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The Rural Livelihood Impacts of East Africa's New Development Corridors

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**The Rural Livelihood Impacts of East Africa's New
Development Corridors**

Research Report

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Figure 1. Map of LAPPSET and the Central Corridor in East Africa



Note: this map does not show the East Africa Crude Oil Pipeline in Tanzania, which is planned to follow the Central Corridor route from Uganda to Singida, where it will diverge and proceed to the Port of Tanga north of Dar es Salaam.

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Executive summary

Background and rationale

Africa is experiencing a surge of investment in new development corridors, which are networks of transport infrastructure intended to open isolated parts of the continent for investment and socio-economic development. Proponents of development corridors – including governments, bilateral development agencies and multilateral development banks – present these massive infrastructure projects as a solution to the obstacles created by uneven development. Development corridors are promoted as a way of correcting the spatial disparities that exist between different regions as they are promised to intensify agricultural and industrial production, increase economic diversification, create new employment opportunities and improve access to social services in disconnected and often disenfranchised rural areas.

Yet, despite claims that development corridors benefit rural areas and the livelihoods that these regions support, there have been few efforts to assess the impacts of development corridors from a rural livelihoods perspective. The lack of evidence around the impacts that new development corridors have on different rural livelihoods is problematic, given the rapid pace of transport infrastructure development across Africa.

In response to this research gap, this study collected empirical evidence of how East Africa's new development corridors are affecting rural livelihoods by focusing on the Lamu Port–South Sudan–Ethiopia Transport (LAPSSET) Corridor and the Central Corridor. This report documents the rural livelihood impacts of both corridors, detailing the opportunities and challenges experienced by rural producers throughout various stages of corridor development (inception, implementation and operation). The goal of this report is to highlight the experiences and perceptions of rural producers along new corridor routes. Based on the evidence collected through this research, the report also offers recommendations for preventing and mitigating the adverse impacts that development corridors have on rural livelihoods.

Study sites and participants

In Kenya, research on LAPSSET focused on a newly completed highway between Isiolo Town, Isiolo County, and Moyale Town, Marsabit County. In Tanzania, research on the Central Corridor focused on a partially completed road between Manyoni Town, Singida Region, and Tabora Town, Tabora Region (see Figure 1). These study areas were selected for their ability to generate comparable insights into how corridors at similar stages of development impact different livelihoods among the rural communities they pass through.

The research methods were qualitative, including key informant interviews, focus group discussions and a Policy Delphi process. Participants included representatives from local communities along corridor routes, all levels of government and local and international non-governmental organisations. Archival analysis, document analysis and observations were also used to supplement data collected during interviews and focus group discussions. In total, 255 people participated in this study, including 43 key informants, 167 focus group discussion participants and 45 experts involved in the Policy Delphi process. This research was carried out over a 12-month period between July 2017 and July 2018.

Research findings

The evidence in this study provides important insights into the opportunities and challenges that East Africa's new development corridors create for rural livelihoods. It does so by detailing

the unique opportunities and challenges associated with each phase of corridor development. For example:

- The inception phase is associated with land acquisition, compensation and resettlement procedures that place new burdens and stresses on rural households and complicate their livelihoods in the short-term and long-term;
- The implementation phase creates new income generating opportunities like temporary wage labour positions during construction projects while contributing to environmental degradation that threatens the natural resources base on which rural livelihoods depend;
- The operation phase helps reduce the cost and time of transporting goods to market, facilitates access to markets and new market opportunities and improves the reach of social services that indirectly support rural livelihoods. At the same time, the operation phase attracts further large-scale investments in land and natural resources along corridor routes that threaten rural livelihoods.

Recommendations

Based on these findings, this document identifies possible areas of intervention. These areas of intervention are informed by participants in the study and by a Policy Delphi process that was used to verify study's findings. Recommendations are organised according to the three phases of corridor development.

- Inception
 - Representatives of rural communities along corridor routes should be directly involved in the earliest phases of corridor planning, so as to ensure that new corridors align with rural livelihood strategies, development aspirations and needs and priorities;
 - Rural communities should be fully informed about the details of new corridor projects prior to implementation, so that measures for preventing or mitigating adverse impacts on their livelihoods can be integrated into project design and development;
 - The sanctity of land and respect for cultural heritage must be considered during corridor planning and individuals or groups need to be fairly compensated for damages or losses to land, sites of socio-cultural significance and ecosystem services prior to corridor construction;
 - Prior to construction, representatives of rural communities, local governments and contractors should be provided with legal training on human rights, including training on labour contracts, remuneration standards and insurance/pension services.
- Implementation
 - Policies are needed to ensure that equal opportunities are created for minorities, women and other marginalised groups to benefit from construction activities;

- There is a need for monitoring or regulatory bodies to ensure compliance with impact assessments and environmental management plans during the construction of new corridor projects;
- Mechanisms are needed for monitoring and reporting labour violations and environmental violations during corridor construction.
- Operation
 - Once construction of transport infrastructure is complete, last mile infrastructure is needed to connect rural communities to corridor routes and measures to ensure the safety of roadside communities should be implemented;
 - Community-investor agreements could help ensure that communities remain involved in the planning, design and implementation of land and natural resource investments that new corridors attract;
 - Master plans for development corridor should include provisions for preparing and training rural producers for new opportunities created by corridor routes.

Based on the findings, conclusion and recommendations of this study, the report concludes by discussing areas for further research. Other outputs from the research are accessible through blogs and academic journals and may be provided by the authors on request (see pg. 39).

1. Introduction

1.1 Background and rationale

Approximately 60% of Africa's population lacks access to modern infrastructure,¹ which isolates rural communities, hinders access to healthcare, education and jobs and impedes local economic development (OSAA 2015). According to the African Development Bank, between now and 2025, an additional USD \$130–170 billion per year is needed to bridge this infrastructure deficit (AfDB 2018; Africa50 2016). For this reason, a resurgence of interest in addressing Africa's transport infrastructure deficit is promising to many. PwC South Africa projects that annual global infrastructure spending will reach USD \$5.3 trillion by 2020, up from USD \$4.3 trillion in 2015 (Temkin 2016), as governments and development banks implement aggressive infrastructure development programmes and investors come to see these programmes as lucrative investment opportunities.

New investments in infrastructure across Africa are increasingly being directed towards development corridors, which have been identified as promising arrangements for spurring economic growth and development across the continent. Development corridors are networks of roads, railways, pipelines and ports built to connect sites of commodity production to international markets. Although often built with the needs of the private sector in mind, transport infrastructure within development corridors is shared-use, thereby providing the public with improved access to transport infrastructure and new forms of mobility. Therefore, in addition to attracting new commodity investments and facilitating trade, development corridors are promised to stimulate development in rural areas along transport routes.

Corridor development is proceeding at a particularly rapid pace among countries in the East Africa Community (EAC), including Kenya, South Sudan, Tanzania and Uganda. Recent discoveries of oil and gas, as well as significant deposits of minerals and rare earths, have drawn extractive investors to the region. At the same time, new agricultural technologies are expanding the land available for cultivation, attracting additional investors to the region's agricultural sector. These new investors require improved connectivity to move commodities to markets and this need is fuelling new development corridor projects.

Thus, even though infrastructure in East Africa has historically been among the world's least developed, the region has become an epicentre of new mega-infrastructure. Governments and development banks demonstrate strong support for new development corridors, seeing improved transport infrastructure as essential to achieving a more equal distribution of economic activities (Picard et al. 2017; Bluhm et al. 2018). The region's new corridors are promised to deliver broader economic benefits, including growing trade, supporting industrialisation, promoting economic diversification and improving regional integration while stimulating social development. In short, a high-return narrative has been attached to investment in East Africa's development corridor agenda, as corridors have been framed as an effective way of driving socio-economic development at local, national and regional levels.

Despite high expectations around the potential of new corridors to benefit all members of society, there have been few efforts to assess the impacts of development corridors from a rural

¹ We use the term Africa to refer to countries on the African Continent located south of the Sahara Desert. This includes island countries like Madagascar.

livelihoods perspective. Most research on development corridors suggests that development gains made through corridor construction will inevitably trickle down to benefit rural areas along development corridors; although, some researchers have begun to speculate that development corridors may create new risks for communities, ecosystems and livelihoods (Baxter et al. 2017). Laurance et al. (2015) identify 33 major corridors that are either planned or under construction across the continent.² If these corridors are all completed, they will span over 53,000 kilometres, dramatically altering the socio-cultural, economic and ecological landscapes they pass through (Laurance et al. 2015). A lack of evidence around the impacts that new development corridors have on the livelihoods of rural communities in the EAC is problematic given the rapid pace at which corridors are being built across the continent.

In response to this research gap, this study aimed to collect empirical evidence of how East Africa's new development corridors are affecting rural livelihoods. It endeavoured to do so by privileging the experiences and perceptions of diverse rural communities, which tend to be marginalised in higher-level discussions and decision-making processes. Specifically, the following objectives and questions informed our research activities:

- To understand how new development corridors are affecting rural livelihoods along new transport infrastructure routes.
 - What, if any, opportunities do new corridors create for rural livelihoods? Who benefits from these opportunities and how?
 - What, if any, challenges do new corridors create for rural livelihoods? Who experiences these challenges and how?
- To identify key challenges associated with each stage of corridor development that prevent new corridors from delivering their promised livelihood benefits.
 - What are the key challenges that undermine or threaten to undermine rural livelihoods at each stage of corridor development?
 - What might be done to ensure that these key challenges are better anticipated, prevented or mitigated?

1.2 Structure of the report

Section 2 of this report provides more information about development corridors and how they are imagined to facilitate rural development. Section 3 details the research design and methodology used to assess the impacts of new development corridors on rural livelihoods. Section 4 provides background information on LAPSET in Kenya, before discussing findings from this case study in relation to three different phases of corridor development: inception, implementation and operation. Section 5 has the same structure as the previous section but focuses on the Central Corridor in Tanzania. Finally, Section 6 synthesises the overall findings of the study. This includes a discussion of recommendations, as well as a brief discussion on areas for further research.

² While most corridors aim to increase extractive exports, attract agricultural investment and improve economic integration, corridors can be assigned a type based on their anchor projects. For example, coordinated investments in agriculture anchor the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) while the Nacala Corridor in Mozambique is anchored by the mining industry.

2. Development corridors

Development corridors have re-emerged as a public spending and private investment priority across much of Africa. Development corridors are defined as the clustering of economic activities and people along a physical backbone of transport infrastructure (Healey, 2004). As large-scale spatial development initiatives, development corridors are implemented to address uneven development and to foster spatial economic growth by improving connectivity between rural sites of production and economic centres. This, in turn, is promised to enhance the competitiveness of rural areas by attracting new investors, opening up new production possibilities and incorporating rural economic activities into global value chains.

