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Transport Infrastructure in Central and Northern Mozambique: The Impact of Foreign Investment on National Development and Regional Integration

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ABSTRACT

Numerous major projects are underway or in the pipeline in the energy and mining sectors in central and northern Mozambique, but transport infrastructure is inadequate. As a result, foreign companies themselves have begun to upgrade public roads, railways and harbours. International donors and the Mozambican authorities are optimistic about the impact of these initiatives on national development, and claim that the rehabilitation of the ports of Beira and Nacala, and the transport corridors that connect them to Mozambique's landlocked neighbouring countries, will also bolster regional integration. Yet reports by civil society organisations (CSOs) and parallels with resource exploitation in the colonial era suggest that this assessment may be incorrect. We analyse the present state of transport infrastructure in central and northern Mozambique as well as its envisaged expansion, shed light on the co-operation between foreign companies and the Mozambican government in respect of national infrastructure, and investigate the potential impact of this new trend on national development and regional integration.

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ABBREVIATIONS AND ACRONYMS

CDN	Corredor de Desenvolvimento do Norte (Northern Development Corridor)
CFM	Companhia de Ferros de Moçambique (Mozambican Iron Company)
CMC	Cooperativa Muratori e Cementisti
Comesa	Common Market for Eastern and Southern Africa
CSO	civil society organisation
DBSA	Development Bank of Southern Africa
DRC	Democratic Republic of Congo
EAC	East African Community
EN1	Estrada Nacional 1 (National Highway 1)
EN7	Estrada Nacional 7 (National Highway 7)
ENRC	Eurasian Natural Resources Corporation
Frelimo	Frente de Libertação de Moçambique (Mozambique Liberation Front)
GDP	gross domestic product
LAM	Linhas Aéreas de Moçambique (Mozambican Airlines)
PIDA	Programme for Infrastructure Development in Africa (African Union)
Renamo	Resistência Nacional Moçambicana (Mozambican National Resistance)
SADC	Southern African Development Community
SDI	spatial development initiative
TEU	twenty-foot equivalent unit
UAFL	United Africa Feeder Line
ZANU	Zimbabwe African National Union

INTRODUCTION

'This small town is trying to handle massive expansion. It must have been like this in Johannesburg during the gold rush.' – South African banker, speaking about Tete in central Mozambique.

During the past few years, central and northern Mozambique has become an El Dorado, with a plethora of projects proposed for the energy and mining sectors. The giant Brazilian company Vale and its Australian counterpart Rio Tinto plan to export 44 million tonnes of coal a year from Tete province – much of it coking coal, which is used in steel production and is more valuable than thermal coal. Vale, Rio Tinto, the Indian company Jindal Steel & Power, and the London-based Kazakh mining company Eurasian Natural Resources Corporation (ENRC) are planning to build coal-fired power stations with capacities ranging from 300 to 3 000 megawatts. Ncondezi Coal, one of the few Mozambican players involved, wants to operate a coal-to-liquids plant. The Australian mining company Global Metals plans to build a heavy rare earth mining and processing plant east of Tete. At least one additional hydroelectric dam is scheduled along the Zambezi River, and Cahora Bassa's output is due to be increased by more than 2 000 megawatts.¹ In Nampula province, the Irish company Kenmare Resources wants to mine 612 000 tonnes of ilmenite, 24 000 tonnes of zircon and 12 500 tonnes of rutile a year, potentially contributing up to 2.4% to Mozambique's gross domestic product (GDP).² Near the Tanzanian border, other minerals and natural gas are to be mined in huge quantities. However, existing transport infrastructure cannot sustain these developments. As a result, foreign companies have begun to build infrastructure which they regard as essential for their operations.

It could be argued that their efforts to upgrade transport infrastructure resemble projects implemented by the colonial powers about 100 years ago, which linked mining towns to harbours, fragmented East and Southern Africa, and did not benefit local people. Protests over relocations due to mining in Tete province, insufficient compensation and limited job opportunities for local communities, as reported by Human Rights Watch,³ appear to confirm this negative interpretation. A report by the Mozambican Centre for Public Integrity suggests that foreign mining companies create few jobs, but make huge profits.⁴ Even the World Bank has warned against the environmental impact of strip mining and coal-fired power generation. It has also noted that Rio Tinto's concession in Benga will require the relocation of some 2 000 people, and that 1 313 families and 60 businesses are due to be moved from Vale's Moatize site.⁵ Other observers are more positive. They highlight the coincidence of coal and hydropower resources, which could be used to generate huge quantities of cheap power, and metals mining and processing opportunities, which require a lot of electricity.⁶ They note that foreign investment has led to the rehabilitation of road, rail and harbour infrastructure damaged during Mozambique's civil war, as well as its expansion.⁷ Mozambique's former minister of transport, Paulo Zucula, recently said the infrastructure built by foreign companies was beneficial to everyone, and that its purpose went beyond facilitating exports.⁸

