectors such as energy, fisheries and trade. It has developed a Vision 2050 development plan geared to spur economic transformation in the East African countries. At the continental scale, AU's Agenda 2063 emphasizes the role of infrastructure in the growth and sustainable development of the continent, for example through its Programme for Infrastructural Development in Africa (PIDA).

The partnership has been another key investment area for regional bodies. IGAD, AU, and EAC have worked very closely with respective government ministries, the United Nations, European Union, among other stakeholders in various areas of conflict resolution, drought, climate change, water, agriculture and biodiversity. One key commission created by EAC is the Lake Victoria Basin Commission, established in 2001 to coordinate various interventions in the Lake Victoria Basin region and to turn it into an economic growth zone for regional livelihood improvement. All these bodies fall in the high power-high influence bracket but are subservient to each country's development agenda and priorities.

4.5 Donor agencies and international NGOs

The donor agencies and international NGOs involved in corridor development projects in Kenya have been doing so through funding and research. These agencies hold different levels of power and influence over the development corridor processes (

[4] East African Community (EAC) member states are; Burundi, Kenya, South Sudan, Tanzania, and Uganda,

[5] Intergovernmental Authority on Development (IGAD) is composed of eight-member states, namely; Djibouti, Ethiopia, Somalia, Uganda, Kenya, Eritrea, the Sudan, and South Sudan

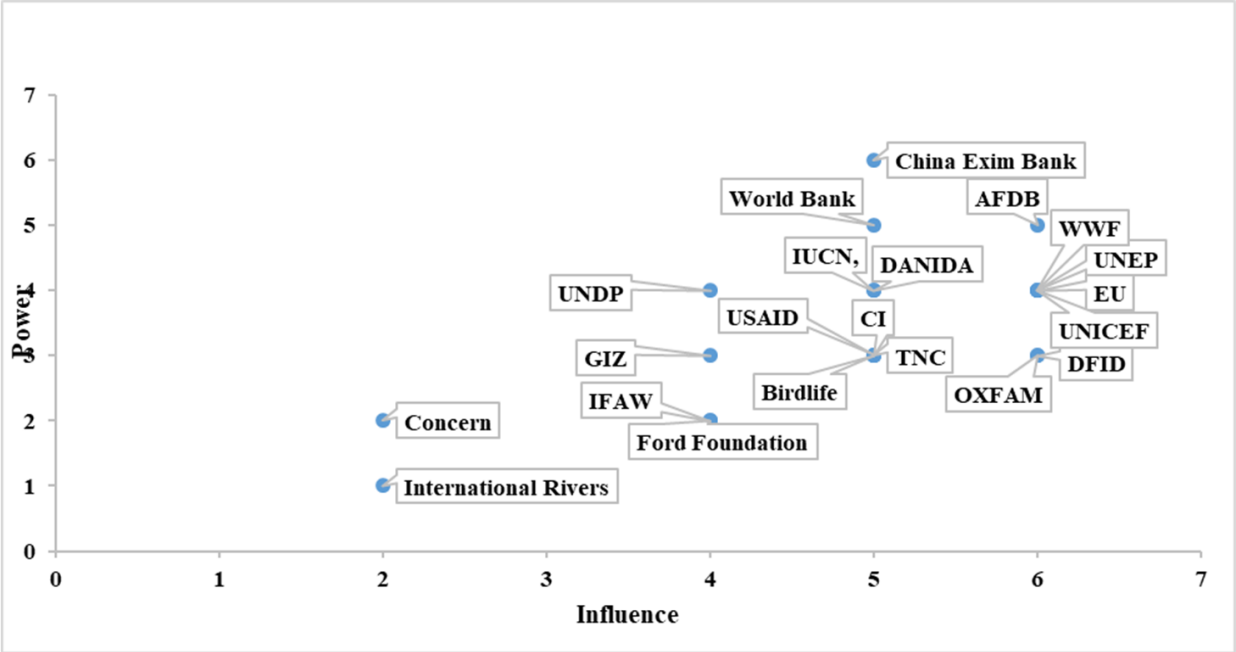

Figure 6), with most of them clustering in the categories of moderate to high influence, and moderate power. This could be partly attributed to their international scope, presence and acceptance among the nations, and strong participation in funding for development projects through country line ministries, and an inclination to make such projects have positive development-oriented outcomes for the countries within which they carry out their projects.

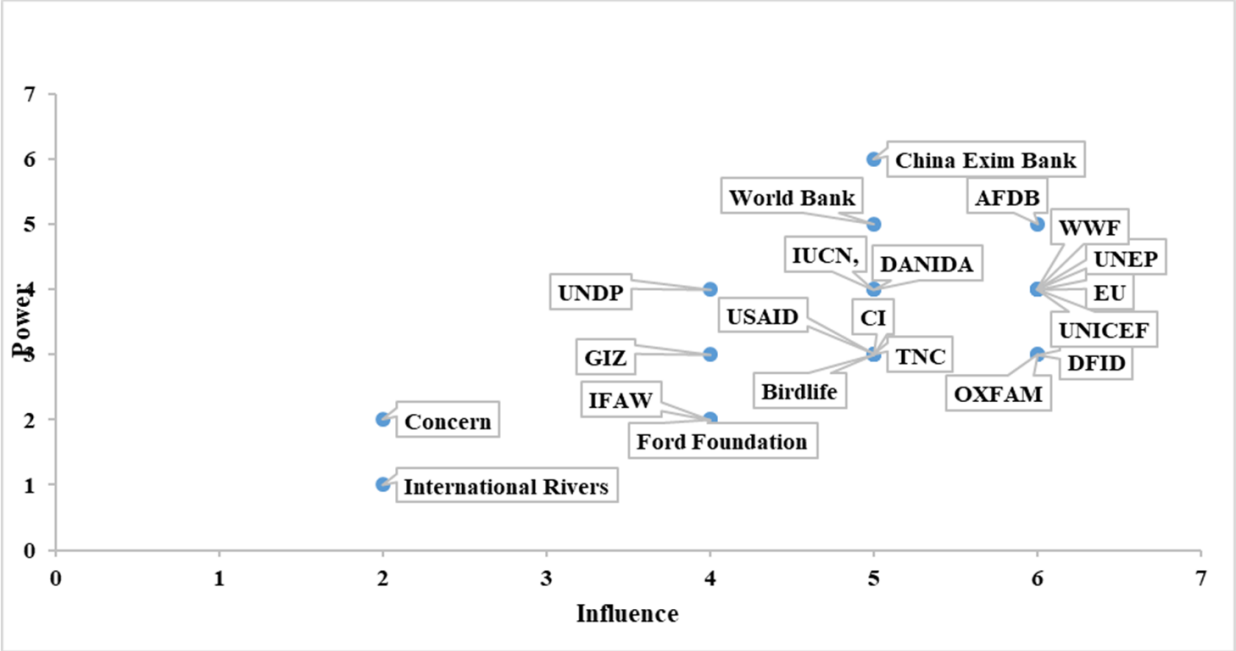

Figure 6: Power vs influence diagram for donor agencies and international NGOs

IFAW = International Fund for Animal Welfare, GIZ = Gesellschaft für Internationale Zusammenarbeit, UNDP = United Nations Development Programme, USAID = United States Agency for International Development, CI = Conservation International, IUCN = International Union for the Conservation of Nature, TNC = The Nature Conservancy, DANIDA = Danish International Development Agency, DFID = Department for International Development, EU = European Union, UNEP = United Nations Environment, WWF = World Wide Fund for Nature, AFDB = African Development Bank.

4.6 National Non-Governmental Organisations (NGOs)

Most of the NGOs that are carrying out programmes and projects within the development corridors tend to focus on biodiversity and environmental conservation, development, governance, extractives, health, livelihoods, famine relief, and poverty alleviation. Other sectors include media, land, water and general or cross-cutting research areas (Appendix 2.). Most of these organisations cluster around moderate power, but along that line have a wide range of influence (*Figure 7*). This could be attributed to their visibility,[6] capacity, and recognition by the government as being a proven and dependable key actor, e.g. the Kenya Red Cross which stands out as having the highest power and influence among the considered group of organisations.

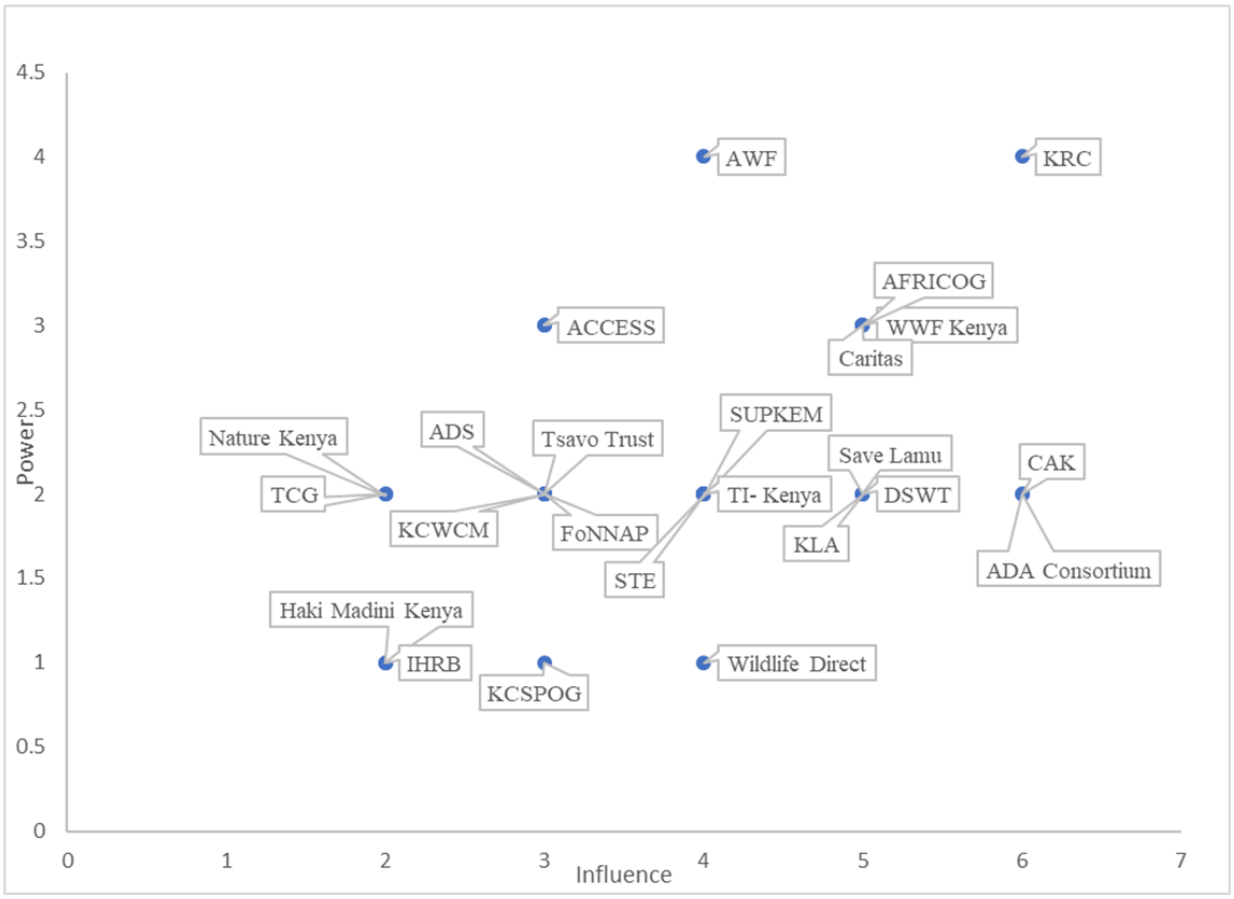

Figure 7: Power vs influence diagram for NGOs

TCG = Tsavo Conservation Group, IHRB = Institute of Human Rights and Business, KCWCM = Kenya Climate Change Working Group, ADS = Anglican Development Services, KCSPOG = Kenya Civil Society Platform for Oil and Gas, STE = Save the Elephants, FoNNAP = Friends of Nairobi National Park, ACCESS = Africa Collaborative Centre for Earth Systems Science, KLA = Kenya Land Alliance, TI – Kenya = Transparency International Kenya, SUPKEM = Supreme Council of Kenya Muslims, AWF = African Wildlife Foundation, DSWT = David Sheldrick Wildlife Trust, AFRICOG = African Centre for Open Governance, ADA Consortium = The Adaptation Consortium, CAK = Conservation Alliance of Kenya, Kenya Red Cross.

[6] Caritas is widely recognized by communities in marginalised counties such as Turkana where the Catholic church was traditionally the main provider of basic services such as education and water (Conversation with Professor Daniel Olago, Institute for Climate Change and Adaptation, University of Nairobi on 23rd April 2018)

4.7 Umbrella bodies

Transparency, accountability, inclusivity, gender and good governance are today key pre-requisites for bankable development projects, from their design to implementation. Civil Society Organizations (CSOs) and other umbrella bodies have traditionally taken on the watchdog role to ensure that these principles, as well as human rights, effective resource management and environmental protection, are incorporated in projects and programmes countrywide. In Kenya, umbrella bodies have been formed coalescing around thematic areas of interest such as biodiversity, human rights, climate change, and property rights. The umbrella bodies play other critical roles such as monitoring the actions of donors and other actors and fostering cooperation and constitutionalism among various stakeholders to promote transparency, accountability and good governance in projects and programmes. These umbrella bodies vary in their scope from national, regional to global.

Although generally characterised by low power, the influence of umbrella organisations ranges from low to high (*Figure 8*). Some of the more influential umbrella bodies like Kenya Private Sector Alliance (KEPSA) and Kenya Association of Manufacturers (KAM) have continued to influence policies geared towards creating enabling business environments and promoting national and international trade. The NGO Coordination Board has high power and influence because of its mandate which is to register, facilitate and coordinate all national and international NGOs operating in Kenya.