2.1 Characteristics of development corridors

Development corridors can be characterised by their sectoral focus (Figure 2), as they tend to be anchored around sector-specific projects and are often built to facilitate growth and attract investment in a particular sector. In many developing countries, agriculture is the anchor sector for new development corridors (Murphy and Gálvez Nogales 2017). However, other sectors can also be the focus of corridor projects, such as natural resources, technology, manufacturing or tourism. Most development corridors tend to become multi-sectoral over time.

Development corridors can be also characterised by their geographic scale (Figure 2). Corridors are implemented at various governmental levels. They can be regional, transnational, national, subnational or local.

In East Africa, new development corridors tend to be regional, linking multiple countries. These corridors have primarily been fuelled by the growth of the extractive and agricultural industries. Many of East Africa's new development corridors are anchored by extractive and agricultural sector investments and then financed through public-private partnerships, which include governments, multilateral development banks and private investors.

Figure 2. Characteristics of corridors

Geographic scope	<ul style="list-style-type: none"> • Transnational or regional corridor • National corridor • Subnational corridor or rural-urban corridor • Local corridor or urban corridor
Sectoral scope	<ul style="list-style-type: none"> • Sectoral corridor <ul style="list-style-type: none"> ○ Agricultural corridor ○ Resource corridor ○ Tourism corridor ○ Technology corridor ○ Manufacturing corridor • Multisectoral corridor

Adapted from Gálvez Nogales 2014³

³ Gálvez Nogales (2014) and Murphy (2017) include funding and governance structure as another means of categorising development corridors. However, these categories are less useful in the context of Africa, where most new corridors are funded and governed through multi-stakeholder public-private partnerships.

2.2 Promised benefits of corridors for rural development

Governments, bilateral development agencies and multilateral development banks tend to present development corridors as a solution to the obstacles created by uneven development. As Gálvez Nogales and Webber explain, “poverty in Africa has a strong spatial dimension, and regional disparities are a major obstacle to structural transformation” (2017, xi). Development corridors are promoted as a way of reorganising space and correcting the spatial disparities that exist between different regions. More specifically, development corridors are believed to counter uneven development in the following ways:

Corridors are promised to enhance the competitiveness of rural areas and to attract new investments by improving connectivity. According to the World Bank, Africa has the highest comparative transport costs in the world (Brenton and Isik 2012; Teravaninthorn and Raballand 2009). In landlocked countries, transport costs can account for nearly 80% of the value of exports (UNECA 2010). Africa also experiences some of the longest transit times and border delays globally (Brenton and Isik 2012). As new corridors reduce the costs of getting goods to markets, investing in Africa’s rural areas becomes more attractive for investors.

This, in turn, is promised to support rural diversification and create new economic opportunities in rural areas. As new transport infrastructure is established and new investments are made in rural areas, people tend to cluster along transport routes to take advantage of reduced transport costs and travel times as well as new economic opportunities. Small centres along transport routes are capable of becoming ‘hub towns’ that provide goods and services to corridor users, such as hospitality services, repair services and communication and technology services (Isik et al. 2015). Similarly, new corridors also contribute to the development of new industries, such as processing, packaging, storage and distribution facilities (Murphy 2017). In short, development corridors create ‘a window of opportunity’ for new forms of employment and business (Isik et al. 2015, 2).

Corridors are also promised to contribute to regional food security. By improving connectivity, corridors aim to “reduce the time, cost and logistical challenge of getting food out of surplus areas and into shortage areas” (Murphy and Gálvez Nogales 2017, 40). Crops produced “in one corridor country [can] tackle unmet demand in a neighbouring country also connected to the corridor” (Gálvez Nogales 2014, 119). This could be particularly beneficial during crises – such as conflict, livestock disease, drought or famine – as food can quickly reach affected areas. Food security objectives are further supported as corridors unlock land with ‘untapped agricultural potential’ (Murphy 2017).

Corridors are promised to improve the delivery of public services and goods in rural areas. Inadequate access to services and public goods remains “one of the biggest development challenges as recognised by both Millennium and Sustainable Development Goals” (Mubila and Yepes 2017, 113). This is especially true in rural areas, where high transport costs and poor road quality are seen as major constraints to delivering public services (Bryceson 2006; Mubila and Yepes 2017). In this way, new development corridors have the potential to help achieve the SDGs by facilitating the provision of public services and goods along corridor routes.

3. Study methodology

3.1 Case study selection, sampling design and data collection

This study focuses on two of East Africa's newest development corridors: the Lamu Port–South Sudan–Ethiopia Transport (LAPSSET) Corridor, which connects the Port of Lamu to South Sudan, Ethiopia and northern Kenya, and the Central Corridor, which runs through central Tanzania linking Burundi, Rwanda, Uganda and the Democratic Republic of Congo (DRC) to the Port of Dar es Salaam (Figure 1). These corridors were selected for their ability to generate comparable findings about the rural livelihood implications of new development corridors. Because both corridors have segments that are operational and incomplete, they also offer insights into different stages of corridor development.

Although LAPSSET and the Central Corridor connect multiple countries, this study concentrated on countries with the majority of investment and construction – namely, Kenya in the case of LAPSSET and Tanzania in the case of the Central Corridor. Because both corridors span thousands of kilometres, focused study areas were identified along each corridor as a necessary practicality. The study areas are described in more detail below.

3.1.1 Data collection along the LAPSSET Corridor

In Kenya, research activities focused on a segment of LAPSSET between Isiolo in Central Kenya and Moyale on the country's border with Ethiopia. This segment includes some of the first completed components of the corridor, such as the Isiolo-Moyale Highway and Isiolo International Airport. Other projects in the area are in the planning or implementation phase, such as a Standard Gauge Railway (SGR), crude oil pipeline and Isiolo Resort City (Figure 1). At the time of study, the Isiolo-Moyale Highway was complete. Land had been tentatively set aside for the Isiolo Resort City but construction had not yet started on the resort city, the SGR or the crude oil pipeline.

This segment of LAPSSET spans three counties in Kenya: Isiolo, Samburu and Marsabit. Key informant interviews were conducted in each county. Key informants played various roles within county governments, ranging from County Land and Settlement Officers to County Veterinarian Directors. During key informant interviews, participants were asked a wide-range of questions about the livelihood implications of LAPSSET. They were also asked about the extent to which the county government was involved in the planning, construction and operation of the corridor. Further questions were asked about strategic plans or programmes in place at the county level to capitalise on new opportunities created by corridor development.

Key informant interviews were also conducted with representatives of civil society organisations, environmental organisations and protected area authorities. Again, participants were asked a wide-range of questions related to the relationship between corridors and rural livelihoods. Given that these stakeholders service communities or manage land and natural resources along the corridor, they possessed expert knowledge about development challenges and opportunities created by corridors in rural areas.

Finally, focus group discussions were held in 7 communities along the corridor. A total of 56 people participated in these discussions, including 28 women and 28 men of different ages. Focus group participants were also representative of a range of different ethnic groups, including Rendilles, Samburus and Turkanas. The design of this study prioritised community-

level stakeholders, recognising that their experiences, perceptions and expertise are vital to understanding the range of impacts that new development corridors might have on different rural livelihoods.

3.1.2 Data collection along the Central Corridor

Along the Central Corridor, fieldwork activities focused on a segment of the corridor between Manyoni District in Singida Region and Uyui District in Tabora Region. Projects planned for this segment of the corridor include upgrading an existing railway to standard gauge and constructing a new road between Manyoni and Tabora, called the Nyahua–Chaya Road (Figure 1). At the time of research, parts of the Nyahua–Chaya Road were completed and operational while others were still under construction. The upgrading of the existing railway along this segment of the corridor had not yet begun.

The study began with introductory visits to the all three district governments within the study area: Manyoni, Itigi and Uyui. These visits were followed by focus group discussions with 4 to 6 participants at each district office. Participants in focus group discussions involved key members of district government, including District Executive Directors and various departmental heads, such as Planning Officers, District Environmental and Sanitation Officers, Community Development Officers, Legal Officers and District Engineers.

These focus group discussions were used to gather background information on the Central Corridor in each district. Participants were asked a wide-range of questions about the livelihood implications of the Central Corridor. They also described if and how their district has been involved in the planning, construction and operation of the corridor. Further questions were asked about any strategic plans or programmes in place at the district level to capitalise on new opportunities created by corridor construction. At the end of each focus group discussion, district officials were requested to recommend villages directly along the corridor within their district to be involved in the study.

Next, focus group discussions were arranged with 6 villages recommended by district governments. A total of 111 people participated in village-level focus group discussions, including 33 women and 78 men. Village-level discussions focused on how rural livelihoods are impacted by Central Corridor developments, based on the experiences, perceptions and expertise of rural producers along the corridor route.

3.2 Data analysis

Key informant interviews were conducted in English and Swahili, while focus group discussions were conducted in Swahili, Sukuma and Maa, depending on the preference of the community. The entire research team took notes during interviews and focus group discussions and then transcribed notes in a shared document to ensure that the data was accurate and comprehensive even after undergoing translation. Next, content analysis was used to analyse the data. Key themes emerging from the data related to the study's aim and questions were identified. Direct quotes from study participants are included in the findings.

3.3 Data validation

The data collected through this study was validated in two ways. First, data was triangulated with existing literature. Second, after the initial round of analysis was completed and a report was drafted, a validation workshop was organised. Forty-five individuals from relevant civil

society organisations and local and national governments were invited to attend the validation workshop, which was structured around the Policy Delphi⁴ method (see Appendix for a list of participating organisations). By the end of the workshop, consensus had been reached about the most common opportunities and pressing challenges that development corridors present to rural livelihoods along corridor routes, as well as appropriate policy recommendations in response to these opportunities and challenges. The results of the research validation workshop were used to revise the initial report and were incorporated into this document.

3.4 Ethical considerations

Every measure was taken to ensure that the research was carried out in an ethical manner. These measures included: i) introducing the study to relevant authorities and obtaining permission to proceed with the research when required, ii) explaining the objectives of the research prior to interviews and focus group discussions and ensuring participants understood that they could opt out at any time without repercussions, iii) as far as possible, delinking the study from an explicit political agenda and iv) seeking verbal consent from participants prior to interviews and focus groups. Additionally, necessary research ethics and clearance procedures were followed in both Kenya and Tanzania, as well as at the host institutions of the researchers.

⁴ Policy Delphi is a “method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem” (Linstone and Turoff, 2002, 3).

4. Research findings: LAPSSET Corridor

4.1 Context

In 2012, construction began on LAPSSET, with most components of the corridor planned for completion by 2030. While the corridor was conceived decades ago, recent discoveries of oil and gas in Kenya, South Sudan and Ethiopia made the project feasible. In the immediate future, LAPSSET will improve accessibility and connectivity between Kenya, South Sudan and Ethiopia. However, the corridor is also described as a continental project: The long-term ambition is for LAPSSET to form a land bridge across the Great Lakes region, linking the east and west coast of Africa via an expansive network of transport infrastructure.