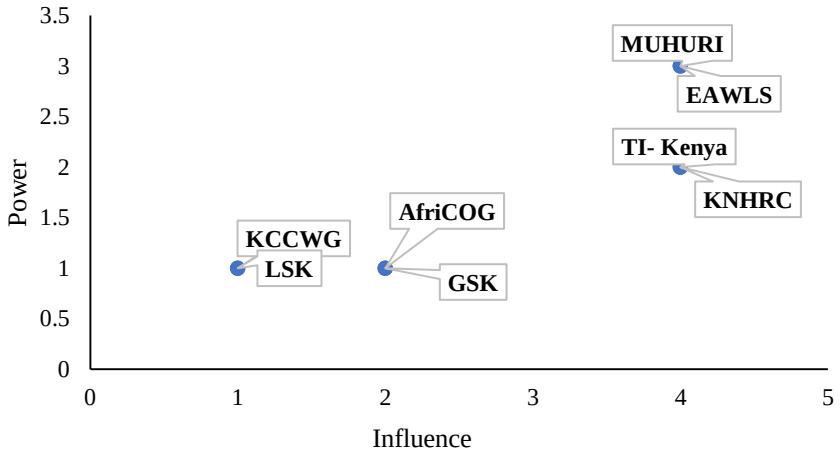

Figure 8: Power vs influence diagram for umbrella bodies

LSK = Law Society of Kenya, KCCWG = Kenya Climate Change Working Group, AFRICOG = African Centre for Open Governance, GSK = Geological Society of Kenya, KNHRC = Kenya National Human Rights Commission, TI – Kenya, EAWLS = East African Wildlife Society, MUHURI = Muslims for Human Rights.

5 Development corridor implementation in Kenya

5.1 Regulatory anchors

In Kenya, corridor development projects are governed by the Public-Private Partnership (PPP) Act which was enacted in 2013, paved the way for capital and infrastructure projects to gravitate towards PPPs. The PPP Act defines a PPP as an agreement between a contracting authority and a private authority, where the private body undertakes and takes the risk of providing a public function and receives the benefit regarding compensation from a public fund or charges collected from the users of the public function. The Act further defines a contracting authority to

be a state department, agency, state corporation or county government, which intends to have a function undertaken by it performed by a private party (Section 3, *Public-Private Partnerships Act* (No 15 of 2013).

The development of the PPP Act begun with the creation of an enabling legal environment, ensuring that PPP initiatives are part of the reform agenda. Domestication of internationally successful PPP models and the preparation of PPP bankable transactions resulted in a PPP pipeline in June 2012 (Ministry of Finance Kenya 2014). In March 2009, the government adopted an institutional framework through the Public Procurement Disposal (Public-Private Partnerships) Regulations 2009 (PPPU). This was followed by an enquiry into the country's legal and regulatory framework which recommended the enactment of a PPP law to address the identified gaps, conflicts, inconsistencies and overlaps in the laws in existence then in 2010. In December 2011 the government approved a PPP policy statement which formed the basis for the establishment of institutions to champion the PPP agenda, facilitate mobilisation of domestic and international private sector investments, and to provide for Government support for PPP projects, as well as providing a clear and a transparent process for project development. On 5th December 2012, the government received financial support from the World Bank for the Infrastructure Finance and PPP project to increase private sector investment in the Kenyan infrastructure market (GoK-PPP Unit 2018).

Subsequently, the Public-Private Partnership Act was passed and came into effect on 8th February 2013. The Act provides for the participation of the private sector in the financing, construction, development, operation, or maintenance of infrastructure or development projects of the Government, through concession or other contractual arrangements and the establishment of the institutions to regulate, monitor and supervise the implementation of project agreements on infrastructure or development projects (PPP Act 2013). The Act defines the process of PPP projects identification, prioritisation, conceptualisation, preparation, tendering, negotiations, award, approval, implementation, monitoring and evaluation, and finally how they are handed over to the government where applicable (Appendix 4.).

5.2 Corridor project negotiation and agreement process

The process of initiation and implementation of development corridors in Kenya is guided by the Public Private Partnership Act No 15 of 2013. The PPP is defined as a performance-based contract under which the private sector supplies public services over time and is paid by the public sector, end user or hybrid of both. The output is specified by the contracting authority while input is the responsibility of the private sector. The Act describes nine steps for the establishment of a partnership (*Figure 9*) and stipulates the processes to be guided by the principles of transparency, free and fair competition and equal opportunity. Meanwhile, the process of identifying and selecting a suitable development project follows the steps in *Figure 10*.

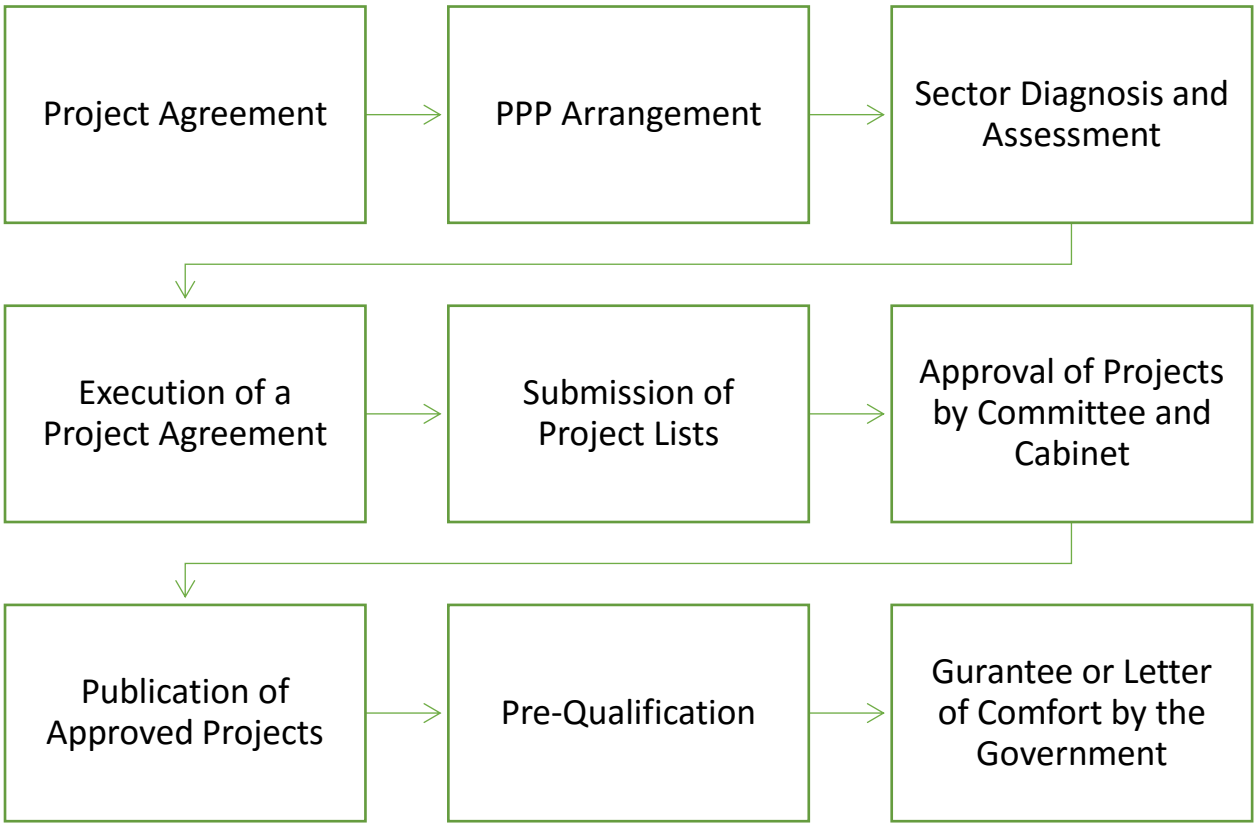

Figure 9: Steps in Establishing Public-Private Partnerships

Source: Public-Private Partnerships Act, No 15 of 2013

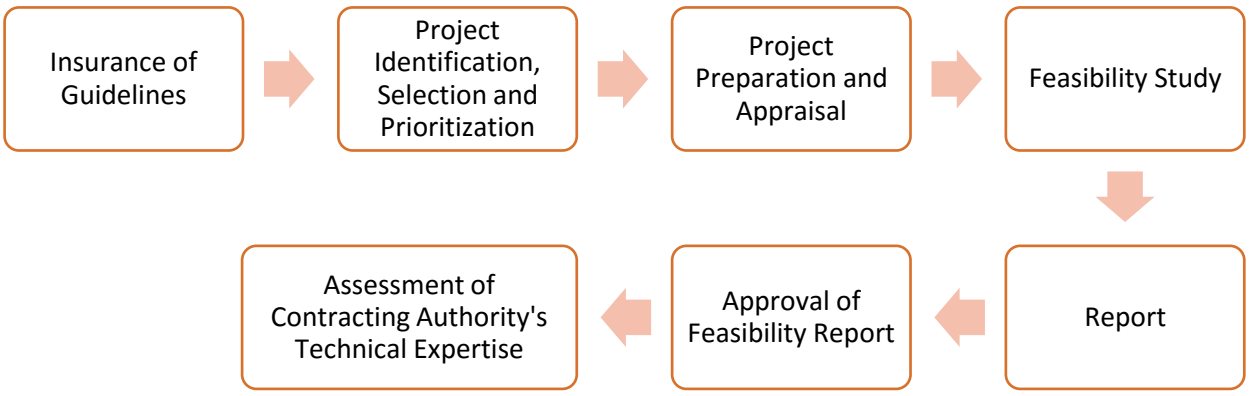

Figure 10: Steps to be followed in Development Corridors Projects Identification and Selection

Source: Public-Private Partnerships Act, No 15 of 2013

5.3 Procedures for the execution of projects

The project execution process begins with the relevant government authority inviting proposals from potential project investors and contractors to show their interest and eligibility. It follows through eighteen stages as shown in Figure 11 below.

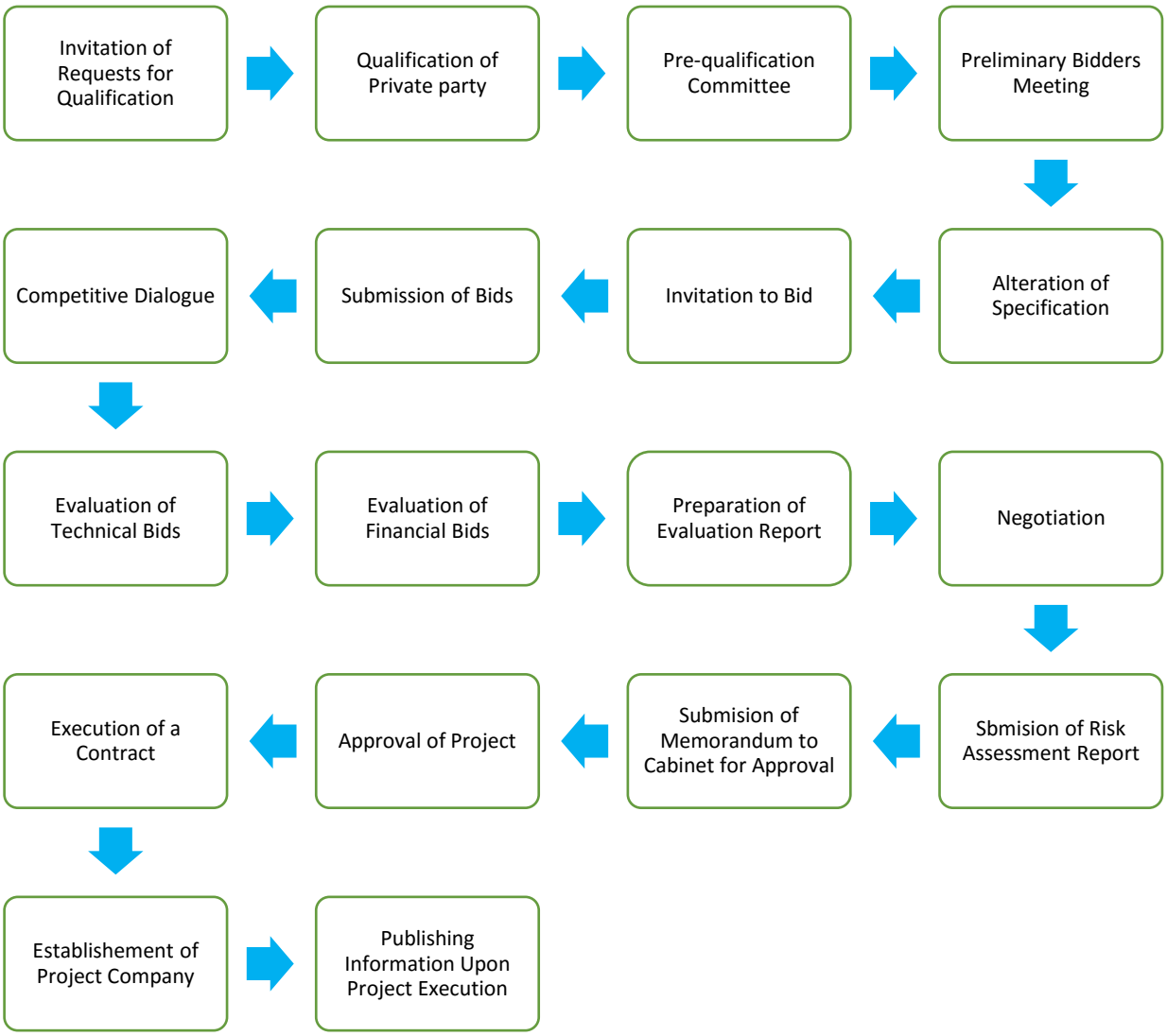

Figure 11: Steps followed in actualizing solicited proposals

Source: Public-Private Partnerships Act No 15 of 2013

The acquisition of land for the development corridors and associated projects in Kenya is guided by the Land Acquisition Act, Chapter 295. The Act stipulates the steps to be taken in the identification, approval and surrender of land that the government seeks to use for development purposes (Figure 12).