LAPSSET consists of a 500-metre wide corridor for transport infrastructure, overlaid by a 50-kilometre-wide economic corridor for industrial and agricultural investment (LCDA 2016). The transport corridor includes multiple components, including: a crude oil pipeline, a highway network, a standard gauge railway, electrical power lines and fibre optic cables. In the wider economic corridor, various development zones have been planned. These include: tourist resort cities, special economic zones, export processing zones and agricultural growth zones. Each zone is meant to attract further investment to the corridor. The construction of dams near the corridor has been proposed or planned to supply electricity and water to development zones like resort cities. Once complete, the transport corridor is expected to inject 2% to 3% of GDP into the national economy annually, contributing 8% to 10% of Kenya's GDP annually when investments in the development corridor eventually come to fruition (LCDA 2016).

LAPSSET is a flagship project of 'Kenya's Vision 2030' – Kenya's national development plan that aims to transform Kenya into a newly industrialised, middle-income country by 2030. The Kenyan government suggests that LAPSSET will drive socio-economic development and attract increased and diversified private sector investment across the entire country (LCDA 2016). More broadly, the government sees the corridor as a pathway to achieving its wider ambition of positioning Kenya as East Africa's transport and logistics hub and economic powerhouse. For these reasons, the government has gone to great lengths to attract investment in LAPSSET. As of 2017, the corridor had an investment budget equivalent to half of Kenya's GDP (REPCON 2017).

In total, LAPSSET spans nine counties in northern Kenya, including Lamu, Garissa, Marsabit, Isiolo, Meru, Laikipia, Samburu, Baringo and Turkana. These areas have experienced economic and political marginalisation throughout the history of Kenya. Pastoralism – which involves sustaining herds by moving them to seasonal sources of pasture and water – remains the predominant livelihood activity in these counties. By some estimates, pastoralism is practiced by over 85% of the population. While pastoralism is well adapted to the region's arid and semi-arid landscape (Fratkin 1997), many national and international development actors continue to view pastoralism as economically unproductive and an obstacle to modernity and progress (Cately et al. 2013; Odhiambo 2013).

In national discourse, one of the most widely promoted benefits of LAPSSET is that it will "open up 70% of the country that has been uninvested in since independence and ... increase the participation of Kenyans in wealth creation" (Standard Report 2015, pp. 14). The Kenyan government claims that the corridor will transform pastoralist regions in northern Kenya into the country's next 'growth frontier' (Standard Reporter 2015). The government envisions the corridor enhancing pastoralist livelihoods in a number of ways. First, it is believed that the

corridor will improve cross-border and rural-urban livestock marketing routes. Second, the economic corridor is meant to create scope for new livestock-related investments, such as the construction of abattoirs in strategic locations. Third, a number of ‘green’ and climate resilient power projects are part of the corridor, including: a dam, hydropower station and wind and solar projects. These projects are meant to improve power supply across northern Kenya.

In summary, proponents of LAPSSET are confident that the corridor will “positively impact the livelihoods of over 15 million people living in northern Kenya” (LCDA 2016, 17). LAPSSET is being promoted in Kenya and internationally as a way to address the historical marginalisation of pastoralists in northern parts of the country. It is common to see claims in the media that LAPSSET will contribute positively to northern Kenya’s development by modernising pastoralist livelihoods, expanding opportunities for livestock trade and incorporating pastoralism into the national economy. Yet, conversations with rural communities across northern Kenya complicate these narratives by drawing attention to the opportunities and challenges that LAPSSET presents to pastoralist livelihoods.

4.2 The LAPSSET Corridor and rural livelihoods

4.2.1 The inception phase

At the start of any corridor project, proponents are required to undertake steps to determine whether investment is justified. The inception phase generally involves a pre-feasibility study or inception report, a full feasibility study, the development of a master plan and an environmental and social impact assessment. Feasibility studies are undertaken to determine whether there is sufficient socio-economic, financial and technical justification for corridor investment. If positive, feasibility studies will lead to the creation of a corridor master plan, followed by an impact assessment to ensure that socio-environmental impacts are prevented and mitigated. The impact assessment includes studies on land acquisition, value and compensation processes. This phase of corridor planning should include input from all stakeholders – including national, regional and local government authorities, donor agencies, potential investors, engineering and construction firms, civil society organisations, the media and affected citizens (Murphy 2017).

For LAPSSET, partial feasibility studies and master plans were contracted to Japan Port Consultants Ltd. (JPC). Although it is best practice to include all stakeholders in feasibility studies and master planning exercises, documents produced by JPC suggests that limited stakeholder engagement was undertaken during this initial stage of corridor planning. JPC completed their studies over a period of thirteen months, finishing in 2011, and construction began shortly thereafter. Nearly five years later, in 2017, REPCON Associates was contracted to carry out a more comprehensive Strategic Environmental Assessment (SEA). During this study, consultation meetings with stakeholders and affected communities were held all along the corridor route.

Many participants in the study area for this research felt that consultation during the planning phase of LAPSSET was inadequate. Most consultations took place well after construction had already begun. As a result, it was often too late for participants to shape or change projects. Participants also reported that meetings with rural communities were sometimes poorly publicised or held too far away to attend. In cases where representatives from affected rural communities had the means to travel to consultation meetings, it was often only men that made the journey, meaning that women were largely excluded from the process.

Following the initial planning for LAPSSET, the process of acquiring land along the corridor route began – a process that is still underway as of 2019. Substantial amounts of land are needed for the corridor, as well as for associated corridor projects, including: Lamu Port, Lamu Special Economic Zones, Lamu International Airport, Lamu Resort City, Lamu Port Industrial Zone, Lamu Refinery, Isiolo Resort City, Isiolo International Airport, Turkana Resort City and Turkana International Airport. In 2016, 28,500 hectares of land were secured by the LAPSSET Corridor Development Authority (LCDA) for construction. Then, in 2018, LCDA and the National Land Commission of Kenya signed a Memorandum of Understanding to enable the acquisition of a further 197,000 hectares. This land, which includes private, community and public land, is being ‘land banked’ so that access is guaranteed as corridor construction progresses (LCDA 2016).

By law, landowners must be consulted and compensated by the government if their land is acquired for public projects, such as development corridors. Participants reported that compensation was given to people who possess title deeds for private land along the corridor route. However, a complicating factor regarding compensation is that much of LAPSSET traverses northern Kenya, where the dominant form of land tenure is community land, including community conservancies.

In such areas, communities may have access and user rights to land, but the land often remains under the trust of the government. Importantly, Kenya’s *Community Land Act of 2016* allows community land to be redesignated as public land when the government deems it to be a matter of public interest. In theory, even those residing on community land should be informed about the redesignation of their land and fairly compensated. However, it does not appear that this always happened in practice. Participants in communities along LAPSSET described situations like the following:

Because the land is trust land, there was no compensation for lost land (FGD 2, Isiolo-Moyale Highway, July 2017).

People were displaced during construction, but no compensation was provided (FGD 6, Isiolo-Moyale Highway, July 2017).

People were to move 30 metres from either side of the road with no compensation (FGD 6, Isiolo-Moyale Highway, July 2017).

Concerning reports of little or no compensation, *The Land Value Index Laws (Amendment) Bill of 2016* limits compensation to the value of structures and improvements to land. In the pastoral rangelands of northern Kenya, many live in traditional *manyatta*, which the government assigns no or low value. Moreover, some participants described a lack of compensation for lost grazing lands. Although preserving these land is essential to the functioning of pastoralist systems – which is why grazing lands are purposely left undeveloped – failing to build on or improve the land may explain reports of no compensation.

4.2.2 The implementation phase

During the implementation phase, project proponents seek private contractors to design and construct different components of development corridors. If there is limited capacity in the public sector, private contractors may be retained following construction to maintain or operate the infrastructure. As private contractors begin to design and construct corridor projects, skilled

and unskilled employees are needed for construction. As mentioned, a key selling point of corridor projects is that they generate new employment opportunities in remote areas where few formal employment opportunities previously existed.

According to the LCDA, LAPSSET is creating employment opportunities in both specialised areas and manual labour, thus reducing poverty levels across Kenya (REPCON 2017). At the same time, the LCDA suggests the corridor is contributing to building capacity in Kenya's infrastructure industry through technology and skills transfer (REPCON 2017). Between 2012 and 2016, the LCDA claims LAPSSET resulted in the direct employment of around 1,600 people (REPCON 2016) and by 2030, the corridor authority claims that LAPSSET will create in excess of 500,000 jobs (Ndunda 2018). LAPSSET has been highly praised for its role in job creation by the media and other global actors. For example, in 2016, the LCDA was awarded the Global Infrastructure Leadership Project of the Year Award under the Job/Opportunity Creation category by the Global Infrastructure Leadership Forum. According to this forum, the LCDA received this award for creating thousands of jobs and investment opportunities across the EAC and impacting positively on Kenya's development.

Yet, in the study area of this research, claims about the number, quality and security of jobs created by LAPSSET were debated by rural communities. Chinese and Turkish companies were contracted to construct the infrastructure in this area. Some participants reported benefiting from short-term job opportunities created by these contractors. For men, these opportunities included manual labour, such as digging ditches, laying pavement, levelling the ground and clearing brush. Women were also hired on either a daily or monthly basis to carry out domestic duties, such as cooking food for workers or carrying water to workers. Casual labourers reported receiving the equivalent of USD 3–5 per day, which is above the poverty line for rural Kenya (KNBS, 2018). In some cases, casual labourers also reported saving earnings to invest in new business ventures, thereby improving their material well-being through short-term employment.

At the same time, many of the same participants were quite critical of their working conditions. They made statements such as the following:

Only casual jobs were created for community members, like collecting and moving stones (FGD 2, Isiolo-Moyale Highway, July 2017).

The safety precautions taken by the contractors was much poorer. We had no safety equipment. I was safer when I did manual labour for other companies, like Tullow Oil and Africa Oil (FGD 7, Isiolo-Moyale Highway, July 2017).

Participants also reported that injuries to casual labourers were common. In one community, concerns about poor working conditions and inadequate safety measures led casual workers to strike. Additionally, there were multiple reports of sexual harassment during construction with no clear processes in place for people to report abuse or to seek support for childcare when these incidences resulted in unwanted pregnancies.

Furthermore, participants explained that although some wage labour opportunities were created by corridor construction, they were excluded from more secure and higher-paying opportunities. There were reports of people migrating from distant places like Nairobi and Kigali (Rwanda) towards the corridor for employment. These migrants seemed to be filling skilled positions, while those living along the corridor were usually only qualified for short-

term manual labour and domestic labour openings. Participants expressed frustration with this situation. There was a common belief across many rural communities that contractors were required to reserve 75% of all employment opportunities for local people, so that they were not forced to compete with more skilled or educated ‘outsiders’ for higher-paying and more secure roles. County government officials confirmed that this requirement existed, but admitted that contractors were fulfilling this quote in relation to unskilled positions only.