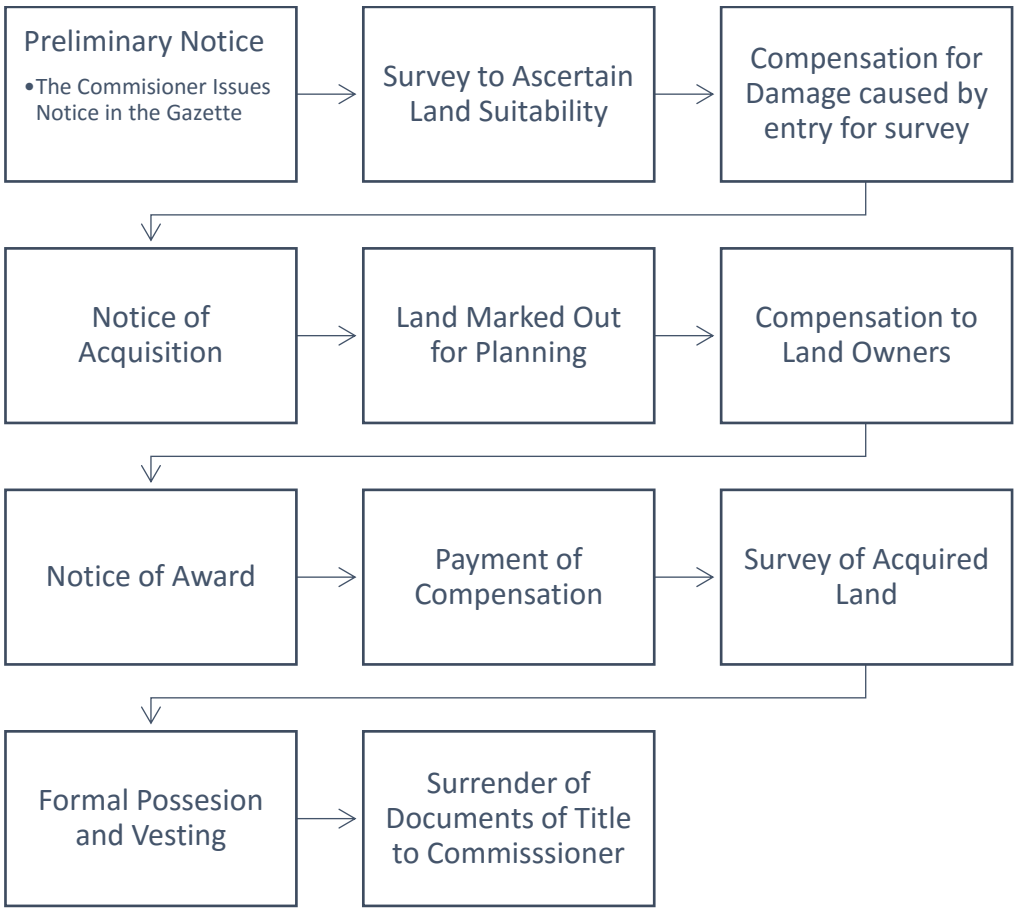

Figure 12: Steps followed when acquiring land for development corridors

Source: The Land Acquisition Act, Chapter 295

5.4 Challenges to corridor implementation

Large projects such as development corridors have rarely been rejected to the point of halting their commencement in Kenya (Kakonge 2015). However, their implementation has been stalled, delayed or progressively slowed down at some point in the process. Recent experiences with the development corridor projects have identified some common causes of such delays to include compensation for land and property, devolution, national and regional politics, lack of public participation, negative impacts of projects on environment and biodiversity as well as a violation of cultural rights. These have affected different corridor projects variably as discussed in Appendix 6. .

5.4.1 Litigation and its resultant impacts

Prolonged incidents of legal battles have impacted the projects finances and timelines, leading to loss of billions of shillings in lost time, legal costs, and operating costs. From 2015, human rights activists and institutions, biodiversity and environmental lobby groups, interested individuals, indigenous community groups, financial institutions, contractors and public and private investment companies, and government agencies have sued and or have been sued for various reasons relating to the implementation of the development corridors in Kenya. The legal challenges have revolved around fraudulent acquisition of land, exclusion in participation in key

corridor processes, inadequate compensation for land and property, inflated project costs, abuse or infringement of human rights including cultural, economic and social rights, damage to and or potential damage to the environment and key natural resources and national heritage sites, and tendering and contracting processes.

Two examples are presented to illustrate the resultant impacts of litigation, and others are listed in Appendix 6. . In August 2015, the Nairobi County filed a petition in court to stop the payment of Ksh. 2.5 billion in compensation for land that had been earmarked for construction of the Standard Gauge Railway. The county claimed that the compensation would benefit fraudsters who were using fake title deeds for parcels of land that were located along the Embakasi Township Reserve (Kamau 2015). In January 2017, activist Okiya Omtatah and the Kenya Coalition for Wildlife Conservation demanded court orders be given to quash the Environmental Impact Assessment License that had been issued by NEMA on 13th December 2016, which allowed the construction of SGR Phase 2 through Nairobi National Park (Rajab 2017). Grounds for the appeal before the National Environment Tribunal included the following: scientific studies for purposes of identifying the most suitable of all seven possible routes for SGR to pass through Nairobi National Park (NNP) had not been undertaken; due process was not followed in acquiring of a licenses, including use of faulty ESIA reports; and finally that construction through the NNP would cause continuous irreversible degradation and damage to the ecosystem. Respondents included the China Road and Bridge Corporation, NLC, KWS, NEMA, KRC, Attorney General Githu Muigai and the Transport ministry. These have resulted in delays in project implementation as the court processes take considerable time to resolve (Wasuna 2016, Rajab 2017).

5.4.2 Devolution, national and regional politics

Development corridor projects traverse numerous counties in Kenya, and consequently there are many stakeholders involved who have varied interests and expectations. It is not uncommon to encounter devolution and geographical conflicts between neighbouring counties. For example, Machakos and Makueni counties have claimed ownership of the Konza Techno City project (Nzioka 2013). In addition, conflict and delays among East African Community (EAC) countries have been reported (Kagire 2017) leading to delays in the implementation of project components, cancellation of project partnerships and financial commitments and rerouting and renegotiations with new alliances and partnerships.

5.4.3 Management challenges

Human resource management challenges such as poor payment and wrongful termination of employment contracts for workers have resulted in protests and demonstrations, and standoffs between the project implementers such as the China Roads and Bridges Company (CRBC) and workers leading to disruption of the SGR construction activities.

5.4.4 Corruption and fraud during land acquisition and compensation

Incidents of corruption and fraud linked to the acquisition of, and compensation for, land and property earmarked for development corridor projects have been reported across in the country. Cases of inflated costs of land have been linked to the Konza Techno City (Mung'ahu 2017) and the LAPSSET project (Guguyu 2015) resulting in delays as well as loss of credibility with funders and investors in these projects. Low payments to landowners have in some cases resulted in them refusing to vacate the land, leading to protracted compensation claims (Okoth 2016) and hindering the implementation of these projects.

5.4.5 Delay in the passing of legislation

Delays in passing relevant legislation have resulted in delayed project implementation including the creation of relevant corridor institutions. For example, the delay in the creation of Konza

Technopolis Development Authority (KOTDA) has been linked to the delays of consultancy work by Tetra Tech Inc, a US consultancy firm that was expected to oversee the implementation of the first phase of the project by marketing it, building primary infrastructure, water and sewerage systems, and roads, and negotiate land leases with potential investors (Okuttah 2013).

5.4.6 Financial constraints resulting in delayed construction

In 2014, the Kenyan government allocated funds to the SGR but failed to allocate LAPSSET Sh10 billion required to facilitate putting up the first three berths of Lamu port. The launch of the construction of the berths, which was contracted to China Roads and Bridge Corporation in August 2016, was postponed three times before construction was later initiated in 2016. Inadequate funds have also resulted in scaling down of the project by doing away with some components of the project. This has included scaling down the capacity of Lamu coal-fired power plant by half (expected to power port operations) to cut on costs and avoid generating more electricity than needed (Otuki 2018).

5.4.7 Insecurity due to the presence of the Al-Shabaab

The existence of terror groups and long-standing conflicts between rival clans and communities living in different counties that the LAPSSET project passes through has posed a challenge to the implementation of the projects (Kimanthi 2015). In most of the 12 counties that LAPSSET passes through (Lamu, Wajir, Garissa, Isiolo, Turkana, Tana River, Samburu, and Marsabit), serious cases of insecurity have been experienced.

6 Potential impacts of development corridors

6.1 Biophysical impacts of development corridors

6.1.1 Land and water

The SGR and LAPSSET corridors are essentially linear features but their influence is likely to extend into spatially large swaths of land, with them at the centre, due to their expected effects in spurring economic growth and development and the consequent ramifications such as rapid growth of urban centres and perhaps intensified agricultural activities as they open external markets. They thus have significant direct and indirect, and contribute to cumulative impacts on when other existing and planned activities are taken into consideration. Increasing deforestation and fragmentation of habitats for varied end-uses, such as settlement and agriculture, compromises the services of many ecosystems (Mogaka *et al.* 2009), and changes the surface and groundwater regimes with resultant impacts on water availability and the function and operation of existing water infrastructure (Stockholm Environment Institute 2009). For example, 100,000ha of the Mau Complex (part of the recharge zone for the Kisumu and Nakuru regional groundwater aquifers was lost between 2000 and 2009 (UNEP 2009). River and groundwater systems are being degraded by human activities, through for example, catchment degradation, pollution, siltation, bank encroachment, and over-abstraction (Moinde-fockler *et al.* 2007, Stockholm Environment Institute 2009, UNEP 2009). Such stresses and geographical location in arid settings exacerbate vulnerability to current and future climate risks (Stockholm Environment Institute 2009, Field *et al.* 2014). Thus, the protection of the biophysical systems associated with rivers, lakes, wetlands and groundwater, is of prime importance. Such protection will not work without adequate land use planning, based on the assessment of the vulnerability of the resources to land degradation effects, including those from mega-infrastructure projects. Water users also must understand the need for surface and groundwater protection (Mumma *et al.* 2011).

6.1.2 Biodiversity

The development corridors in Kenya, especially SGR and LAPSSET have been widely discussed both in print and electronic media. According to these sources, the two projects have already impacted on and still have potential impacts on different areas of conservation importance and biodiversity. However, the impacts are varied and may be restricted to certain sections of the projects. In particular, the project's impacts have been identified as land degradation, fragmentation and habitat loss; loss of aesthetic values of the landscapes; loss of and reduction of biological diversity; changes in wildlife movement, behaviour and blockage of migration corridors; increase in and emergence of human-wildlife conflicts; loss of wildlife due to road kills and accidents; water and air pollution due to noise and spillages; and parament destruction of wetlands. These are discussed in detail in Appendix.

6.2 Socio-economic impacts of development corridors

6.2.1 Displacement of people, conflicts and land speculation

The implementation of development corridor projects requires large parcels of land, which is rare in the hands of government or government agencies. Consequently, the government must acquire these parcels of land from private landowners or community owned parcels. Recent analyses have indicated that such demand for larger parcels of land has resulted in displacements of people and an influx of “foreigners” leading to land speculation and higher land prices. Especially within the key development hubs such as LAPSSET’s Lamu, Isiolo and Turkana’s proposed resort cities. For example, Isiolo has witnessed both a rise in land prices from less than USD$2500 to more than $1 million per acre and high incidents of land grabbing (Abdi and Kamwana 2014, Versi 2014). It is expected that other cities along the development corridors will face similar challenges.

Development corridors have also fostered the emergence of new dimensions of conflict at different levels: among counties, between local and central government, among communities, and between locals and ‘foreigners’. For example, conflicts have emerged between Isiolo and Nyambene counties over the economic benefits stemming from infrastructural development such as LAPSSET’s airport (Kiarie 2012) and over the resort city boundary between Isiolo and Meru Counties (Abdi and Kamwana 2014). Meanwhile, the influx of “foreigners” along the development corridors, land grabbing and the resultant landlessness faced by the locals is likely to create and exacerbate violence and conflict among local communities (Kiarie 2012, Versi 2014). For example, Isiolo has witnessed several episodes of conflict, usually involving pastoralist communities clashing over natural resources. Whereas in Turkana, cross-border insecurity, inter-ethnic resource-based conflict, small arms proliferation and low state penetration (Fong 2015) that compromises law and order, have been reported.

6.2.2 Social marginalisation and cultural value deterioration

Because of their remote locations, low agricultural production potential, low human population densities, vast lands, and poor infrastructure, among other factors, the Arid and Semi-Arid Lands (ASALs) have been historically marginalised with respect to the national socio-economic development programmes. One outcome of this marginalisation is that these areas are characterised by high illiteracy levels with significantly fewer schools, poor infrastructure and social amenities. The long-standing historical marginalization of these indigenous communities exacerbates their vulnerability to competition for economic opportunities occasioned by the corridor projects. If they are forcibly torn off their traditional forms of livelihood and culture, the change-over would be troubled and torturous (Letai and Tiampati 2013).

Most of the development corridor and their associated projects cut across many indigenous communities' settlement areas. The indigenous communities in Kenya's ASALs, including the Awer, Orma, Somali, Borana, Rendille, Samburu and Turkana, have historically distinct social, economic and cultural traditions. The emergence of new infrastructure in these areas may result in social and cultural changes: many ESIA reports that have been done in these areas point out some aspects of concern related to labour and employment, changes in social behaviour due to the influx and influence of people with different cultures, traditions and social perspectives, increased exposure to drugs and diseases, including HIV/AIDS expansion, and child labour, among others (Sena 2014).

6.2.3 Livelihoods and poverty reduction

Kenyans living in arid and semi-arid lands have the highest incidence of income poverty. Development corridors are aimed at economic improvement and poverty reduction. However, it is not clear how these projects have or will impact on poverty levels both locally and nationally. Yet, preliminary studies have pointed to serious impacts on local livelihoods, especially of resource-dependent communities due to obstructed access to these resources[7]. For example, studies along the Kenyan coast have shown that fisher communities in Lamu have lost access to fisheries due to closures of traditional fishing waters. This has affected a significant number of artisanal fisher-persons who presently depend upon the waters of the channel for their livelihood. Projects that traverse pastoralist areas are likely to disrupt access to both livestock and wildlife grazing due to the blocking off migratory routes and grazing areas, and the loss of crucial fall-back zones for these animals during drought. Other expected challenges associated with such projects include an increase in the level of vulnerability with many people dropping out of pastoralism (Letai and Tiampati 2013). The creation of investment and job opportunities are positive benefits, but these may not directly accrue to the resident communities due to a lack of adequate education and requisite skills sets. This leads to "outsiders" getting the much better paid technical jobs, while the locals are restricted to the poorly paid non-skilled jobs. This creates conflict, such as has been witnessed in the oil exploration and production sector in Turkana.