In addition to concerns about labour, participants reported that the implementation phase of the corridor had adverse impacts on their land and natural resource base. This was primarily true for rural communities living directly alongside the Isiolo-Moyale Highway, which was an important livestock trade route long before highway construction. The primary form of environmental degradation discussed by participants were the hundreds of quarries excavated to supply rocks, sand and other resources for the construction of the highway. The road contractors did not restore quarries upon completion – as required by the *Environmental Management and Coordination Act No. 8 of 1999* and *Chapter Five of the Kenyan Constitution* – despite this being a condition in Environmental Management Plans for the highway.

In every participating community along the Isiolo-Moyale Highway, people explained that quarries increased the risk of water-borne diseases during rainy season. They also reported injuries and deaths to children and livestock that had fallen into the large open pits. For example:

Quarries dug by the company were not filled. This has led to water borne diseases during rainy seasons ... and deaths to livestock that fall in and drown ... no compensation was provided for quarries or deaths due to quarries (FGD 1, Isiolo-Moyale Highway, July 2017).

They destroyed the environment by digging quarries ... an entire hill was destroyed to create a quarry (FGD 7, Isiolo-Moyale Highway, July 2017).

They destroyed some farms to create the quarries and they took soil and stones without payment (FGD 8, Isiolo-Moyale Highway, July 2018).

No compensation has been provided to individuals whose livestock or family members were injured or killed as a result of quarries excavated along the corridor route and no one spoken to was aware of attempts to rectify these situations.

Another impact of corridor construction on rural communities’ land and natural resource base was damage to boreholes or other water infrastructure. Many communities reported that existing boreholes were used by contractors during construction but were damaged and left unrepaired once construction was complete. In other cases, construction companies dug boreholes to supply water for highway construction or for construction workers, but then removed necessary equipment (such as mechanised pumps) after construction was complete. Multiple communities described similar scenarios:

The contractors disconnected a pipe bringing water from (3 kilometres away) during construction for 1.5 years. The community complained to the company about the pipe and lack of water pumps but got no response (FGD 5, Isiolo-Moyale Highway, July 2017).

A borehole was built for construction, but required a machine [a pump] so it could not be used ... The community had a meeting with the contractors, who agreed a pump would be left for the community. But late at night, after construction was complete, the contractors returned and took the pump with them (FGD 5, Isiolo-Moyale Highway, July 2017).

In Turbi, at Kambi Nyoka, one pastoralist was killed by security officers while in a struggle to get water from a borehole that was drilled by the company to provide water to the company (Interview, Civil Society Representative, Marsabit, February 2018).

These impacts highlight the fact that relationships between companies and communities were often tumultuous during the implementation phase of LAPSSSET. Such concerns were repeatedly raised through local media as well.

4.2.3 The operation phase

Although LAPSSSET is nowhere near complete, portions of the corridor are already operational. The study area selected for this research includes some of the first operational components of the corridor. The new highway from Isiolo to Moyale is complete and in use, as is the Isiolo International Airport and the new Moyale border crossing. Construction on a new road between Lamu and Isiolo through Garissa is set to begin in the coming months, and this will be followed by construction of the road from Isiolo to Lokichar. Road projects have been prioritised, as operational roads are needed to move materials for forthcoming pipeline and railway line construction. Plans are also in place to use newly completed roads for the transportation of crude oil until the pipeline is complete.

Even at this early stage of operation, authorities claim that the corridor is driving economic growth and development. According to the LCDA, the Isiolo-Moyale Highway has enhanced trade between Kenya and Ethiopia by improving transport links and cross-border infrastructure. Authorities also claim that this segment of LAPSSSET has transformed northern Kenya into a 'new growth frontier' (REPCON 2017). Northern Kenya is endowed with high value natural resources, including minerals, oil and gas and renewable resources, such as wind. With improved transport infrastructure in place, the region is catching the attention of new investors. It is argued that this will eventually generate high value returns for the local economy (REPCON 2017). With regards to tourism, northern Kenya's tourism industry is well-established but has historically been quite exclusive. Improved transport infrastructure is reportedly facilitating the movement of more tourists throughout the region and creating new opportunities for growth in this sector.

LAPSSSET documents continually reference how the corridor will inevitably benefit rural livelihoods. By facilitating movement and trade, attracting investment and creating new economic opportunities, corridor authorities envision the corridor contributing to inclusive growth in this historically disconnected and disenfranchised part of Kenya. In July 2018, the CEO of the LCDA, Silvester Kasuku, built on this sentiment in the media, stating that LAPSSSET has improved life in northern Kenya by leading to the emergence of new towns, making cattle-rustling communities lay down their arms and turning previously marginalised areas into business hubs (Ndunda 2018).

During this research, participants validated some of these claims. They reported that the Isiolo-Moyale Highway has made it easier and faster for them to transport their livestock to markets.

They also reported that the number of transport vehicles on the road has increased exponentially since construction was complete. It has also become more common for business people based in towns to travel to remote communities along the highway to purchase livestock using personal vehicles. As participants explained:

In the past, when you start going from here to Isiolo, you say you are going to Kenya, because we did not feel part of Kenya. It used to take three days to get from Moyale to Nairobi, often sitting on the rails on top of the lorry with livestock. And, when you finally reached Nairobi after three days, what you were selling was not even livestock: You were selling carcasses (Interview, Civil Society Representative, Marsabit, July 2017).

People used to walk 4 days and back to buy supplies in Meru, but now suppliers bring the goods directly here ... The new roads mean all cars can travel with ease, not just trucks – we used to get stuck on the road but not now ... Every Monday we have a livestock market and can sell at higher prices than the past (FGD 4, Isiolo-Moyale Highway, July 2017).

Easy transit is the most important benefit ... It used to take 1 week to get to Archer's Post from Merille. Now it takes 2 hours. There is an increased number of transport vehicles. We used to have to go look for vehicles, but now the vehicles just come without asking ... We don't walk with livestock anymore, we just use trucks ... People have also bought cars, which are used to go collect water from the river. Before the road, there were no cars (FGD 5, Isiolo-Moyale Highway, July 2017).

Estimates suggest that pastoralism contributes to about 13% of Kenya's GDP (IRIN 2013). As LAPSSSET improves connectivity across the country, it is anticipated that the contribution of pastoralism to the nation's GDP will increase dramatically. Should this vision come to fruition, it is possible that LAPSSSET will have positive impacts on income levels among many pastoralist communities in northern Kenya.

Participants also reported that the Isiolo-Moyale Highway is enabling them to diversify their livelihood portfolios. Many living along the corridor route stated that new economic opportunities have emerged since the completion of the road, explaining:

We used to be just livestock keepers, but now we are business people too (FGD 5, Isiolo-Moyale Highway, July 2017).

The road has improved businesses for women: tourist vehicles come more often to collect beadwork on market days (FGD 3, Isiolo-Moyale Highway, July 2017).

People are able to buy and sell livestock, but also to purchase vegetables like cabbage, kale, oranges, cabbage ... The Samburu diet is changing, people can now access vegetables and kids can now access cabbage and sugar cane (FGD 3, Isiolo-Moyale Highway, July 2017).

So many business people are flowing through the community, so there are more opportunities ... Now people have bought cars to bring goods from markets to

the community and from the community to markets in the interior (FGD 5, Isiolo Moyale Highway, July 2017).

One can certainly observe more diverse goods and new market places and shops along the Isiolo-Moyale Highway now compared to years past. These new economic opportunities and markets are having a positive impact on rural livelihood portfolios, enabling people to supplement their livestock-keeping activities and generate additional income while diversifying household sources of nutrition.

Another notable impact of improved transport infrastructure along LAPSSET is improved security and public service provision. Specifically, participants said that acts of banditry have decreased for those travelling in the area since the Isiolo-Moyale Highway became operational. They also explained that it is easier for police to respond when banditry does occur along the road. Furthermore, access to emergency services, such as healthcare, as well as to social services, such as education, has improved with the new highway – contributing indirectly to household livelihood portfolios. Numerous communities along the corridor route reported such benefits, making statements like the following:

Security has now improved, because the high-speed vehicles cannot be stopped by bandits (FGD 6, Isiolo Moyale Highway, July 2017).

There are more frequent movement of vehicles on the road and bandits are facing challenges to attend to their banditry work before another vehicle arrives (Interview, conservation representative in Marsabit, May 2018).

The health sector has improved: it is easier to reach Isiolo Town ... Education has also improved, as pupils can travel further to places like Meru or Nairobi ... Because of the road network, there is new education and vocational training ... There is now a bank – before people had to go to Isiolo to get money from a bank (FGD 3, Isiolo-Moyale Highway, July 2017).

The best thing about the new road is improved access to emergency services and transport, especially for mothers (FGD 1, Isiolo-Moyale Highway, July 2017).

Improved security and service provision is an important outcome of development corridors, as it stands to improve the lives and life-chances of rural communities along corridors. Yet, it is important to note that access to social services in northern Kenya is still extremely limited and relatively expensive. Moreover, recent incidents of insecurity along the new highway suggest that improved transport infrastructure may not be resolving insecurity for rural communities. Vehicles traveling along the new highway might be safer, but communities living along the road are experiencing ongoing and, in some cases, intensified, safety concerns as armed cattle rustlers can also move faster by road.

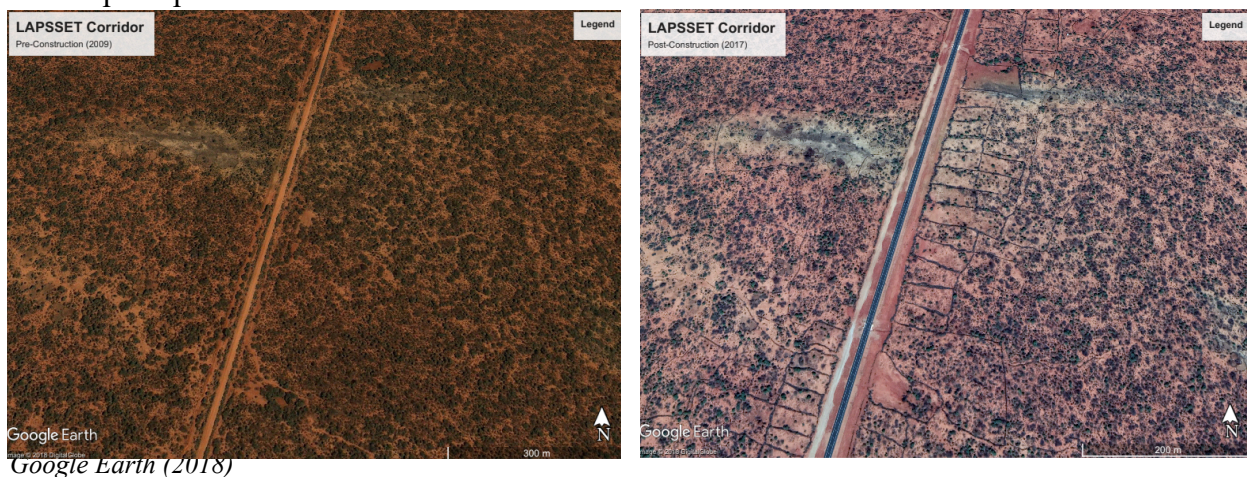
Other hazards and risks are emerging during the operation of LAPSSET that have significant impacts on rural livelihoods. Pastoralists living along the corridor experience these hazards and risks on a daily basis, as they migrate herds to-and-from sources of pasture and water. Prominent hazards include moving vehicles on the highway, few or poorly placed caution signs and a near-complete lack of speed humps and safe crossing points, such as tunnels or flyovers. These hazards come with the risk of injury or death to livestock and people. Indeed, pastoralists

along the Isiolo-Moyale Highway claim that countless livestock have been lost since the Isiolo-Moyale Highway became operational. During a FGD, one pastoralist in Logologo, Marsabit, exclaimed: “How many animals have died? Uncountable! I have lost 2 this month” (FGD 7, Isiolo-Moyale Highway, July 2017).