7 Climate Change-related risks facing the development corridors

7.1 Climate change key trends

Kenya's vulnerability to climate change has been widely recognised (Herrero *et al.* 2010, Ojwang' *et al.* 2010, Parry *et al.* 2012, Mwangi and Mutua 2015, USAID 2018). Kenya's climatic conditions vary significantly between it's coastal, interior and highland regions (Herrero *et al.* 2010, Parry *et al.* 2012). The climate pattern is influenced mainly by its position relative to the equator, proximity to the Indian Ocean and Lake Victoria, varied topography and the El Niño-Southern Oscillation (ENSO) phenomenon (Parry *et al.* 2012). In Kenya, climate change manifests in extreme climatic events such as droughts and floods posing a considerable challenge to development and poverty alleviation efforts.

Recent temperature trend analyses have pointed to an increase in observed mean annual temperature of 1.0°C since 1960 representing an average rate of 0.21°C per decade (Mcsweeney *et al.* 2009). Predictive models suggest that warming of about 1°C will occur by the 2020s, and 4°C by 2100, and will vary by regions (Funk *et al.* 2010). Similar trends have been

[7] The *'Handbook for Preparing a Resettlement Action Plan'* (IFC 2002), authored by the International Finance Corporation (IFC)

reported in rainfall patterns with increased rainfall unreliability across the country. The Intergovernmental Panel on Climate Change (IPCC) analyses project a general decrease in mean annual rainfall in Kenya, a situation that is echoed by Funk *et al.,* (2010) and the ETC East Africa (2006). Extreme changes in precipitation and related disasters, such as droughts and flooding have been reported (ETC East Africa 2006), with a devastating loss to wildlife, human life and property over the years (Herrero *et al.* 2010, Ojwang' *et al.* 2010). Other climatic-related hazards in Kenya include forest fires and landslides. The projections of these extreme weather patterns vary but are closely linked to changes in precipitation (ETC East Africa 2006, Stockholm Environment Institute 2009).

7.2 Impacts on development corridors from climate change

There is already evidence of impacts of climate change on the development agenda for Kenya with significant economic and social costs (Mcsweeney *et al.* 2009, Funk *et al.* 2010, GoK 2010, Herrero *et al.* 2010, Ojwang' *et al.* 2010, Mwangi and Mutua 2015, USAID 2018). For example, the production of hydroelectric power has been affected over the past 20 years by the reduced rainfall and destruction of water towers (GoK 2010). Energy sector analysts predict that "*climate change is likely to worsen the situation as it will result in prolonged droughts which will see water levels in the generating dams recede further"*, whereas "*extreme weather events such as rainstorms will destroy the energy generation and distribution systems."*

Mega infrastructure such as railways, resort and port cities and communication installations are also vulnerable to climate change impacts, especially torrential rains and the accompanying floods, and increasing temperatures. For example, industry experts predict that "*climate change poses and will continue to pose serious impacts linked to the degradation, maintenance and potential decrease in lifespan of the key infrastructural development projects such as warping of rail-tracks*". Meanwhile, the industrial sector has been affected by the reduced access to water supplies and hydroelectric power during times of drought, and damage to coastal installations due to the rise in sea levels. Thus, the cumulative impacts of climate change have the potential to reverse much of the progress made towards the attainment of Kenya's Vision 2030 that also forms the foundation for development corridors in the country (GoK-NESC 2007).

7.3 Climate change adaptation and mitigation

Although Kenya has put in place a comprehensive climate change strategy and climate change institutional structures[8] (e.g. GoK-NESC 2007, Linddal and Mutimba 2007, GoK 2010), there is little evidence of the integration of climate risks into plans for Kenya's development corridor processes to foresee and mitigate climate change impacts. Furthermore, factors such as poverty, weak institutions, inadequate information, poor access to financial resources and high-interest rates, low management capabilities and competition over scarce environmental resources have been linked to the "climate ignorance" scenarios in the country. In addition, the OECD (2015) reported an uneven sectoral coverage of knowledge about climate risks with the largest data gaps witnessed on biodiversity and ecosystem services, as well as infrastructure and business and industry (Appendix 1.). It is therefore important that relevant policies and measures for adaptation and mitigation against climate change are identified and implemented. These should aim to bridge the gap between the assessment of impacts and tangible, actionable results to facilitate investment in key areas to mitigate and adapt to the climate change impacts by the development corridor actors.

[8] Kenya has made attempt at increasing its capacity to cope with climate change through the National Environmental Management Authority (NEMA); Kenya Meteorological Department (KMD); and the National Disaster Operations Centre (NOC). Additional relevant institutional structures relevant to climate change are included in Appendix 1. .

8 Kenya's ESIA and SEA process

8.1 Regulatory framework

The Sessional Paper No. 6 of 1999 entitled "Environment and Development" gave rise to the National Environment Management and Coordination Act of 1999. This Act (revised in 2015 to both align it with the Constitution of Kenya 2010 and to incorporate better some aspects such as Strategic Environmental Assessments), established the National Environment Management Authority to manage the environment and matters connected with it. This was established under Section 7 of the Act. NEMAs mandate is to monitor the operations of industries, projects or activities to determine their immediate and long-term effects on the environment. The Act also lays down provisions about environmental quality standards. Further, where Kenya is a party to an international convention, treaty or agreement on the management of the environment, the Authority must initiate legislative proposals to give effect to them (Section 124). The Authority may prescribe measures to ensure that the biological resources in place are preserved, issue guidelines to promote the conservation of the various terrestrial and aquatic systems, and protect species, ecosystems and habitats threatened with extinction.

The National Environment Policy 2013 provides a framework for an integrated approach to planning and sustainable management of Kenya's environment and natural resources. Of note are the "Environmental Right" which states that "every person in Kenya has a right to a clean and healthy environment and a duty to safeguard and enhance the environment"; and the "Right to Development" which states that "the right to development will be exercised taking into consideration sustainability, resource efficiency and economic, social and environmental needs". These two rights reflect a desired and positive balance between conservation and development, that neither should impede the other, and that EIA processes must be professionally and competently undertaken to ensure such a balance.

8.2 The Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) processes

The 2015 revision of the EMCA 1999 changes the previous reference to "Environmental Impact Assessment", to "Integrated Environmental Impact Assessment" in recognition of the fact that such assessments should also include social, economic, cultural and other factors, and should not focus solely on environmental aspects. The Integrated EIA process also referred to locally as ESIA (Environmental and Social Impact Assessment), although the latter terminology is not specified in the Act, has as its overall objective "to ensure that environmental concerns are integrated into all development activities to contribute to sustainable development". The EIA process in Kenya is illustrated in Figure 13.

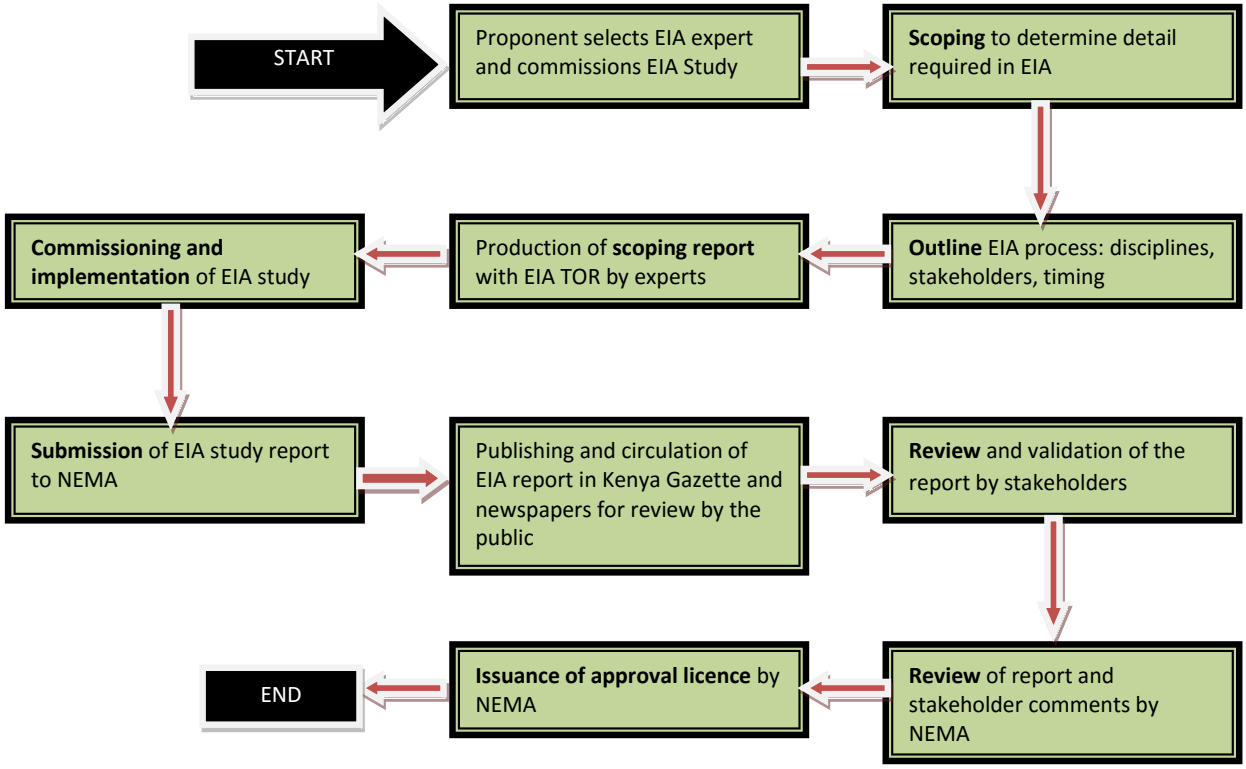

Figure 13: Integrated EIA development process in Kenya. Note: PPP – Policies, Plans and Programmes

Source: Olago, 2012; adapted from the National Environment Management Authority (NEMA), Kenya

Strategic Environmental Assessments (SEAs) were not previously incorporated in EMCA 1999. Recognising this, the Environmental (Impact, Audit and Strategic Assessment) Regulations, 2009 were enacted to fill in this gap (Figure 14). However, the SEA is now adequately captured in EMCA (Amendment) Act 2015. The objective of the SEA in Kenya is to "systematically integrate environmental considerations into policy, planning and decision-making processes, such that environmental information derived from the examination of proposed policies, plans, programmes or projects are used to support decision making".

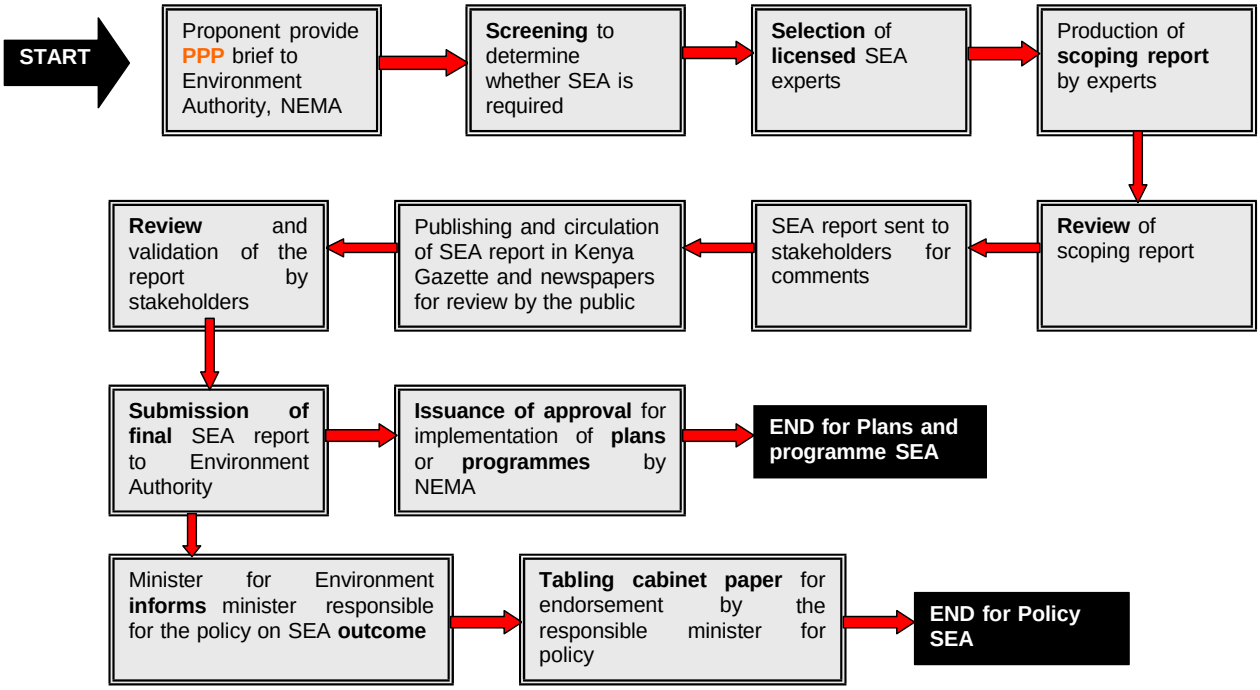

Figure 14: SEA development process in Kenya

Source: Olago, 2012; adapted from the National Environment Management Authority (NEMA), Kenya

9 Priority research areas and capacity needs in Kenya

9.1 Priority research areas

Based on the findings of the scoping study, the following priority research areas are proposed:

- **Process**: the decision-making processes through which corridor projects are designed, approved and implemented is still to be mapped clearly. There is a need to identify key decision-making points where the project can make a significant impact by providing technical input or building capacity.
- **Biodiversity and conservation**: this will include inventorying and mapping biodiversity, sensitive sites, and wildlife migration corridors. These data will be assessed against proposed infrastructure and linked to land use scenarios for the corridors.
- **Current and future supply and demand for water**: there are major challenges to ensure water supply in the corridor areas of influence. There is a need to assess the existing water resource base for both surface and groundwater. Current and proposed plans for augmentation of water supply in the corridors and their areas of influence will be assessed in the context of resource limitations (quantity and quality), as well as current and future competing demands and risks. These will also be evaluated with respect to their impacts on the communities of users. Aspects relating to water accounting from source to users will be assessed in specific areas, as will the value addition of enhanced water supplies to other sectors (e.g. agriculture). The impact of the corridors on water resources will also be assessed, as this together with other risks such as climate change may affect the water supply in the corridors and beyond.
- **Impacts on livelihoods**: in Kenya any development process must undergo some public participation, but such processes generally don't consider livelihoods. Case study areas will be identified where the influence of corridors on livelihoods can be tested – for example, the impacts that land-use changes and corridor project implementation have on

the social-ecological systems and their consequent impacts of livelihoods. The corridors spheres of influence and the aspects that are beneficial or detrimental to livelihoods will be studied.

- **Climate change adaptation in corridors**: there is a need to assess the climate change adaptation and mitigation measures, including the role of climate finance in sustainable investment in the corridor areas.
- **Scenarios of land use in the corridors**: scenarios of land use change will be analysed to determine the impacts of the corridors on the socio-economic and bio-physical environment.
- **Cumulative impact assessments**: a development corridor is constituted by several individual projects that will shape the landscape, and impact people and nature. However, impact assessments that look at the combined future impacts of these projects, at a corridor level, don't exist. This project will aim to conduct at least one cumulative impact assessment in one corridor of choice.
- **Co-ordination, co-operation and collaboration between the various sectors/stakeholders in the corridors**: there is a need to understand the kind of co-ordination, co-operation and collaborations that exist between the various sectors or stakeholders in corridors.
- **Community and stakeholders:** There is a need to understand the needs of the community and stakeholders, and the best way to present the outputs of the study so that they can be understood and used to inform policy – how can we make the communities/stakeholders own the interventions proposed by the study?

9.2 Capacity needs

The following capacity needs/gaps have been identified:

- **Low availability of information to the local communities**: most claim to have learned of the development projects only when the EIAs were being conducted. EIAs are required to carry out public meetings to explain the proposed project and its potential impacts, and to capture and incorporate the views of the stakeholder communities.
- **Training for professionals in carrying out EIAs and SEAs**: the quality of the EIAs delivered to NEMA is inconsistent. Many EIAs underestimated the actual impacts on nature and people of the proposed projects, while cumulative and residual impacts are generally inadequately addressed. Some training is needed for registered EIA experts to develop their skills in EIA and SEA assessments and learn techniques that could allow them to make better assessments.
- **Training for regulators**: why are some clearly inadequate EIA and SEA approved? What should regulators request regarding scope and quality of EIA/SEA reports? Where should experts be involved and how? Also, it is important to build capacity on why stage-by-stage processing and considering international best practice is important. For example, the SEA process for the LAPSSET project was conducted after some components of the project had already begun (construction of the Lamu Port).
- **Training of Post-Doctoral Research Assistants and Research Assistants:** on quantitative and qualitative research methods, stakeholder engagement skills, land use

scenario analysis, image processing and GIS, modelling, climate change and adaptation skills, and scientific writing skills.

10 Conclusions

The scoping study set out to address two objectives. First was to review the current baseline situation about mega-scale development corridor projects in Kenya and how they interact with people and the environment. The results of this study have provided and illustrated the development corridor investment and development process in Kenya. In particular, the review has highlighted the SGR and the LAPSSET and described other related projects along the corridor areas. The review further established that the corridor development process, from planning, implementation to maintenance has varied levels of impacts on both humans and the natural environment. Furthermore, the study has demonstrated that the corridor implementation process in Kenya has been faced with numerous challenges, including legal, social, economic, and cultural challenges. A wide range of stakeholders exert varying levels of influence and power which affect corridor implementation to various degrees. The study has also established a lack of accountability by the corridor proponents especially for the implementation of impact mitigation measures. Project beneficiaries and those affected have not been adequately involved in various processes.

Secondly, the study hoped to justify the planning and implementation of the Development Corridor Partnership research programme in Kenya. The preceding issues form a strong basis for research and capacity on sustainable investment in development corridors in Kenya. Particularly, the study has outlined key areas of research gaps and capacity needs that require prioritisation. It is based on these considerations that we believe the Development Corridor Partnership project is timely as it will offer innovative solutions towards some of these issues. Indeed, the preliminary results of the study will be evaluated further during the actual implementation of the DCP project in Kenya with other key partners and development corridor stakeholders.

11 Bibliography

Abdi, A. and Kamwana, K., 2014. Disquiet as Meru, Isiolo leaders squabble over Lapsset route [online]. *Standard Digital*. Available from: https://www.standardmedia.co.ke/business/article/2000105831/disquiet-as-meru-isiolo-leaders-squabble-over-lapsset-route?pageNo=1 [Accessed 21 Jan 2019].

AWEMAC, 2012. *Proposed Mombasa-Nairobi Standard Gauge Railway Project*.

Berger, L., 2011. *Corridor Infrastructure Master Plan: Final Report, Executive Summary*. Northern Corridor Transit Transport Coordination Authority,.

County government of Lamu, 2013. *Lamu County County Integrated Plan*. Lamu, Kenya.

CPCS Transcom International Limited, 2009. *East African Railways Master Plan Study - Final Report*. East African Community, Bridgetown, Barbados.

ETC East Africa, 2006. *Kenya Country Environment Profile Final Report*. Nairobi, Kenya.

Field, C.B., Barros, V.R., Dokken, D.J., Mach, K.J., Mastrandrea, M.D., Bilir, T.E., Chatterjee, M., Ebi, K.L., Estrada, Y.O., Genova, R.C., Girma, B., Kissel, E.S., Levy, A.N., MacCracken, S., Mastrandrea, P.R., and White, L.L., 2014. Summary for Policymakers. *In*: C.B. Field, V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White, eds. *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. United Kingdom and New York, NY, USA,: Cambridge University Press, Cambridge, 1–32.

Fong, C., 2015. *Water, Land, and Oil: Drivers of major upheaval in the Lower Omo Valley and Lake Turkana*. International Rivers.

Foster, S. and MacDonald, A., 2014. The ‘water security’ dialogue: why it needs to be better informed about groundwater. *Hydrogeology Journal*, 22 (7), 1489–1492.

Funk, C., Eilerts, G., Davenport, F., and Michaelsen, J., 2010. A climate trend analysis of Kenya.

GoK-NESC, 2007. *Kenya Vision 2030. National Economic and Social Council*. Nairobi.: Government Printers.

GoK-PPP Unit, 2018. PPP Legal and Regulatory Framework in Kenya [online]. Available from: https://pppunit.go.ke/legal-framework-2/ [Accessed 13 Nov 2018].

GoK, 2003. *Economic Recovery Strategy for Wealth and Employment Creation 2003 - 2007*. Ministry of Planning and National Development, Government of Kenya, Nairobi, Kenya.

GoK, 2010. *National Climate Change Response Strategy: Executive Brief*. Ministry of Environment and Mineral Resources, Nairobi.

GoK, 2012. *Vision 2030 Development Strategy for Northern Kenya and other Arid Lands*. Office of the Prime Minister, Ministry of state for Planning, National Development and Vision 2030, Nairobi, Kenya.

GoK, 2015. *Kenya - National Spatial Plan 2015-2045: An integrated Spatial Plan for Balanced and Sustainable National Development*. Ministry of Lands and Physical Planning, Nairobi, Kenya.

Guguyu, O., 2015. High land prices beset Lapsset project - Daily Nation [online]. *Daily Nation* . Available from: https://www.nation.co.ke/business/High-cost-of-land-besets-Lapsset-project/996-2881674-ow4h67/index.html [Accessed 21 Jan 2019].

Habitat Planners, 2016. *Proposed Standard Gauge Railway Project from Nairobi South Railway Station-Naivasha Industrial Park-Enoosupukia, Narok County*. Nairobi, Kenya.

Herrero, M., Ringler, C., Steeg, J. Van De, Koo, J., Notenbaert, A., and Abisalom, O., 2010. *Climate variability and climate change and their impacts on Kenya's agricultural sector*. Nairobi.

Kagire, E., 2017. Fate of stalled EAC infrastructure projects - The East African [online]. *The East African*. Available from: https://www.theeastafrican.co.ke/business/Fate-of-stalled-EAC-infrastructure-projects/2560-4196100-3pykujz/index.html [Accessed 20 Jan 2019].

Kakonge, J.O., 2015. Environmental impact assessment: Why it fails in Kenya [online]. *Pambazuka News*. Available from: https://www.pambazuka.org/land-environment/environmental-impact-assessment-why-it-fails-kenya [Accessed 23 Jan 2019].

Kamau, M., 2015. Nairobi County to block Sh2.5b standard gauge railway payout to city land 'owners'. *Standard Media*, 7 Aug.

Kenya Railways, 2013. Kenya Railways – Standard Gauge Railway Master Plan.

Kiarie, G., 2012. Kenya: Isiolo Resort City Plans Trigger Violence [online]. *Ratio Magazine*. Available from: http://www.ratio-magazine.com/201201264054/Kenya/-Kenya-Isiolo-Resort-City-Plans-Trigger-Violence.html [Accessed 21 Jan 2019].

Kimanthi, K., 2015. Insecurity and conflicts threats to Lapsset - Daily Nation [online]. *Daily Nation* . Available from: https://www.nation.co.ke/oped/opinion/Security-Lapsset-Infrastructure-Terrorism/440808-2685846-bq7bp7/index.html [Accessed 21 Jan 2019].

KIPPRA, 2018. Realizing the "Big Four" Agenda through Energy as an Enabler.

Lake Turkana Wind Power Project, 2011. *Updated Environmental and Social Impact Assessment Summary*. Nairobi, Kenya.

Lapsset Corridor Development Authority, 2016. *Brief on Lapsset Corridor Project*.

Letai, J. and Tiampati, M., 2013. Capturing benefi ts whilst safeguarding livelihoods: The debate over LAPSSET.

Linddal, M. and Mutimba, S., 2007. *Climate change screening of Danish development cooperation with Kenya*. Ministry of Foreign Affairs of Denmark (Danida) and the Embassy of Denmark in Nairobi.

Luedeling, E., Oord, A.L., Kiteme, B., Ogalleh, S., and Malesu, M., 2015. Fresh groundwater for Wajir-ex-ante assessment of uncertain benefits for multiple stakeholders in a water supply project in Northern Kenya. *Frontiers in Environmental Science*, 3 (March), 1–18.

Mcsweeney, C., New, M., and Lizcano, G., 2009. *Climate Change Country Profiles: Kenya*. Nairobi, Kenya.

MEWNR and JICA, 2013. *The National Water Master Plan 2013: Final Report*. Water Resources Management Authority, Nairobi, Kenya.

Ministry of Finance Kenya, 2014. Public Private Partnerships in Kenya.

Ministry of Transport and Infrastructure GoK, 2014. Against All Odds: Mega-Railway Project Becomes a Reality. *Uchukuzi*, (1), 1–34.

Mitchell, R.K., Agle, B.R., Wood, D.J., and Mitchell, R.K., 1997. Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts. *Academy of Management Review*, 22 (4), 853–886.

Mogaka, H., Gichere, S., Davis, R., and Hirji, R., 2009. *Climate Variability and Water resources in Kenya 47310*. World Bank Working Paper No. 69. Washington, DC: World Bank.

Moinde-fockler, N.N., Oguge, N.O., Karere, G.M., Otina, D., and Suleman, M.A., 2007. Human and natural impacts on forests along lower Tana river , Kenya: implications towards conservation and management of endemic primate species and their habitat. *Biodiveristy Conservation*, 16, 1161–1173.

Mumma, A., Lane, M., Kairu, E., Tuinhof, A., and Hirji, R., 2011. *Kenya: Groundwater Governance Case Study.* Washington, DC: The World Bank Group.

Mung'ahu, A., 2017. Tobiko gets two weeks to act on Sh179m Konza Techno City case [online]. *The Star, Kenya*. Available from: https://www.the-star.co.ke/news/2017/03/14/tobiko-gets-two-weeks-to-act-on-sh179m-konza-techno-city-case_c1523860 [Accessed 20 Jan 2019].

Mwangi, K.K. and Mutua, F., 2015. Modeling Kenya ' s Vulnerability to Climate Change – A Multifactor Approach. *International Journal of Science and Research (IJSR)*, 4 (6), 12–19.

Nzioka, O., 2013. Row on new borders of Konza city to delay plan : The Standard [online]. *Standard Digital* . Available from: https://www.standardmedia.co.ke/article/2000092007/row-on-new-borders-of-konza-techno-city-to-delay-plan [Accessed 20 Jan 2019].

OECD, 2015. *Adapting to the impacts of climate change: Policy Perspective*. OECD Policy Perspectives.

Ojwang', G.O., Agatsiva, J., and Situma, C., 2010. *Analysis of Climate Change and Variability Risks in the Smallholder Sector: Case studies of the Laikipia and Narok Districts representing major agro-ecological zones in Kenya*. Rome, Italy, No. 41.

Okoth, E., 2016. Regime change puts completion of projects in danger - Daily Nation [online]. *Daily Nation* . Available from: https://www.nation.co.ke/news/Regime-change-puts-projects-completion-in-danger/1056-3087232-13vkvdk/index.html [Accessed 21 Jan 2019].

Okuttah, M., 2013. Legislation delay holds back Konza technopolis project - Business Daily [online]. *Business Daily*. Available from: https://www.businessdailyafrica.com/news/Legal-vacuum-delays-work-on-Kenya-s-technology-city/539546-2119356-dtjudr/index.html [Accessed 21 Jan 2019].

Olago, D.O., 2012. Strategic Environmental Assessment (SEA) vs Environmental and Social Impact Assessment (ESIA) with Particular Reference to the Floriculture Industry in Kenya.

Otuki, N., 2018. Kenya plans to cut Lamu coal power plant capacity by half - Business Daily [online]. *Business Daily* . Available from: https://www.businessdailyafrica.com/news/counties/Kenya-plans-to-cut-Lamu-coal-power-plant-capacity-by-half/4003142-4597594-4pra6j/index.html [Accessed 21 Jan 2019].

Parry, J.-E., Echeverria, D., Dekens, J., and Maitima, J., 2012. *Climate Risks, Vulnerability and Governance in Kenya: A review*. Nairobi, Kenya.

Rajab, R., 2017. Okiya Omtatah, conservationist in court to block SGR phase II [online]. *The Star, Kenya*. Available from: https://www.the-star.co.ke/news/2017/01/12/okiya-omtatah-conservationist-in-court-to-block-sgr-phase-ii_c1486769 [Accessed 20 Jan 2019].

REPCON Associates, 2017. *Strategic Environmental Assessment Study in the LAPSSET Corridor Infrastructure Development Project -LCIDP*. Nairobi, Kenya.