Greater mobility along the Isiolo-Moyale Highway also has indirect risks for pastoralists. As more transport vehicles move along the corridor, previously isolated rural communities are coming into contact with new people and hazards. During FGDs, it was reported that STDs are on the rise. As one community leader explained, “There are more STDs than before...People now come from all different backgrounds and communities were not prepared for this type of rapid social change” (FGD 8, Isiolo-Moyale Highway, July 2017). This reflects the gendered impacts of LAPSSET. As ample existing research has shown in other contexts, women living along major transport routes tend to be more vulnerable to exploitative relationships that could have a detrimental effect on their health, wellbeing and livelihoods.

Finally, the operation phase of LAPSSET also appears to be driving further land acquisition and land speculation. The completion of the highway is drawing more investors and land speculators to the region. As a result, land values along the corridor are starting to increase and more people are erecting fences to claim land along the corridor route (Figure 3). Participants frequently stated that growing interest in land along the corridor was worrisome, as it threatened to fragment rangeland ecosystems that provide pasture and water for pastoralists and habitat for wildlife. Because these lands tend to be unregistered trust lands, rural populations in northern Kenya are particularly vulnerable to the changing investment climate that is driving the rush for prime land in the region.

Figure 3. Comparing the Isiolo-Moyale Highway pre- and post-construction shows far more fenced plots post-construction



There was also widespread concern about how forthcoming LAPSSET projects that are land and resource intensive will impact pastoralist systems of production. Isiolo Resort City will undoubtedly have major impacts on the quality and quantity of land accessible to pastoralists. If the proposed Crocodile Jaws Dam goes ahead, it will flood thousands of hectares of grazing land and is intended to transform large tracts of land downstream into irrigated, agricultural lands. This, in turn, is anticipated to draw additional agribusiness investments in horticulture, mango and sugar cane, among other cash crops, to Isiolo (LCDA 2016). Furthermore, while few participants had any knowledge of the SGR, which is proposed to run alongside the Isiolo-Moyale Highway, this project will also impact the mobility of pastoralists and their livestock

– not to mention wildlife. In short, rural communities along the Isiolo-Moyale Highway have only experienced the initial wave of land acquisition for LAPSSET and concerns about the fragmentation of pastoral rangelands are not unfounded if the corridor proceeds as planned.

For pastoralist communities who depend on access to contiguous rangelands for their livelihoods, the negative impacts of the new investment climate promised through LAPSSET could be experienced over the course of multiple generations. Even the LCDA recognises the potential crisis facing pastoralists in the future if LAPSSET's current investment strategy continues as planned. As the SEA states:

The very survival of pastoral livelihoods especially in [various regions of northern Kenya] is under severe threat. The general impoverishment of ... Kenya's pastoral areas, resulting primarily from a loss of rangeland, has led to increased dependence on government relief, government-sponsored irrigation schemes and settlements and the incorporation of wage employment in pastoral families to supplement decreased production and declining incomes. This scenario is likely to replay depending on how LAPSSET is implemented (REPCON 2017, xii).

Future investment in land and water-intensive industries need to be restricted and closely regulated if pastoralism is going to remain a viable livelihood in northern Kenya.

4.3 Conclusions

This [LAPSSET] is a pillar project – we must empower local organisations and communities to speak up. We will have 10-fold problem of poverty in 10 years through displacement, if communities do not speak up now. How do we take this project forward to empower the local populations? (Participant in validation workshop, Isiolo, Kenya, 4 July 2018)

The findings in this section demonstrate that LAPSSET is contributing positively to rural livelihoods in some ways. For example, short-term employment opportunities were accessible to people living along the corridor during implementation and, since becoming operational, the new Isiolo-Moyale Highway has improved access to livestock markets. Additionally, the operation phase of the corridor has improved peoples' access to transport infrastructure and public transport, contributing directly and indirectly to the livelihoods of rural populations.

At the same time, LAPSSET also presents many challenges for rural livelihoods, which threaten to undermine the corridor's positive impacts. Nearly every participant commented on environmental degradation caused by LAPSSET construction and expressed concerns about how future investment along the corridor could further threaten the natural resource base. This is particularly problematic in northern Kenya where the majority of the population practices pastoralism, which requires secure access to healthy and intact ecosystems. It can be argued that inadequate attention to addressing and mitigating the socio-environmental impacts of LAPSSET in northern Kenya reflects the ongoing marginalisation of pastoralists within official decision- and policy-making processes in Kenya.

5. Research findings: Central Corridor

5.1 Context

The Central Corridor links the landlocked countries of Burundi, Rwanda, Uganda and the Democratic Republic of Congo (DRC) to the Tanzanian Port of Dar es Salaam on the Indian Ocean. It is a multi-modal transport route, consisting of five components: port facilities, inland waterways, roads, railways and one-stop border crossings (Figure 1). The aim of the Central Corridor is to reduce transport costs by 30 percent among the countries involved by providing Burundi, Rwanda, Uganda, DRC and the Tanzanian interior with an efficient transport route to the Indian Ocean. The Central Corridor is managed by an intergovernmental organisation, called the Central Corridor Transit Transport Facilitation Agency (CCTTFA). The Africa Development Bank (AfDB), European Union, TradeMark East Africa, Japan International Cooperation Agency, New Partnership for Africa's Development (NEPAD) and Kuwait Fund are just some of the key financiers of Central Corridor projects.

The Central Corridor was established in 2006, but initial progress was stalled by a lack of investment. Only recently has the corridor made progress in improving transport across the region. In recent years, the Central Corridor has received major new investment commitments from bilateral and multilateral actors. At the time of the study, the corridor was developing at an unprecedented rate with transport infrastructure being rapidly constructed and upgraded across the Great Lakes region. The renewed interest and investment in the Central Corridor can be attributed to at least two key developments.

First, new mining investments throughout the Great Lakes region have increased demand for efficient and reliable transport and energy infrastructure. Since the early 2000s, dozens of new gold mines have opened in Tanzania – primarily in the northwest of the country, which is serviced by the Central Corridor. At the same time, gold mining has increased in neighbouring countries. Rwanda's gold exports have risen by 900 percent and Uganda's by nearly 100,000 percent since 2015 (Enough 2017). Burundi, Rwanda, Uganda and DRC have also become key sites for the mining of tin, tungsten and tantalum (i.e. the '3Ts'). The growth of the mining sector has led mining companies to demand new and improved roads, railways and water infrastructure to facilitate the export of bulk commodities.

Second, the Central Corridor received an additional boost when Uganda decided to export crude oil through Tanzania rather than Kenya. Feasibility studies and initial design plans for the East African Crude Oil Pipeline (EACOP) suggest that the pipeline will follow the Central Corridor route through Uganda and across much of Tanzania. Following a USD 3.5 billion investment in the EACOP, portions of the Central Corridor that were previously seen as low priority or not economically viable have been prioritised. In short, the recent and rapid expansion of mineral and oil interests in the Great Lakes Region has enhanced the business case for the Central Corridor.

In 2014, the African Union Commission (AUC), NEPAD and the AfDB selected the Central Corridor as a pilot case study for an initiative that aimed to accelerate global investment in complex infrastructure projects. The Central Corridor was selected as a pilot case study out of 51 other projects because of its strong investment potential. In addition to 'unlocking' the potential of 'underexploited' mineral and oil resources in the Great Lakes region, the Central Corridor has been presented to investors as having substantial agricultural, fishery and tourism potential – all sectors that would be enhanced through improved transport infrastructure (World

Bank 2017). If extractive, agricultural, fishing and tourism investments along the corridor increase as expected, transit demand through the Port of Dar es Salaam is projected to increase from 5.0 million tons in 2015 to 14.87 million tons by 2030 (World Bank 2017). Thus, proponents of the Central Corridor see this project as key to unlocking national and regional economies in the Great Lakes region.

Proponents of the Central Corridor also envision the corridor contributing to poverty reduction. Small-scale farming is the predominant livelihood strategy in central Tanzania. Towards the centre of the corridor route, livelihoods rely heavily on the production of drought-resistant crops, such as maize, cassava, millet, groundnuts, sunflower, finger millet and pigeon peas (Perfect et al. 2010). As the corridor continues west and the climate becomes less arid, farmers also grow tobacco, cotton and rice (Perfect et al. 2010). Many farmers also keep relatively small numbers of cattle, but the suitability of the region for grazing attracts pastoralists with larger herds during certain seasons. In central Tanzania, farming and cattle rearing are often supplemented by harvesting forest products, including honey, timber, fruits and fish.

It is expected that the Central Corridor will link small-scale producers to new value chains while providing more reliable, cost effective and efficient forms of transport to market centres. The Central Corridor is also promised to attract new investment in agriculture, aquaculture and tourism – creating new opportunities for wage labour while driving rural productivity gains as technologies and energy infrastructure become more readily available in previously remote areas. In this sense, the Central Corridor is presented as a shift away from the enclave model that has long plagued Tanzania – in which infrastructure planning and development privileges highly spatialised forms of foreign investment – towards a new model that supports existing, local livelihoods and generates wider development (Perkins and Robbins 2011).

5.2 The Central Corridor and rural livelihoods

5.2.1 The inception phase

As previously explained, the start of any corridor project requires project proponents to undertake steps to determine whether further investment is justified. The inception phase generally involves a pre-feasibility study or inception report, a full feasibility study, the development of a master plan and an environmental and social impact assessment. If positive, feasibility studies lead to the development of a corridor master plan and an impact assessment to ensure that the social and environmental impacts of the project are mitigated. This phase of corridor planning should include input from all key stakeholders (Murphy 2017).

It is unclear whether these key studies were conducted for the Central Corridor. Instead, it appears that Japan International Cooperation Agency (JICA) conducted a pre-feasibility study and master plan for growing trade and transport in Tanzania as a whole, and that the Central Corridor was incorporated into the study. Since then, further studies have been carried out for particular components of the Central Corridor, such as the revitalisation of the Central Corridor railway lines. However, feasibility studies, master plans and environmental and social impact assessments are not publicly available for all Central Corridor projects.

This is the case with the Nyahua–Chaya Road – the segment of the Central Corridor that was the focus of this study. Key informants report that prior to construction beginning, a feasibility study and an environmental and social impact assessment (ESIA) were carried out. Local governments with jurisdiction over the districts that the Nyahua–Chaya Road passes through

were consulted as part of these studies. However, the studies were not shared with local government upon completion.

Moreover, there were inadequacies and inconsistencies with how rural communities living along the corridor route were consulted and compensated (or not) during corridor planning. First of all, it appears that authorities used these studies to inform – rather than to consult – communities about forthcoming road construction. As participants explained:

The authorities just arrived and placed X's on any houses along the new road route. These were the houses that would be demolished. There was no consultation (FGD 8, Nyahua-Chaya Road, April 2018).

Initially, the authorities came to the village council for a meeting. Everyone was told to stand on any land they had near the road. The land was registered and photos were taken. There was no discussion or consultation with the community (FGD 7, Nyahua-Chaya Road, April 2018).

Even in cases where consultation is unlikely to result in design modifications due to the technical specificities of an infrastructure project, it is still necessary to consult with affected populations during the planning stage of new infrastructure projects so that impacts can be documented and appropriate mitigation measures can be put in place (Gakusi et al. 2015).

Affected farming communities along the corridor route reported a series of problems with the compensation process. While compensation was provided for titled land and for land with permanent structures, the compensation criteria set out by the *Village Land Act of 1999* were often not followed. This law requires “prompt payment of full compensation for loss of any interests in land and any other losses that are incurred due to any move or any other interference with their occupation or use of land”. Yet, farmers were provided no clear timeline for when they had to move and where they would be resettled. In some cases, farmers were told that their land was being acquired for the road immediately and should no longer be used for agriculture, but more than three years passed before construction started. As a result, these farmers lost multiple growing seasons because they were afraid to plant on land that might soon be taken.

In addition to not being provided in a timely manner, compensation was often difficult to access. As one participant explained:

Compensation was given 3 months after the clearing of land and the start of construction ... There was no consultation or negotiation. The company surveyed the land and came back and said, “here is what you get” (FGD 4, Nyahua-Chaya Road, April 2018).

In one case, participants stated that they were not compensated until they blocked road construction and protested. Other participants reported having to travel long distances to access banks in urban centres to collect compensation. Upon collection, they learned that banks charged them large handling fees. For example, one man in Itigi District claimed to have lost one-third of the amount he was to be compensated in bank fees. In other cases, participants reported receiving compensation from authorities in a central office and then being forced to leave the office before opening their compensation envelopes in order to prevent complaints about the compensation awarded. These participants described the process as “compensation by force” (FGD 3, Nyahua-Chaya Road, April 2018).

There was also a lack of consistency around who was compensated and for what. While compensation was offered for titled land and for land with permanent structures, there were no reports of compensation for loss of customary land, cultural or sacred sites or areas that provided ecosystem services. As participants explained:

Assessment of land was done by TanRoads three times, but we do not know when or how much we will get paid ... You are found on your land, told you have not yet developed this land even though there are trees on it that you have been keeping. So, you are not sure you will get paid for it – even if you have been keeping the land for five years with the indigenous trees which becomes the reason why you are told that you have not developed the land, as it is still virgin (FGD 6, Nyahua-Chaya Road, April 2018).

We have a forest reserve, but we are not sure if compensation for lost trees will be paid. We were told we are not eligible for the compensation of the forest reserve (FGD 8, Nyahua-Chaya Road, April 2018).

As a result, rural communities living directly alongside the corridor lost access to forest products, cultural sites and other productive assets during this phase of corridor planning, with no compensation provided by the time of this research – despite provisions for such compensation in the *Environmental Management Act of 2004, Section 5(2)(f)* and *88(2)(c)*.

As with the previous case study, these findings suggest that rural populations were largely excluded from the inception phase of the Central Corridor. In most cases, district government officials confirmed reports from the village-level, agreeing that measures to include rural communities in the planning of the corridor were limited.

5.2.2 The implementation phase

During the implementation phase of development corridors, proponents seek private contractors to design and construct different projects. In some cases, private contractors may be retained following construction to maintain or operate the infrastructure. During this phase of corridor development, both skilled and unskilled employees are needed to bring projects to fruition. As mentioned, this is often a key selling point of corridor projects: they generate new employment opportunities in rural areas where few employment opportunities in the formal sector previously existed.

The Nyahua-Chaya Road within the Central Corridor was financed by the Kuwait Fund for Arab Economic Development and constructed by Chinese contractors. The contractors hired much of their manual labour locally. Accordingly, corridor construction did generate job opportunities in rural farming communities along the roadway. These opportunities were primarily short-term and involved tasks such as clearing forests, digging ditches or moving construction materials. As participants explained:

People in the village were employed to do manual labour and paid per week. There seemed to be no complaints. There were no contracts between workers and the company, though, but some workers remain employed in Itigi as security guards (FGD 9, Nyahua-Chaya Road, April 2018).

There were some jobs created during road construction. Handymen, construction workers, drivers and youth from the village got jobs when road construction began and some are even employed still – moving with the contractor along the road (FGD 9, Nyahua-Chaya Road, April 2018).

In one case, a participant reported that a man from his village was contracted by a construction company to supply food to construction workers throughout the entire period of road construction. He explained: “One man in the village supplied food to the contractors for 5 years – from 2012–2017. It has improved his life. Two women cooked the food and the man ran the business” (FGD 3, Nyahua-Chaya Road, April 2018). There were no reports of women being directly employed by the road contractors though.

Construction activities also created other income-generating opportunities along the corridor. In villages along the Nyahua-Chaya Road, small restaurants and shops experienced a boom during road construction. Participants recounted the ways in which their villages benefited from road construction:

Some people in the village were able to rent rooms to labourers for about TSh 10,000. Women who had big houses were able to benefit in that way. One man rented 6 rooms in his house (FGD 3, Nyahua-Chaya Road, April 2018).

People in the village are supplying food to the company and renting rooms to workers. People in the village have been employed as construction workers, security guards or cooks (FGD 6, Nyahua-Chaya Road, April 2018).

These reports illustrate how the construction of corridors can create short-term employment and income-generating opportunities in rural areas where relatively few options exist outside the agricultural sector.

At the same time, participants recognised that opportunities created by corridor construction would likely not improve their livelihoods in the long-term. Higher paying and secure employment opportunities, such as vehicle drivers or machine operators, were usually taken by ‘outsiders’ from elsewhere in Tanzania. Participants reported being paid between TSh 6,000 and 10,000 per day for casual labour. Although technically above the national poverty line of TSh 36,482 per adult per month (World Bank 2015), they claimed that food prices had increased significantly during road construction, and, consequently, they only returned home with TSh 2,000 each day if they fed themselves properly while working. They explained that their pay was too little to feed their families and exclaimed that “it was better that you go home without eating, otherwise your wife will think you have a concubine, because you are bringing home such little money after each day’s work” (FGD 7, Nyahua-Chaya Road, April 2018).

Wage labourers also explained that there were costs associated with taking advantage of the employment opportunities created by road construction. Working as day labourers requires spending less time in their fields, which they felt was bound to adversely impact their agricultural productivity for the year. This was primarily an issue raised by men with multiple dependents but no sons of working age. Although these men were concerned about their agricultural output, the chance to be paid in cash was often too appealing to resist.

Participants noted other problems with working conditions, including no contracts, delayed payments and redundancy without remuneration. They repeatedly described similar situations:

Payment is often delayed, often to the 15th day of the next month ... A person can be fired at any time without compensation. There are no contracts and no job security (FGD 6, Nyahua-Chaya Road, April 2018).

Employees have 3-month contracts with the company, but people are often fired early with no layoff pay – they are just told there is no work left (FGD 7, Nyahua-Chaya Road, April 2018).

Many participants said that there was no way to communicate these concerns to employers because of a language barrier, explaining: “We cannot talk to the managers because they only speak Chinese. There is a Tanzanian middleman that communicates with the Chinese managers on our behalf, but we did not know if the middleman has good intentions. Also, it is difficult to get a chance to talk to the middleman; he is hard to find – you cannot get him” (FGD 7, Nyahua-Chaya Road, April 2018). Insights into the labour conditions along the Central Corridor provided by participants suggest that Tanzanian labour laws are often not being upheld by contractors.

In addition to concerns about workers’ rights, participants noted other challenges faced during the implementation phase of the corridor. In communities where contractors built work camps, in-migration was seen as a problem. One village, in particular, explained how they were playing host to a surplus population of labour migrants who were waiting for work. However, road construction was delayed for a number of months, leaving these migrants unable to pay for food, rooms or other goods:

There is a camp in the village, but this has yet to translate into jobs. People have gone to ask but have not been employed. Some people from other areas have been in the camp for a long time looking for jobs, but they have not been employed ... Initially, the company said work would start in October. So many people came but work did not begin. In February, the company said work will begin in May. People originally came with just enough money until work began, but now work has not begun and people are turning to begging and sleeping on the street (FGD 6, Nyahua-Chaya Road, April 2018).

The precarious nature of construction work was seen to be creating short-term economic problems for labour migrants and host communities alike. If labour migrants chose to stay following road construction, participants suggested that this would be good for the local economy, but it would also present additional challenges, such as more competition for land and natural resources.

The impact of road construction on land and natural resources was an emotive issue. Again, one of the primary concerns related to quarries. As in Kenya, quarries were dug to supply rocks, sand and other resources for the construction of the highway and then left unfilled. As a result, previously fertile land was rendered unproductive for agriculture or unsuitable for future development. Participants also raised health and safety concerns about quarries:

Standing water in quarries is a safety hazard for people and animals and there was and is no rehabilitation plan to fill pits (FGD 9, Nyahua-Chaya Road, April 2018).

Quarries have not been filled. Children have drowned in the open pits. The use of quarries for watering livestock is also not good ... According to the [impact assessment], the quarries were to be filled. The land cannot be used for other purposes when the quarries are not filled – not development, not building, not agriculture (FGD 2, Itigi District, April 2018).

The fact that most quarries excavated by companies were left unfilled after construction contradicts the *Environmental Management Act of 2004, Sections 4(1) and 88(2)* as well as the *Roads Act No. 13 of 2007, Section 30*. Moreover, participants did not report any compensation for illness, injury or death resulting from quarries (see *Environmental Management Act of 2004, Section 5(2)*).