Sena, K., 2014. *Report on Expert Mission by a Member of the UN Parmanent Forum on Indigenous Issues*. Unpublished Report byInternational Working Group on Indigenous Affairs. Nairobi.

Stockholm Environment Institute, 2009. *Economics of Climate Change Kenya: Final Report submitted in advance of COP15*. Stockholm, Sweden.

UNEP, 2009. Kenya: Atlas of our changing environment.

USAID, 2018. Climate Risk Profile: Kenya.

Versi, A., 2014. Kenya: Isiolo shakes off dust and cobwebs [online]. *African Business Magazine*. Available from: https://africanbusinessmagazine.com/africa-within/countryfiles/isiolo-shakes-dust-cobwebs/3/ [Accessed 21 Jan 2019].

Wasuna, B., 2016. Tribunal halts SGR construction over park - Business Daily [online]. *The Business Daily*. Available from: https://www.businessdailyafrica.com/news/Tribunal-temporarily-halts-SGR-construction-over-national-park/539546-3387282-61hbwhz/index.html [Accessed 20 Jan 2019].

12 Appendices

12.1 Appendix 1. Quality of the coverage of the sectors in the adaptation literature

Risk/Sector	Coverage/Discussion	Cost estimates	Benefit estimates
Coastal zones and coastal storms	Comprehensive coverage at global, national and local levels in impact assessment studies. Good evidence base on early low regret options and iterative adaptive management including policy studies and decision making under uncertainty (real options).	X X X	X X X
Floods, including infrastructure	Growing number of adaptation cost and benefit estimates (impact assessment studies) in several countries and local areas, particularly on river flooding. Evidence base emerging on low regret options and non-technical options. Some applications of decision making under uncertainty.	X X	X X
Water sector management, including cross-sectoral water demand	A recent focus on supply-demand studies at the national level, but a range of global, river basin or local studies available. Focus on supply, engineering measures; less attention to demand, soft, and ecosystem-based measures. Some examples of decision making under uncertainty, particularly robust decision making, with policy relevant studies.	X X	X
Other infrastructure	Several studies on road and rail infrastructure. Examples of wind storm and permafrost.	X	X
Agriculture (multifunctionality)	High coverage of the benefits of farm level adaptation (crop models), and some benefits and costs from impact assessment studies at global and national level. Evidence base emerging on potential low regret adaptation, including climate smart agriculture options (soil and water management).	X X	X X
Overheating (built environment, energy and health)	Good cost information on heat-alert schemes and some cost-benefit studies for future climate change. Increasing coverage of autonomous costs1 associated with cooling from impact assessment studies (global and national). Growing evidence base on low-regret options for built environment (e.g. passive cooling).	X X	X
Other health risks	Increasing studies of preventative costs for future disease burden (e.g. water, food and vector borne disease), but coverage remains partial.	X	X
Biodiversity/ ecosystem services	Low evidence base, with a limited number of studies on restoration costs and costs for management of protected areas for terrestrial ecosystems.	X	
Business, services and industry	Very few quantitative studies available, except for the electricity sector, oil and gas production and tourism. Some focusing on winter tourism and some on autonomous adaptation from changing summer tourism flows.	X	

Key: X X X Comprehensive coverage at different geographical scales and analysis of uncertainty.
X X Medium coverage, with a selection of national or sectoral case studies.
X Low coverage with a small number of selected case studies or sectoral studies.
The absence of a check indicates extremely limited or no coverage.

Adapted from the OECD 2015

12.2 Appendix 2. List of Key Stakeholders in the Development Corridors in Kenya

Abbreviations	Name
ACC	African Conservation Centre
ACCESS	Africa Collaborative Centre for Earth Systems Science
Act!	Act, Change, Transform
ACTS	African Centre for Technology Studies
ADESO	African Development Solutions
ADS	Anglican Development Services
AEFF	Africa Environmental Film Foundation
AFDB	African Development Bank
AFRICOG	African Centre for Open Governance
AfriCOG	Africa Centre for Open Governance
ALIN	Arid Lands Information Network
APSEA	Association of Professional Societies of East Africa
AU	African Union
AU	African Union
AWF	African Wildlife Foundation
CAK	Conservation Alliance of Kenya
CANCO	Community Action for Nature Conservation
CEJAD	Centre for Environmental Justice and Development
CETRAD	Centre For Training And Integrated Research In ASAL Development
CETRAD	Centre for Training and Integrated Research
CIFOR	Centre for International Forestry Research
CRBC	China Road and Bridge Corporation
CRDC	China Railway Development Company
CRRC	China Communication Construction Company
DANIDA	Danish International Development Agency
DSWT	David Sheldrick Wildlife Trust
EAC	East African Community
EACSOF	East African Civil Society Organizations' Forum
EAWLS	East African Wildlife Society
EU	European Union
FoLT	Friends of Lake Turkana
FoNNAP	Friends of Nairobi National Park
GIZ	Gesellschaft für Internationale Zusammenarbeit
GSK	Geological Society of Kenya
HURIA	Human Rights Agenda
ICRAF	International Centre for Research in Agroforestry
IDLO	International Development Law Organization
IDLO	International Development Law Organization
IFAW	International Fund for Animal Welfare
IGAD	Inter-Governmental Authority on Development
IHRB	Institute for Human Rights and Business
IHRB	Institute of Human Rights and Business
ILEG	Institute for Law and Environmental Governance
ILEG	Institute for Law and Evironmental Governance
ITC	International Trade Centre
JICA	Japan International Cooperation Agency
KALRO	Kenya Agricultural & Livestock Research Organisation
KAM	Kenya Association of Manufactures
KCAA	Kenya Civil Aviation Authority
KCCWG	Kenya Climate Change Working Group
KCM	Kenya Chambers of Mines
KCSPOG	Kenya Civil Society Platform for Oil and Gas
KCWCM	Kenya Coalition for Widlife Conservation and Management
KEFRI	Kenya Forestry Research Institute
KENHA	Kenya National Highways Authority
KEPSA	Kenya Private Sector Alliance
KERRA	Kenya Rural Roads Authority.
KFS	Kenya Forest Service
KI-Kenya	Katiba Institute of Kenya
KLA	Kenya Land Alliance
KNHRC	Kenya National Human Rights Commission
KOGWG	Kenya Oil & Gas Working Group
KOGWG	Kenya Oil and Gas Working Group

KPA	Kenya Ports Authority
KPC	Kenya Pipeline Company
KPLC	Kenya Power & Lighting Company
KRC	Kenya Railways Corporation
KRC	Kenya Red Cross
KURA	Kenya Urban Roads Authority
KVDA	Kerio Valley Development Authority
KWCA	Kenya Wildlife Conservancies Association
KWS	Kenya Wildlife Service
LCDA	Lapsset Corridor Development Authority
LSK	Law Society of Kenya
M&I&C	Ministry of Interior and Coordination of National Government
ME&F	Ministry of Environment and Forestry
MoA&I	Ministry of Agriculture & Irrigation
MoD	Ministry of Defence
MoD&ASAL	Ministry of Devolution and ASAL areas
MoE	Ministry of Energy
MoE	Ministry of Education
MoEA&NCD	Ministry of East Africa and Nothern Corridor Development
MoFA &IT	Ministry of Foreign Affairs & International Trade
MoH	Ministry of Health
MoI&ED	Ministry of Industrization &Enterprise Development
MoIC&T	Ministry of Information, Communication and Technology
MoL	Ministry of Lands
MoL&SP	Ministry of Labour and Social Protection
MoNT&P	The National Treasury and Ministry of Planning
MoP&M	Ministry of Petroleum and Mining
MoPY&GA	Ministry of Public Service,Youth and Gender Affairs
MoS&H	Ministry of Sports and Herritage
MoT&ID	Ministry of Transportand Infrastructure Development
MoT&W	Ministry of Tourism and Wildlife
MUHURI	Muslims for Human Rights
MW&S	Ministry of Water and Sanitation
NDMA	National Drought Management Authority
NEMA	National Environment Management Authority
NLC	National Lands Commission
NRT	Northern Rangelands Trust
NWCPC	National Water Conservation & Pipeline Corporation
PGI	Pastoralist Girls Initiative
RTI	Railway Training Institute
STE	Save The Elephants
SUPKEM	Supreme Council of Kenya Muslims
TARDA	Tana & Athi River Development Authority
TCG	Tsavo Conservation Group
TI	Transparency International
TNC	The Nature Conservancy
TUDOF	Turkana Development Organization Forum
TUPADO	Turkana Pastoralists Development Organization
USAID	United States Agency for International Development
WASREB	Water Services Regulatory Board
WRA	Water Resources Authority

12.3 Appendix 3. List of Development Corridor and related projects

CORRIDOR NAME	SUBCOMPONENT	DESCRIOTION OF SUBCOMPONENTS	STATUS	STAKEHOLDERS/FUNDING/INVESTMENT
LAPSSET Corridor	**Lamu Port**	Consists of 32 deep sea berths at Manda Bay estimated to cost US $5 Billion.	• First berth will be ready in June 2018 • Two will be ready in December 2020. • The other berths are intended to be constructed and operated by the private sector.	• Government of Kenya (US $480 million) • Private Sector Investors US$ 5 Billion
	Highways	Inter-regional Highways from Lamu to Isiolo, Isiolo to Juba (South Sudan), Isiolo to Addis Ababa (Ethiopia), and Lamu to Garsen (Kenya)	• Detailed engineering designs for Lamu – Garissa – Isiolo (537 Km) are completed. • Construction of Nakodok – Lokichar road (738 km) commenced. • 505 km Isiolo – Marsabit – Moyale completed. • Construction of Lamu – Witu – Garsen (112 KM) has been prioritised for construction to connect with existing road infrastructure.	• Government of Kenya • Government of Ethiopia • Government of South Sudan • (Estimated US$ 1.4 billion) • World Bank (US$ 500 million loan)
	Railways	Inter-regional standard gauge railway lines from Lamu to Isiolo, Isiolo to Nakodok (Kenya/South Sudan border) and Juba (South Sudan), Isiolo to Moyale (Kenya/Ethiopia border) and Addis Ababa (Ethiopia), and Nairobi to Isiolo.	• Preliminary engineering and feasibility studies have been completed for Kenya-Ethiopia route.	• Government of Kenya • Government of Ethiopia • (US$ 7.1 Billion)
	Pipeline	Crude Oil Pipeline from Lokichar to Lamu to Isiolo. In the longer-term additional crude oil pipelines may be extended to link with fields in South Sudan.	• Crude oil pipeline from Lokichar to Lamu along with tank storage and loading facilities is under FEED (Front End Engineering Design). • 53 ha of land have been reserved for oil tank storage and an oil refinery with a capacity of 125,000 bpd at Lamu.	• Government of Kenya • Government of Ethiopia • Private sector

				•
	Airports	International airports are proposed at Lamu, Isiolo and Turkana. The Airport at Lamu and Turkana need upgrading, and a new Airport is proposed at Lamu.	• Intermediary airports are under construction to build up air transport and logistic business case for international airports. • Preliminary facilities (2.3 km runaway and terminal building) at Manda airport in Lamu have been completed. • 1 km runway in Isiolo airport and a terminal building are completed. • Work at Lake Turkana airport has not started yet.	• Government of Kenya • PPP framework • (an estimated cost of US$ 188 million, US$ 175 million and US$ 143 million for Lamu, Isiolo and Turkana , respectively)
	Resort cities	Three resort cities have been proposed at Lamu, Isiolo and Lake Turkana. Lamu Resort City will mainly comprise a convention centre as the core facility, amusement centre, terminal station, culture centre and fisherman's wharf as sister cities.	• Preparation work for a master plan for Lamu Resort city and Metropolis is underway.	• PPP Framework • (estimated cost of about US$ 970 million, US$ 200 million and US$ 42 million for Lamu, Isiolo and Lake Turkana, respectively)
Standard Gauge Railway (SGR)	**Phase I**	Covers 472 km from Mombasa to Nairobi		• The China Road and Bridge Corporation (CRBC) • Kenya Railways (KR) • EXIM Bank of China • (Kshs. 294.3billion)
	Phase II	Covers Naivasha to Malaba and is divided into four sections: Naivasha–Kisumu; Kisumu–Malaba; Kisumu Port development and expansion of the Inland Container Depot at Embakasi in Nairobi.		• Kenya Railways Corporation • China Communications Construction Company (CCCC)

				•
Highways	**Mombasa-Nairobi (BECHTEL)**	The two-lane Nairobi-Mombasa Highway is being converted into a dual carriageway to address the increasing traffic congestion between Kenya's capital city Nairobi and the country's major port city Mombasa. The project was unveiled in September 2016.		• US and UK export credit agencies financing through Public private partnership
	Masara-Suna-Kehancha Road (C13)	This is an ongoing project. It is funded by	• Phase 1 of this project is complete	• Government of Kenya • PPP Framework • (KSh 8 billion) • Japan International Corporation Agency 9JICA) and the Government of Kenya at a cost of 39 billion.
	Mombasa Southern Bypass - Dongo Kundu (Miritini - Mwache)		• The project has already begun	• JICA/GoK • • (39 Billion)
	Nairobi Southern Bypass			• Exim bank of China • Government of Kenya Ksh 18.7 Billion
	Malindi-Bagamoyo	The 445km highway covers Malindi – Mombasa-Lunga and crosses into Tanzania covering Tanga-Pangani and Saadani to Bagamoyo	• The project is yet to begin.	• African Development Bank (AfDB) US $751.3m

	Ngong road dualling is Sh3 billion project		• The dualling project has already began	• JICA/Government of Kenya Sh3 billion
Mombasa Port Expansion	The project involves construction of the second phase of the second container terminal at the Mombasa port.		• The project is ongoing	• Funded by JICA at a cost of Sh35 billion
Konza Techno City	Konza will be a smart city, with an integrated urban information and communication technology (ICT) network that supports delivery of connected urban services and allows for efficient management of those services on a large scale.		• Project is ongoing	• PPP Framework • (Ksh. 595 Billion)
Lake Turkan wind power project	The Project is in Loiyangalani District, Marsabit County, Kenya. It comprises of 365 wind turbines, each with a capacity of 850kW, and a high voltage substation that will be connected to the Kenyan national grid through an associated Transmission Line,			• Kenyan Government. • Funded through a consortium comprising • (Ksh. 61.172 Billion)
Water Transfer Projects	One of the water transfer projects includes Elgeyo Marakwet Mega Dam. This is an example of some of the periphery projects along the development corridors targeting Western and Northern Kenya. It is expected to irrigate more than 20,000 acres of land.			• Kerio Valley Development Authority with funding from CMD di Ravena and Itenera of Italy. • (Sh66.5 billion)

12.4 Appendix 4. Policy and Legislative Frameworks relevant to the Development Corridor Processes

1. Climate Change Act 2016: The Climate Change Act (No. 11 of 2016) is the first comprehensive legislative framework for climate change governance for Kenya. The objective of the Act is to "Enhance climate change resilience and low carbon development for sustainable development of Kenya." The Act establishes the National Climate Change Council (Section 5), Climate Change Directorate (Section 9) and Climate Change Fund Section 25). All these new institutions have distinct mandates under the Ministry of Environment and Forestry.