Participants also said that forest reserves were disturbed and timber and non-timber forest products were depleted during road construction without any form of compensation, including measures to reforest carbon sinks:

Construction is taking place in village forest reserves, which includes a wetland. As construction continues, people are following and moving deeper into the forest to harvest charcoal. The Chinese [companies] have constructed two camps at Tura and Kizengi in forest areas ... The two camps highly promoted charcoal burning which will definitely reduce the carbon sink, according to experts in the field. One of the environmental risks is that the forest will cease to function as a carbon sink and source of ecosystem services (FGD 5, Uyui District, April 2018).

We have a village forest. But we only get compensated for murrum, not for trees. We were told that this is a national project for the public good, but trees were felled and used for separate purposes (FGD 6, Nyahua-Chaya Road, April 2018).

As with LAPSSSET, participants stated that boreholes or other water infrastructure were damaged by construction companies and left unrepaired without compensation or replacement.

5.2.3 The operation phase

Although it will be a number of years before the Central Corridor is complete, portions of the corridor are already operational. As mentioned, the Nyahua-Chaya Road was partly completed at the time of this research. Like LAPSSSET, road projects within the Central Corridor have been prioritised, as operational roads are needed to move materials for forthcoming pipeline and rail construction. In this case, the Nyahua-Chaya Road will be used to facilitate the rehabilitation and upgrading of a rail track that runs parallel to the road.

Central Corridor authorities see the Nyahua-Chaya Road as integral to the corridor's development. In addition to facilitating rail construction, the road will play a key role in reducing transport costs and times along the entire Central Corridor. Once complete, it will increase traffic movement and capacity between the Port of Dar es Salaam and Kigoma, as well as between Dar es Salaam and Burundi and DRC.

The Nyahua-Chaya Road is also promised to contribute to economic and social development in the project area. During the signing of the loan agreement for the Nyahua-Chaya Road, Tanzania's Minister for Finance and Planning explained: Once, complete, the Nyahua-Chaya Road "will improve transport, mobility, accessibility, safety and quality of service delivery to

the community along the corridor thus linking production areas to markets. I am quite sure that this loan agreement will generate a lot of smiles for the people and business community”. To what extent do these high expectations for the Nyahua-Chaya Road align with how rural communities are experiencing the road now that it is operational?

During this research, participants were quick to explain that the road has made it significantly easier and, in some cases, cheaper for them to travel. Given that the Nyahua-Chaya Road is the first paved road through this part of central Tanzania, it is not surprising to find that it has quickly improved transport options and rural mobility. As participants explained:

People can move a lot better than before. Transport is easier in terms of going somewhere and returning quickly. In the past, people used to be killed by lions when walking or waiting on the road. There are more buses now and more bikes than before... (FGD 4, Nyahua-Chaya Road, April 2018).

When travelling to Tabora, people used to go by train. They would go one day and return the next. But now they can go and return the same day. The fare is much lower now as well. It used to be TSh 14,000 to take a train and pay for accommodation in Tabora, but now it costs only TSh 5,000 by car (FGD 7, Nyahua-Chaya Road, April 2018).

Accessibility has improved. It is now possible to read a newspaper from Dar es Salaam the same day it is printed. This was impossible in the past (FGD 8, Nyahua-Chaya Road, April 2018).

Men in particular reported travelling more regularly than in the past – often to Tabora or Dodoma – for business purposes or to visit family and friends.

In addition to being able to travel easier, participants said that business was improving, as buyers are more willing to travel long distances to purchase farm products like finger millet and pigeon peas. Nearly every village along the completed portions of the road noted growing demand and better prices for their produce, explaining:

Since the road, more and more people are planting pigeon peas because more buyers are coming. There is also an increase in cash crops compared to before ... It used to be difficult to sell goods. Now trucks come regularly to buy products and take them to market. The price received has increased significantly ... The price has increased from TSh 70,000 to TSh 200,000 per 120/130 Kgs of pigeon peas (FGD 9, Nyahua-Chaya Road, April 2018).

... the price of products has improved because more people can come. Before, people were worried about ruining their cars and they forced the community to transport their products by carts to Itigi. They [business people] used to come by carts pulled by bulls, but now large trucks come (FGD 4, Nyahua-Chaya Road, April 2018).

Participants also explained how growing demand and better prices were creating new opportunities in existing value chains. A number of participants explained how there were now more middlemen in their villages. These individuals – usually young men – are paid to collect and store produce from their villages on behalf of business people in distant urban centres. In

this sense, the Central Corridor is not just enhancing small-scale farmers' access to markets, it is also creating new income-generating opportunities in some cases.

The Central Corridor is also supporting small-scale farmers in rural areas in diversifying their livelihood portfolios. Participants reported that as the road brings more people through their communities, entrepreneurs have started to open small businesses, restaurants and hotels. As one elderly man explained, "It is good that children of pastoralists can now turn to small businesses. Now, they don't have to move to Dar es Salaam and Dodoma to find work" (FGD 2, Itigi District, April 2018). Participants also explained that investors were coming to their communities with business propositions. For example, one man shared the following story:

Farmers' empowerment organisations have been started to encourage the growing of sunflowers. More and more traders are coming to buy the sunflower seeds for oil. Singida is now known for sunflowers and business is growing. Due to that sensitisation, many in this area are recognising this as a good opportunity and sunflower farms are being established (FGD 2, Itigi District, April 2018).

As small-scale farmers pursue diversification opportunities created by the corridor and investors seek new opportunities in the region, district-level authorities are finding ways to support their constituents. For example, Itigi District Officers explained that the town will eventually serve as an intersection for travel from Dodoma, Mbeya and Tabora. A bus stand is being built on the main road and a parking bay is being created for lorries, with the goal of attracting agricultural middlemen to the region while making it easier for farmers to travel to markets (FGD 2, Itigi District, April 2018). The district also plans to provide incentives to encourage small-scale farmers to increase their production of sustainably-sourced traditional products, such as honey and oils, now that the region is better integrated into the national transportation system (FGD 2, Itigi District, April 2018).

At the same time, the operation phase of the Central Corridor has created new challenges for rural livelihoods. Moving vehicles on the highway, few or poorly placed caution signs and the lack of speed humps and safe cross points were all raised as problems created by the new road. It was reported that STDs are on the rise along the corridor. As one local government official explained, "STIs may be increasing ... There is also a lack of STI data in the district. The risk of STIs was already high, but now it is increasing, especially because of truck drivers" (FGD 1, Manyoni District, April 2018). In addition to the risk of illness or death, health conditions can take an indirect toll on the productivity and overall well-being of rural households. Already marginalised individuals and groups are particularly vulnerable to these new threats, including children and women. If appropriate safety and public health measures are not established, these impacts may continue to grow as use of the Nyahua-Chaya Road increases as it becomes one of the main routes for land transport between East and Central Africa.

Additionally, other serious risks come with market integration for rural small-scale producers along the Central Corridor, including: heightened financial risk, vulnerability to shocks in global and national commodity trends and markets,⁵ environmental degradation and land speculation and acquisition. Regarding environmental degradation, participants reported an

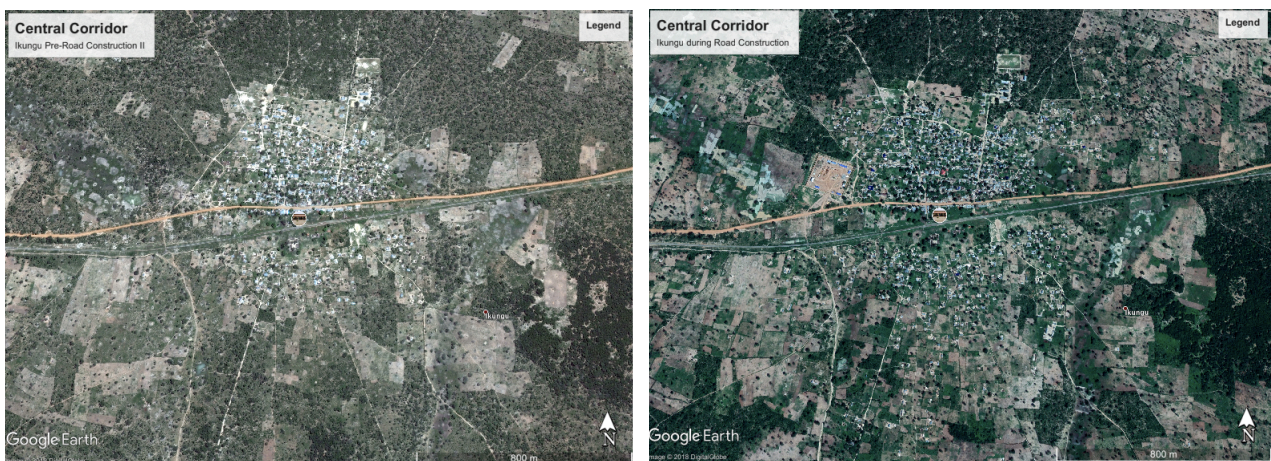
⁵ Although many of the agricultural commodities produced in this region are consumed domestically, Tanzania now ranks as one of the ten largest sunflower producing countries in the world with a production share of 2.4% (ITC 2016). The expansion of the edible oil industry along the Central Corridor, and the potential for small-scale integration into regional and global edible oil markets, presents new opportunities and risks.

increase in deforestation and the illegal harvesting of timber from forest reserves. Participants from Itigi District were particularly concerned with the impacts of the new road on the rare Itigi-Sumbu Thicket. As district officials explained:

Itigi District is named after Itigi-Sumbu Thicket, which is only found in two areas – Itigi in Tanzania and Sumbu in Zambia ... The district is interested in the conservation of the thicket and perceives human activities as the biggest threat (FGD 2, Itigi District, April 2018).

Deforestation is recognised as a high cost of corridor development (Laurence et al. 2015). Given that humans and animals along the Nyahua-Chaya Road rely on forests for survival, managing environmental degradation and mitigating future forest loss is a pressing challenge facing district- and village-level authorities moving forward.

Figure 4. Changing land use along Nyahua-Chaya Road pre- and post-construction, indicating forest depletion and fragmentation



Google Earth (2018)

The challenge of preventing deforestation along the corridor route is compounded by the fact that the corridor is also attracting further, large-scale investments. All along the corridor route, there were reports of large-scale investments in cash crops, such as cashews, sunflowers and tobacco since the completion of the road. Participants explained:

There are many initiatives happening in Itigi associated with the Central Corridor. Investors are coming to the district from outside, but there are also local investors seizing new opportunities linked to Central Corridor developments (FGD 2, Nyahua-Chaya Road, April 2018).

The district has reserved land for industry. Agriculture and the production of cash crops are also increasing, including new investments in cotton, cashew nut and tobacco. This is happening because of corridor construction (FGD 5, Nyahua-Chaya Road, April 2018).

District officials also described plans for attracting investments in non-agricultural commodities like known reserves of gold and uranium close to the corridor. Growing investor interest in the region stands to have significant impacts on small-scale farming livelihoods.