2. Kenya Vision 2030 (2008) and its Medium-Term Plans: Vison 2030 Secretariat is the mandated institution to oversee the implementation of the Kenya Vision 2030 – the country's development blueprint. It recognises climate change as a risk that could slow the country's development. Climate change actions were identified in the Second Medium Term Plan (MTP) (2013-2017). The Third MTP (2018-2022) included climate change as a thematic area and mainstreamed climate change actions in sector plans

3. National Climate Change Response Strategy 2010: Kenya's National Climate Change Response Strategy was the first national policy document on climate change. It aimed to advance the integration of climate change adaptation and mitigation into all government planning, budgeting and development objectives.

4. National Climate Change Action Plan (2018-2023): Kenya's National Climate Change Action Plan, 2013-2017 was a five-year plan that aimed to further Kenya's development goals in a low carbon climate resilient manner. The plan set out adaptation, mitigation and enabling actions.

5. National Climate Change Adaptation Plan (2015-2030): Kenya's National Adaptation Plan, 2015-2030 was submitted to the UNFCCC in 2017. The NAP provides a climate hazard and vulnerability assessment and sets out priority adaptation actions in 21 planning sectors.

6. Green Economy Strategy and Implementation Plan (GESIP): GESIP is Kenya's blueprint to advance toward a low-carbon, resource efficient, equitable and inclusive socio-economic transformation. The GESIP aims to integrate resource use efficiency into and minimize negative environmental impacts related to the country's economic development.

7. National Climate Finance Policy (2018): The National Climate Finance Policy (2018) establishes the legal, institutional and reporting frameworks to access and manage climate finance. The goal of the policy is to further Kenya's national development goals through enhanced mobilisation of climate finance that contributes to low carbon climate resilient development goals.

8. National Climate Change Framework Policy (2018): The National Climate Change Framework Policy (2018) aims to ensure the integration of climate change considerations into planning, budgeting, implementation and decision-making at the national and county levels and across all sectors.

9. Water Act 2016: Provides for the regulation, management and development of water resources, water and sewerage services such as construction of mega dams and water storage facilities.

10. Agriculture Sectoral Sector Development Strategy 2010-2020: Seeks to stimulate increased investment in rural railway, roads, water supply, transportation, storage, cattle dips, rural markets, electrification, communications, water management schemes, stockholding grounds, stock auction markets, stock routes and abattoirs. The stock of rural infrastructure is in poor condition and inadequate for the development of the rural economy, and is also unevenly distributed leaving some high agricultural potential areas with little or no coverage

11. Tourism Act 2011: Provide for the development, management, marketing and regulation of sustainable tourism and tourism-related activities and services. It also seeks to promote expansion of tourism facilities such as resorts and airports.

12. Community Land Act, 2016 : It provides for the recognition, protection and registration of community land rights; management and administration of community land; to provide for the role of county governments in relation to unregistered community land and for connected purposes.

13. Energy Bill (2017): Part 3, section 43; Part 4, section 74 (i), and Part 9 address climate change related issues. It consolidates the laws relating to energy, to provide for National and County Government functions in relation to energy, to provide for the establishment, powers and functions of the energy sector entities; promotion of renewable energy; exploration, recovery and commercial utilization of geothermal energy; regulation of midstream and downstream petroleum and coal activities; regulation, production, supply and use of electricity and other energy forms.

14. Northern Corridor Master Plan: Promises to improve logistics and ease cargo congestion in East Africa, promote industrial development and stimulate the economy.

15. National Spatial Plan (2015-2045): The National Spatial Plan 2015-2045 provides a national spatial design framework for the integration of social, economic and political policies. The plan indicates Kenya's intention to enhance disaster preparedness in all disaster-prone areas and improve the capacity for adaptation to climate change.

16. Kenya's Nationally Determined Contribution (NDC) (2016): Kenya's NDC under the Paris Agreement of the UNFCCC includes mitigation and adaptation contributions. Regarding adaptation, "Kenya will ensure enhanced resilience to climate change towards the attainment of Vision 2030 by mainstreaming climate change into the Medium-Term Plans (MTPs) and implementing adaptation actions." The mitigation contribution "seeks to abate its GHG emissions by 30% by 2030 relative to the BAU scenario of 143 MtCO2eq." Achievement of the NDC is subject to international support in the form of finance, investment, technology development and transfer and capacity development.

17. Blue Economy Strategy (2017): To be implemented by the Ministry of Water in partnership with the Ministry of Agriculture and Irrigation, Ministry of Transport, Infrastructure and Ministry of Housing and Urban Development.

18. National Trade Policy (2009): Seeks to ensure adequate infrastructure including transportation, water, electric power, waste disposal, security and telephones as well as secure, affordable storage and warehousing facilities at ports and several infrastructural programmes including roads, energy, rail transport and Nairobi Metropolitan development programmes.

19. Environmental Management and Coordination Act (No. 8 of 1999 and Amendment 2015): It emphasizes that every person in Kenya is entitled to a clean and healthy environment and had the duty to safeguard and enhance the environment. The Act provides overarching regulations and enforcements for the overall protection and conservation of the environment in Kenya, including air quality, water pollution and the regulation of toxins. The Act also mandates the relevant authority to ensure the sustainable use of hill sides, mountain and forest areas within the country and shall control the harvesting of forests and any natural resources in these areas, to protect water catchment areas, prevent soil erosion and regulate human settlement.

20. Kenya's Foreign Policy 2014: Kenya's Foreign Policy aims to achieve several national objectives, inter alia to: Protect Kenya's sovereignty and territorial integrity; Promote integration; Enhance regional peace and security; Advance the economic prosperity of Kenya and her people; Project Kenya's image and prestige; Promote multilateralism; Promote the interests of Kenyan Diaspora and partnership with the Kenyans abroad.

21. Executive Order: The Nairobi Metropolitan Area Transport Authority (2017): Provides a comprehensive and dynamic platform for addressing the decades-old challenges in the transport sector that have bedevilled the Metropolitan Area that encompasses four counties of Kiambu, Machakos, Kajiado and Nairobi. It seeks to develop a sustainable urban mobility plan that will be the basis for the orderly and structured development of the proposed Metropolitan Area mass-transit system, which incorporates both bus rapid-transit and commuter rail.

22. County Public Participation Guidelines: Public participation is both a key promise and provision of the Constitution of Kenya. It is instilled in the national values and principles of governance stipulated in article 10. The Legislature and Executive at both national and county levels are required to engage the public in the processes of policy making, monitoring and implementation. 2. The Constitution, (Article 174c), provides that one object of devolution is: "to give powers of self-governance to the people and enhance their participation in the exercise of the powers of the State and in making decisions affecting them". The Constitution assigns the responsibility to ensure, facilitate and build capacity of the public to participate in the governance to the county government through function 14 (Schedule 4 Part 2).

23. Public Private Partnerships Act 2013: Provides for the participation of the private sector in the financing, construction, development, operation, or maintenance of infrastructure or development projects of the Government through concession or other contractual arrangements; the establishment of the institutions to regulate, monitor and supervise the implementation of project agreements on infrastructure or development projects and for connected purposes.

24. Urban Areas and Cities Act (No 13 of 2011): Provides for the, classification, governance and management of urban areas and cities; to provide for the criteria

of establishing urban areas, to provide for the principle of governance and participation of residents.

25. National Government Loans Guarantee Act (No 18 of 2011): Provides for the transparent, prudent and equitable management of the authority to guarantee loans conferred on the National Government by Article 213 of the Constitution.

26. Environment and Land Court Act (No 19 of 2011): Establishes a superior court to hear and determine disputes relating to the environment and the use and occupation of, and title to, land, and to make provision for its jurisdiction functions and powers.

27. Bretton Woods Agreements Act 1963: Provides for acceptance by Kenya of the Agreements for the International Monetary Fund and the International Bank for Reconstruction and Development.

28. Government Contracts Act 1956: Provide for the making of contracts on behalf of the Government and for matters connected therewith.

29. Industrial and Commercial Development Corporation: This an Act of Parliament to establish a corporation to be known as the Industrial and Commercial Development Corporation for facilitating the industrial and economic development of Kenya [Act No. 7 of 1967.]

30. Investment Promotion Act 2004: Promotes and facilitate investment by assisting investors in obtaining the licenses necessary to invest and by providing other assistance and incentives.

31. Roads Act 2008: Provides for the establishment of the Kenya National Highways Authority, the Kenya Urban Roads Authority and the Kenya Rural Roads Authority, to provide for the powers and functions of the authorities.

32. Kenya's Industrial Transformation Programme: Seeks to promote sector-specific flagship projects in agro-processing, textiles, leather, construction services and materials, oil and gas and mining services and IT related sectors that build on our comparative advantages. It creates an enabling environment to accelerate industrial development through industrial parks/zones along infrastructure corridors, technical skills, supporting infrastructure and ease of doing business.

33. Kenya Country Strategy Paper 2014-2018/African Development Bank 2014-2018: The Bank's Country Strategy Paper (CSP) 2014-18 for Kenya supports the country's ambitions and addresses its main developmental challenges by promoting job creation as the overarching objective. To achieve it, the CSP is articulated around the following two pillars: (i) Enhancing physical infrastructure to unleash inclusive growth; and (ii) Developing skills for the emerging labour market of a transforming economy.

34. World Bank Group Country Partnership Strategy for Kenya, 2014-2018: It targets investments of $4 billion during its five-year implementation period (2014-18) to support Kenya's national goal of promoting sustained, more inclusive, and accountable growth.

35. Nairobi Integrated Urban Development Master Plan (NIUPLAN): Integrates all the existing Master Plans of various infrastructures within the city of Nairobi and its

surrounding. Infrastructure to be included is urban transport, railway, airport, power, water supply, sewerage, telecommunication and solid waste management.

36. National Broadband Strategy (NBS) for Kenya 2013-2017: The Strategy focuses on five key thematic areas that have direct impact on its implementation and success. These are: Infrastructure, Connectivity and Devices Content; Applications and Innovations; Capacity Building and Awareness; Policy, Legal and Regulatory Environment Financing and Investment.

37. Vision 2030 Development Strategy for Northern Kenya and other Arid Lands: Seeks to achieve cost-effective, world-class infrastructure facilities and services in Northern Kenya

38. United Nations Development Assistance Framework for Kenya 204-2018: This an expression of the UN's commitment to support the Kenyan people in their self-articulated development aspirations. This UNDAF has been developed according to the principles of UN Delivering as One (DaO), aimed at ensuring Government ownership, demonstrated through UNDAF's full alignment to Government priorities and planning cycles, as well as internal coherence among UN agencies and programmes operating in Kenya.

39. Policy Statement on Public Private Partnerships, 2011: Articulates and underscore the Government's commitment and lay the foundation for an enabling environment for attracting private sector partners in financing and managing infrastructure service

12.5 Appendix 5. The likely impacts of development corridors on biodiversity and areas of conservation importance

The SGR development corridor is likely to have impacts on biodiversity, areas of conservation importance, water resources and ecosystem services. The impacts may vary for different sections of the corridor. Some of the impacts are listed in the table below

Section of the SGR	Likely impacts
Nairobi National Park (the SGR encroaches on 87.29 ha of the park) dividing the park into two portions)	• Exposure of the fragile ecosystem to irreversible damage and degradation (Rajab, 2017, Connor, 2015) • Division of the park into two and human traffic during construction will result to disturbance of vegetation and wildlife likely to change animal behaviour • Loss of aesthetic value of the park • Reduction in biological diversity due to negative impacts on species • Habitat fragmentation may lead to inbreeding of wildlife species eventually resulting to genetically weak populations prone to diseases. • Interruption of natural river flow (Ambani, 2017) • Changes in animal behaviour and movement dur to noise pollution and disturbance in dispersal areas (Michengi, 2016) • Increased incidents of human-wildlife conflicts (Muchengi, 2016)
Tsavo Conservation area	• Habitat degradation of animal passage ways that have been constructed has been reported due to illegal use of the passage ways by herds to drive thousands of cattle into the Tsavo National Parks (Okita-Ouma, 2017). • Loss of wildlife space e.g. about 10.2 km² of land in Tsavo West and East has been lost to SGR construction. • Blockage of wildlife dispersal areas when areas fenced off hinder wildlife movement (Okita-Ouma, 2017). • Increased human-wildlife conflicts are expected in areas experiencing illegal settlements of people that block vital animal passages. This has already been witnessed in the Tsavo area where passages have been constructed to mitigate against negative impact of SGR on wildlife movement. • Permanently degradation of natural environments • Increased rail and road kills of wildlife especially elephants • Eroding of the banks of the Tsavo River at Section 2 by excavation activities undertaken during the construction (Kariuki, 2015)
Voi Area	• Death and injury to wildlife is likely to be experienced if wildlife is not properly funnelled into the passages and instead attempt to cross the railway (Koech, 2018, Okita- Ouma, 2017)
Kwale/Kilifi Counties	• Blocking of streams that ensure consistent supply water to neighboring communities (Kariuki, 2015). For example, blocking of Mkupe Stream and Mwang'ombe River at the Mariakani
Mombasa	• Destruction of wetlands (Kariuki, 2015). For example, the reclamation of a section of a tidal flood wetland in Maganda to allow construction of a camp site for Chinese workers
Maai-Mahiu Area	• Pollution due to noise, waste and dust coming from the workstations (Ambani, 2017)
Ngong Forest	• Habitat degradation through forest clearing and exposure to human activities

Figure 1. A section of the standard gauge railway passing through Tsavo National Park in Taita Taveta (Source: Salaton Njau, Nation Media Group).

Figure 2. A lioness killed by a speeding train on the SGR near Voi (Courtesy of Koech, 2018).

Under the Wildlife Management and Conservation Act 2013 and the Forests Act 2005, the LAPSSET section between the Indian Ocean at Lamu and Kisima (Samburu) has been reported to host a total of 13 areas protected (1 gazetted Forest, 3 National Parks and 9 National Reserves) offering habitats to huge numbers of wildlife (SEA-037 LAPSSET Corridor Authority Development report -NEMA–2017). The SEA report outlined the likely negative impacts of the LAPSSET on key wildlife spots, biodiversity and conservation areas along the route as follows;

Section of the LAPSSET	Likely impacts
Hindi-Ijara-Garissa	• Fragmentation of critical habitat for the critically endangered Hirola antelope and associated wild dogs which are endangered around the Arwale nature reserve and conservancies • Blockage of watering paths for the Rothschild Giraffe accessing River Tana watering Points • Loss of woodland habitat for Buffaloes from the Boni Forest Nature reserve
Garissa-Benane- Kula Mawe	• Fragmentation of habitat around Rahole National Reserve

	• Fragmentation of the vast Meru Conservation area whose nucleus is Meru National Park and Bisanadi National Reserve
Isiolo Archers Post (Ngaremara area)	• Blockage of Elephant Migratory corridor between Lewa Conservancy Bufallo Springs, Samburu and Shaba game reserves
Isiolo-Seleolipi	• Blockage of the Kirimon Elephant Migratory Corridor
Isiolo-OldonyiroKirisia Forest	• Blockage of major elephant migratory corridor
Loosai and Mt. Marsabit Nature Reserve	• Blockage of Elephant Migratory Corridor to and from Marsabit National Park

12.5.1 References

Ambani, M.2017. GIS Assessment of Environmental Footprints of the Standard Gauge Railway (SDR) on Nairobi National Park,Kenya. Accessed from rerepository.uonbi.ac.ke/bitstream/.../Mildred%20Ambani_Final%20Project.pdf?..

Connor, S. 2015. Africa: Destructive development 'corridors' being built through some of world's most precious wildlife areas: Africa is changing now probably faster than any continent in human history. *Independent,* Wednesday 25 November 2015 Accessed from https://www.independent.co.uk/.../africa-destructive-corridors-being-built-through-so..

Kariuki, N. 2015**.** Contractor violates laws protecting the environment and endangers people's health, says report Accessed from https://www.nation.co.ke/news/1056-2698166-l6s5flz/index.html

Koech, G. 2018. Killing of wildlife by speeding trains worries animal lobbies. Accessed from https://www.the-star.co.ke/news/2018/07/11/killing-of-wildlife-by-speeding-trains-worries-animal-lobbies_c1784556

Michengi, W.2016. Conservationists call for fresh evaluation of SGR's impact on Nairobi National Park. Accessed from https://www.the-star.co.ke/news/2016/12/05/conservationists-call-for-fresh-evaluation-of-sgrs-impact-on-nairobi_c1467526

Okita-Ouma, B. 2017. Likely negative consequences of SGR construction for wildlife. June 2017, *DAILY NATION* Accessed from; https://www.nation.co.ke/oped/opinion/ouma-likely-negative-consequences-sgr-construction-wildlife/440808-3952294-7ymbfy/index.html

Rajab, R.2017. Okiya Omtatah, conservationist in court to block SGR phase I. *THE STAR,* Jan. 12, 2017. Accessed from https://www.the-star.co.ke/news/2017/01/12/okiya-omtatah-conservationist-in-court-to-block-sgr-phase-ii_c1486769

REPCON Associates (2017) SEA-037 LAPSSET Corridor Authority Development report - NEMA – Draft Report January 2017. Accessed from https://www.nema.go.ke/.../SEA037%20LAPSSET%20Corridor%20Authority%20Deve

12.6 Appendix 6. Key challenges to corridor implementation in Kenya by Corridor projects

A. The Standard Railway Gauge Development Corridor

The **SGR** project has been delayed at different stages for a number of reasons.

Litigation and its resultant impacts on the projects finances and timelines has been a serious issue, leading to loss of billions of shillings in lost time, legal costs, and operating costs (Oruko, 2017). As a result, the financier China Exim Bank had to cut down on cost of constructing the second phase of the line by an estimated KSh. 32 billion (Oruko, 2017). Litigation has included:

- In 2017, there were at least four active cases in relation to construction of the Nairobi- Naivasha section (Phase 2A). While one was on the National Environment Tribunal, three were in the Environment and Lands Court. In September 2017, the National Environment Tribunal temporarily stopped construction of the section until the case was heard and determined. Despite these orders, continuation of the work by the China Bridge Corporation and Kenya Railways Corporation had activist Omtatah together with environment conservation lobby group demanded the jailing of the officials for contempt of the Tribunal's orders.
- In early 2017, the Miritini Free Port Ltd and African Gas and Oil Company Ltd moved to Court to stop the construction of a section of the SGR until a compensation suit they had filed was heard and determined. The two claimed that the two companies had not been paid Sh519 million that National Land Commission awarded them for compensation of land. Compensation conflicts between the government and communities then becomes an obstacle. An audit conducted by National Land Commission's Audit department and the Kenya Railways Corporation Risk and Audit department confirmed that between April and June 2015, an estimated Ksh.370 million was paid through fraudulent and inflated compensation for land in areas such as Voi (Taita Taveta) required for construction of the Standard Gauge Railway (Oruko, 2015). In early March, 2018, land conflicts were reported as one of the key causes of delay in construction of the 273 kilometer Malaba-Kampala section of the SGR (Nakato, 2018). This has been made worse by lack of funds to compensate landowners so they can give up their land for construction of the SGR

There has also been conflict and delays among East African Community (EAC) countries for a number of reasons (Kajilwa, 2015). For example, in 2016, Kenya lost its SGR partnership deal with Rwanda when the latter chose to use the Tanzania railway as its link to the ocean because of cost considerations. Kenya's failure to get financial resources to build the SGR to the Uganda border has also led Uganda scale back its ambition to the rail gauge (Barigaba, 2018). In addition, lack of resources by Tanzania has also affected Kenya's pace of completing the SGR. Tanzania through the Minister of Finance Philip Mpango in February 2016 asserted that Tanzania lacked its own financial resources to support their part of the SGR project (Majaliwa, 2016). The cancellation of financing contract with the Chinese due to alleged irregularities in the tendering process led Tanzania's President Magufuli to seek alternative finance from a number of sources. However, the efforts were unsuccessful, and Tanzania had to allocate part of the country's development budget to finance Phase 1 SGR from Dar-es-salaam to Morogoro (194km) costing Tsh1 trillion ($450 million) (Sarokin, 2017). Even after the completion of the Mombasa-Nairobi section of the SGR, there is no assurance that funds will be available for completion of SGR in the Kenyan part to the Ugandan border and Kisumu. The Ugandan and Rwandan sections have not yet been

completed. The China Exim Bank that has funded the major part of the SGR construction has also shown reluctance to provide more funds without Uganda's assurance of commitment to the project

Human resource management problems such as poor payment / wrongful termination of employment contracts for workers resulting to protests/demonstrations, and standoffs between the China Roads and Bridges Company (CRBC) and workers leading to disruption of construction activities. This was witnessed in April 13, 2016 when hundreds of workers who had been hired by the CRBC to construct SGR held demos blocking the Mombasa Road at Makindu protesting poor pay (Wanyama, 2016).

B. Konza Technology City

One of the key development projects being undertaken in Kenya and which is expected to compliment greater economic transformation along the SGR corridor is the Konza Techno City, Malili Ranch in Machakos County. This digital city is set to become Africa's tech hub when completed. The project was launched in 2013 and was expected to have been completed by end of 2017 but it has had many false starts with delays/ stalling due to a number of factors.

Corruption scandals in relation to Konza Techno City have marred the dream of building the techno city. Court cases have been filed against senior government officials who have been accused on behalf of Kenyan government of brokering deal with Malili Ranch Ltd to purchase 5,000 acres of land for construction of the techno city (Mung'ahu, 2017). The case confirmed conspiracy charges to defraud Malili Ranch between February 2, 2009 and January 11, 2010. Although the case has been concluded, the scandal has continued to haunt the project and blemish the dream of the techno city.

Delay in passing of legislation have also been a contributing factor. In 2013, the delay in passing of the KOTDA Bill to institutionalize the Konza Technopolis Development Authority (KOTDA) as a legal entity hence give it power to enter into contractual obligations with the financiers made the construction of the technopolis fall behind schedule (Okuttah, 2013). For instance, this delayed the work of the US consultancy firm Tetra Tech Inc. that was expected in June to oversee the implementation of the first phase of the project by marketing it, building primary infrastructure, water/ sewerage systems and roads, and negotiate land leases with potential investors

Financial constraints brought about by the delay of passing of the KOTDA Bill hence delay in fundraising efforts of KOTDA to support the initial phase of the project are another challenge (Okuttah, 2013). Although the government had during the phase one of the project allocated only Sh1.3 billion, the project required Sh63.8 billion to be completed. Although the Jubilee government allocated Sh793 million in the 2013/2014 budget for the project, not much was achieved (Okoth, 2016). The private sector is expected to inject huge amounts of funds in the project while the government is expected to invest heavily in basic infrastructure.

Devolution and geographical politics; where Machakos and Makueni counties are claiming ownership of the project (Okoth, 2016). This issue has yet to be resolved.

Fears of investors in relation to availability of sufficient and uninterrupted water supply steady and low cost energy as stated in the city's plan (Ochieng, 2016). Although construction at Konza City was expected to begin in April 2016, the investors held onto their funds, as they demand that the government to give assurance that infrastructure will be rolled out as promised on paper and supply of power and water be reliable. Availability of water has been challenge making it necessary for the government in November 2017 to spearhead commission the building of Thwake Dam at the confluence of and Athi and Thwake rivers to begin in January 2018 (Ngotho, 2017).

C. Lamu Port-South Sudan-Ethiopia-Transport (LAPSSET)

The stalling of some key stages of the **LAPSSET** project can be attributed to a number of challenges.

Financial constraints resulting to delayed construction. For example, in 2014, the Kenyan government allocated funds to the SGR but failed to allocate LAPSSET Sh10 billion required to facilitate putting up of the first three berths of Lamu port. The launch of the construction of the berths contracted in August 2016 to China Roads and Bridge Corporation was postponed three times before construction was later initiated in 2016. Inadequate funds have also resulted to scaling down of the project by doing away with some components of the project. This has included scaling down by half the capacity Lamu coal-fired power plant (expected to power port operations) in order to cut on costs and avoid generating more than needed electricity (Otuki, 2018)

Pursuit national interests within the EAC have also led to challenges in the project. For instance, for the Uganda oil pipeline, the push for Uganda to choose the Tanzania route over Kenya's was advocated for by France's Total Petroleum since it was also drilling oil there (Achuka, 2016). Given that the passage of Uganda's pipeline was expected to play a key role in export of Kenya's oil and the success of the LAPSSET, this move by Uganda has undermined completion and success of the LAPSSET project as earlier planned.

Problems in land acquisition and compensation hence causing delays in meeting the projects' timelines. In Kenya, low payments to landowners of parcels of land being acquired for the project have in some cases refused to vacate their land leading to protracted compensation claims (Okoth, 2016). Furthermore, investors in the LAPSSET project have complained about rocketing cost of land hence making taking up of projects related to LAPSSET a huge obstacle (Guguyu, 2015). In November, 2014, an injunction against any Lamu port work was issued by the High court sitting in Malindi where six land owners had filed a petition to have the mega project suspended until their concerns on land were resolved (Machuhi, 2014). They demanded information on mode of resettling and compensating people displaced be provided. They also expressed fears that a false list of beneficiaries for the land was being used by the Ministry of Lands under the then Land Secretary.

Legal issues resulting to court orders being launched to challenge the project. For example, court case by Lamu residents against the project where claims have been made that before the launch of the project, a comprehensive transboundary EIA by all the countries was not conducted and it was political leaders who played a major role in the approval of the project (Kakonge**,** 2015)

Corruption allegations have also plagued the LAPSSET project. A good example is the planned construction of Kenya's largest dam (96km²), High Grand Falls Dam, proposed at the common border of Kitui, Tharaka-Nithi, and Tana River counties at Kivuka on River Tana. In 2013, the construction of the dam was halted due to claims of inflated cost. The revised amount of Sh. 148 billion in 2016 was being sought as loan from China to complete the construction. The dam is meant to generate between 500MW and 700MW of electricity as well as supply water to the proposed Lamu port and resort city (Okoth, 2016).

Insecurity due to presence of the Al-Shabaab terror group as well as and long-standing conflicts between rival clans and communities living in different counties that LAPSSET project passes through has also posed a challenge (Kimanthi, 2015). In most of the 12 counties that LAPSSET passes through (Lamu, Wajir, Garissa, Isiolo, Turkana, Tana River, Samburu, and Marsabit), serious cases of insecurity have been experienced. Cattle rustling has also been undermining the success of the project.

In addition, the EIA process was considered to have uncertainties in relation to compensation, land rights and disruption of livelihoods and protection of world heritage site. Since the project was launched in 2012, critical information related to the project was not

shared with the stakeholders. These were among issues raised in a court case filed by Malindi fishermen in 2012 aimed at halting the LAPSSET project. Lamu residents filed a petitioned in the High Court against the LAPSSET Project earmarked for Lamu and surrounding areas (Katiba Institute, 2018). The case was successful on the grounds raised, with the court ruling that the project failed to meet basic legal and constitutional requirements. The court ordered the issues to be incorporated in the ESIA report by NEMA. On May 1, the Malindi High Court ordered Kenyan government to pay 4,600 fishermen Ksh. 1.7 billion as compensation due to loss of their traditional fishing and cultural rights. Construction and operations of the Lamu port was expected to halt traditional fishing practices. In addition, the court directed officials in charge of LAPSSET return to court in October 2018, that the EIA licence be returned to NEMA for further action in accordance with the ruling as well as involvement of government agencies and Lamu County Government in LAPSSET implementation. With about 42 per cent of the project completed and commissioning of the first berth scheduled for June 2018, monetary compensation has been ruled out by the government, the disagreement between the fishermen and government have continued with the fishermen insisting they want the compensation in monetary terms hence will return to court for legal redress (Kazungu, 2018).