5.3 Conclusions

Like LAPSSET, the Central Corridor is contributing positively to rural livelihoods of communities along the corridor in multiple ways. For example, the implementation phase provided some small-scale producers with access to additional income generating activities – ranging from manual labour to temporary, increased demand for goods and services in rural villages. Similarly, the operation phase of the corridor has contributed to growing demand for new crops, higher prices for existing produce and new opportunities within existing value chains. Those living along completed sections of the Nyahua-Chaya Road also report reduced transport times and, in some cases, reduced costs for public transport.

Yet, numerous trade-offs undermine or threaten to undermine rural livelihoods along the Central Corridor as well. Rural communities along the corridor route had little say over land acquisition, compensation and resettlement processes. Those employed during corridor construction experienced precarious labour conditions and construction activities have also contributed to the degradation of natural resources. In particular, the excavation of quarries along the Central Corridor has rendered large areas of village land unproductive and unsuitable for small-scale farming. With further large-scale agricultural investments along the Central Corridor already on the rise, it remains to be seen whether the cumulative impacts of the Central Corridor on small-scale farmers will be positive or negative.

6. Conclusions

The qualitative evidence presented in this study reveals how new development corridors in East Africa impact different rural livelihoods. In both cases, LAPSSSET and the Central Corridor can be understood as contributing positively to rural livelihoods in some areas while undermining rural livelihoods at the same time.

Both cases demonstrate a systemic failure to include rural communities in decision-making and planning processes during the **inception** phase of corridor projects. As a result of inadequate consultation with affected rural communities, both LAPSSSET and the Central Corridor have been designed and planned without input from people who have highly-contextualised and in-depth knowledge about land dynamics and rural production systems along the corridors. This is likely to result in land use conflicts moving forward as the development aspirations, needs and priorities of rural producers come into conflict with the master plans for both corridors.

During **implementation**, construction activities create new income generating opportunities – ranging from manual labour to cooking and water delivery to hiring rooms to construction workers. However, these opportunities were generally low paying, short-term and insecure. Corridor construction also led to multiple forms of environmental degradation in both cases – ranging from the excavation of large, open quarries to damaged water sources to degraded forest reserves and grazing lands. The effects of environmental degradation are experienced immediately during implementation, but will have ongoing implications for rural livelihoods.

Finally, the **operation** of both corridors is contributing positively to rural livelihoods by: reducing the costs and times associated with transporting goods to market, improving access to markets and creating new market opportunities and opening opportunities within existing value chains. At the same time, the operation of new development corridors also presents new hazards and risks for rural communities. Along both corridors, the lack of safe crossing points, flyovers or underpasses has resulted in injuries and deaths to livestock and people. The increased frequency and volume of vehicle traffic is also associated with public health risks, like the spread of STDs, which can indirectly impact peoples' long-term wellbeing. Finally, ongoing investment in land and natural resources along both corridors is driving further land acquisition (legal and illegal), environmental degradation and ecosystem fragmentation.

6.1 Recommendations

This section identifies possible areas of intervention in response to the findings of this report, which highlight the impacts that new development corridors in East Africa have on rural livelihoods. The recommendations discussed below reflect suggestions made by participants in this study, as well as the outcomes of the Policy Delphi process that was used to verify the study's findings. Recommendations are organised according to the three different phases of corridor development.⁶

⁶ Concerning specific legal or regulatory frameworks that might require attention when addressing recommendations in the context of LAPSSSET or the Central Corridor, please refer to those referenced in the individual case study sections above. In Kenya, these include: *The Community Land Act of 2016*, *Environmental Management and Coordination Act No. 8 of 1999*, and *Chapter Five of Kenya's Constitution*. In Tanzania, these include: *The Environmental Management Act of 2004*, *Roads Act of 2007*, *Village Land Act of 1999*.

6.1.1 The inception phase

- Individuals and groups representing different social groups (e.g. different age, ethnic, gender and livelihood groups, etc.) should be directly involved in feasibility studies and master planning exercises, so as to ensure that the development aspirations, needs and priorities of different stakeholders are integrated with decision- and policy-making processes at the earliest stages of corridor development. Such measures are key to ensuring that public and private development actors investing in corridors understand and respect the existing socio-cultural, economic and ecological landscapes in which they operate.
- Affected rural communities should be fully informed about the details of the projects proposed within development corridors and the possible impacts of these projects – including proposed measures for preventing or mitigating adverse impacts.
- Sites of cultural and socio-ecological importance should be considered during the planning of new corridor projects as well as in prevention and mitigation measures devised to limit the impacts of construction on these sites.
- Procedures should be enacted for assisting communities with securing registration for their land prior to construction activities beginning. Prioritising land security and titling initiatives for individuals or groups who occupy land along corridor routes could enhance the power such groups have over assets while helping to prevent adverse land-related impacts and conflicts during implementation. Such initiatives could also serve to protect rural communities from speculative investors, as land values increase along corridor routes with ongoing forms of development.

6.1.2 The implementation phase

- Rural communities and village, county or district governments affected by corridor construction should be provided with training on labour contracts, remuneration standards and insurance/pension services. This training should go hand-in-hand with education about where to report labour rights violations, especially assault and harassment against women or other marginalised groups, during corridor construction.
- Anonymised mechanisms for reporting rights violations or mediating conflicts should also be implemented before construction begins. Such mechanisms might include mobile hotlines or designated members of communities, local governments or emergency responders. Yet it is inadequate to place the burden for monitoring and reporting violations squarely on the shoulder of labourers, marginalised groups or other local-level stakeholders. Contractors need to receive in-depth training on relevant laws and procedures as well as training on international laws, standards and best practices. The development of policies that ensure equal opportunities for women, minorities and other marginalised groups should be a necessary prerequisite for construction activities beginning – these should be monitored and enforced throughout the implementation phase of corridor developments.
- Government monitoring bodies need to ensure compliance with impact assessments and environmental management plans during construction. As in the case of human rights violations, anonymous mechanisms for reporting environmental violations and

unanticipated adverse environmental impacts should be implemented prior to construction activities beginning.

6.1.3 The operation phase

- Once construction of a transport corridor is completed, rural communities need to be connected to primary trade routes and to other vital infrastructure networks such as energy, water and social services.
- As last mile infrastructure is established in rural areas, investments are also needed in value chain development, institutional capacity building and logistics development to support rural producers. For example, pastoralists in northern Kenya do not automatically have access to reliable markets for their cattle in destinations such as Nairobi simply because transportation has been improved. Market linkages need to be created through targeted policies and programmes.
- Adaptive community-investor agreements are needed to ensure that rural communities remain involved in the planning, design and implementation of pending investments – particularly in relation to large-scale land deals that stand to impact further on existing land-based livelihoods. Such agreements require mechanisms for ensuring that communities are able to secure and enjoy some degree of autonomy over investments along corridor routes (e.g. by being empowered to lease, rather than surrender or sell, land to investors or by being provided with meaningful shares in investments).
- Master plans for development corridors should also include provisions for training individuals from different groups in rural society for secure, well-paying careers in anchor projects or other growing industries along new corridors. The establishment of strategic apprenticeship programmes, polytechnic institutions and universities along corridors could also help support rural producers to diversify their livelihoods.

6.2 Areas for further research

In closing, we highlight a few areas where further research is needed into the relationship between development corridors and rural livelihoods. As with the recommendations in the previous section, these priority research areas are informed by engagement with a diverse stakeholder audience during a Policy Delphi process.

Development corridors from a longitudinal perspective

This report demonstrates that development corridors can have undesired, unexpected impacts on rural livelihoods throughout the various phases of their lifespan. Although our study considers the inception, implementation and operation phase of new corridors, both LAPSSET and the Central Corridor are meant to attract significant further investment in the years to come. As such, there is a need to understand the long-term impacts that ongoing investment in corridors has on the livelihoods of diverse communities in different contexts – including socio-cultural, economic and ecological impacts. Participants in the validation workshop emphasised that using qualitative and quantitative methods in longitudinal research would inform a more comprehensive knowledge of the long-term implications of new development corridors. Because a lack of quantitative data is a limitation of this study, future research involving quantitative analysis and mixed-methods would be particularly useful.

Transforming spaces and changing social relationships

In addition to longitudinal research on development corridors, there is a need for research that focuses on changing spaces and social relationships along corridors – particularly as corridors transition through the various phases and stages. During the validation workshop, participants emphasised the importance of considering the transformation of rural spaces along corridors into peri-urban or urban spaces in particular. For example, how do such transformations further impact the land and natural resource base and vice versa? What formal or informal arrangements emerge for managing land, natural resources and waste as new spaces emerge along corridors, and with what effects? Relatedly, ongoing research is needed into the differentiated impacts of corridor development, as they are experienced along the lines of age, class, ethnicity and gender, etc. This includes consideration for identity politics and the politics of changing identities that might follow the rapid transformation of rural spaces. With this in mind, it is paramount that different communities of actors – including marginalised groups – play a direct role in designing future research agendas and activities. In other words, it is necessary to ensure that future research on development corridors is, in itself, inclusive and responsive to the development aspirations, needs and priorities of different groups.

The legal and policy landscape of corridor development

Finally, further research is needed into how the legal and policy landscape of development corridors shapes the impacts they have on different rural livelihoods. For example, our study highlights the significant role that land tenure – and relevant legislation – plays in determining who gets included in or excluded from compensation procedures and how. Our findings also reveal that existing bylaws, legislation or policies meant to regulate infrastructure development often remain unenforced along new corridor projects, as in the case of quarries excavated during construction activities. Efforts to document, understand and inform relevant legislation and policies are vital to preventing and mitigating the negative impacts that new development corridors can have on rural livelihoods. Moreover, there is a need to ensure that existing laws, rules and procedures are adapted or updated in light of ongoing investments along operational corridors. In this regard, measures should be taken to ensure that further research informs the legal and policy landscape that underpins development corridors.

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Appendix

Organisations represented at the Policy Delphi workshop, listed in alphabetical order:

- American Jewish World Service
- Boma Project
- Christensen Fund
- Department of Anthropology, McGill University
- Department of Environment and Geography, University of York
- Department of Geography, University of Nairobi
- Department of Geography, University of Sheffield
- Ewaso Lions
- Faculty of Engineering, University of Sheffield
- Global Development Institute, University of Manchester
- Grevy Zebra Trust
- Indigenous Movement for Peace Advancement and Conflict Transformation
- Indigenous Strategy and Institution for Development
- Isiolo Water and Sewerage Company
- Jumuiko la Maliasili Tanzania (Tanzania Natural Resource Forum)
- Kivuluni Trust
- Koija Group Ranch
- Marsabit County Government
- Marsabit National Park
- Merti Integrated Development Program
- Natural Justice
- Northern Rangelands Trust
- Open Society Initiative for East Africa
- Pastoralist Community Development Organisation
- Pastoralist Integrated Support Program
- Samburu County Government
- Samburu National Reserve
- Samburu Women's Trust
- Stockholm Environment Institute Africa
- The Standard
- Wetlands International Africa

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