Given these divergent interpretations, we examine the issue of whether transport infrastructure projects in central and northern Mozambique provide a foundation for local development in addition to resource extraction. First, we set out a conceptual framework

for our research, referring to current scientific debates and indicating how they apply to Mozambique. Second, we review existing and proposed transport infrastructure in central and northern Mozambique. Third, we assess the opportunities and challenges presented by the interaction of foreign companies with the Mozambican state, and establish under which conditions local people could benefit from large-scale transport infrastructure projects. Our analysis shows that public–private partnerships for improving transport infrastructure could greatly improve connectivity, which is a vital condition for economic development not only in Mozambique but in Southern Africa as a whole. In order to realise this potential, we argue that the interaction between national and regional political authorities on the one hand and foreign companies on the other must be improved. However, even if this happens, the extent to which benefits will trickle down to local economies is uncertain, and probably limited. Our study is based on six interviews with experts on economic development and the transport sector in Mozambique and Southern Africa, newspaper articles, World Bank studies and documents made available to us by the Mozambican government.

TRANSPORT INFRASTRUCTURE AND DEVELOPMENT

According to the American geographer Richard Hartshorne, political geography involves analysing the way in which the world is organised into sustainable spatially delimited political units. These units are shaped by both social and natural forces, such as trade patterns and natural barriers.⁹ In order to be sustainable, they need a minimum of material assets as well as outputs for performing their key functions.¹⁰ A political unit only functions well if all its sub-units are joined together in a way that ensures sufficient productive capacity and a minimum level of homogeneity, meaning the absence of severe socioeconomic disparities.¹¹ Hartshorne refers to this as ‘contiguity’. Horizontal contiguity comprises linkages among neighbouring sub-units, while vertical contiguity comprises linkages among sub-units and a core area to which they are all bound.¹² This implies that analysts need to identify the ‘centripetal forces’ binding together the components of a political unit – the member states of a regional organisation, for instance – and whether they have a sufficient economic base to achieve their purpose, such as facilitating economic development.

In the case of our study, both the Mozambican state and the Southern African Development Community (SADC) can be seen as political units. They pursue socio-economic objectives – development in a broad sense – and require productive capacities to achieve those objectives. One of the forces that integrate their sub-units – in other words, Mozambique’s provinces and SADC’s member states – is transport infrastructure. The *World Development Report 2009* notes that density and distance are key variables for analysing economic development at the regional level: areas of high economic density, such as industrial hubs, generate impulses for their periphery, and the distances between cores and their peripheries indicate the intensity of these impulses. Given the varying quality of transport infrastructure, distance must be understood as the cost and time of transport (instead of distance measured in kilometres).¹³ Simply stated, by providing access to remote areas, transport infrastructure such as roads and bridges enable investment, and therefore economic growth. Other analysts have also pointed to the key

role of transport infrastructure in development. Most prominently, Steven Radelet and Jeffrey Sachs explain that landlocked countries are burdened by high transport costs to and from the nearest ports, which constitute a significant barrier to economic growth.¹⁴ In this sense, geographic factors dictate economic fate.¹⁵

Transport infrastructure in Southern Africa is poor. According to the World Bank, only 59% of the roads in the North–South Corridor, which links the port of Durban to the Copper Belt in the Democratic Republic of Congo (DRC) and Zambia, are in good condition, as are only 27% of the roads in the corridor between the Mozambican port of Nacala and Malawi's capital of Lilongwe. Some 72% of the roads between Beira and Zimbabwe's capital of Harare are in 'fair' condition, which means they will soon need maintenance work. Many other transregional roads are untarred,¹⁶ and become virtually impassable in the rainy season. Moreover, border delays are often extreme. In 2008, trucks entering Zimbabwe from South Africa were held up for 34 hours on average, and trucks entering Zambia from Zimbabwe for 39 hours on average. Travelling southwards, the delays were 11 hours on average at both borders.¹⁷ In total, these delays increased transport costs by 25%.¹⁸ The economic impact of these problems is considerable. According to one study reported by the World Bank, poor infrastructure and long distances increase intra-African transport costs by some 136% over those predicted by standard gravity models.¹⁹

In Mozambique, some communities are isolated during the rainy season, when bridges frequently collapse, and new roads are full of potholes because of poor maintenance and/or poor construction work. This affects trade even between neighbouring provinces, depriving small and medium enterprises of key markets. When direct and indirect costs are combined,²⁰ Mozambican firms spend a median of 22% of revenue on issues related to transport infrastructure. Compared to their counterparts in most neighbouring countries, their total transport costs are not particularly high, but direct transport costs are their second largest item of expenditure.²¹ Only about 25% of rural Mozambicans live within two km of the road network. This is highly problematic in a country in which 70% of people are rural dwellers, and whose agricultural sector contributes 22% to GDP.²² According to the World Bank, addressing Mozambique's public infrastructure needs²³ would require spending about \$1.7 billion a year over the next decade, equal to 26% of GDP.²⁴ Linking back to Hartshorne's concept, it could be argued that the Mozambican state is not performing one of its key functions, namely to facilitate economic development, due to its failure to provide sufficient transport infrastructure.

Economists traditionally believe that investment in transport infrastructure generates considerable trickle-down effects. For example, if electricity is reliable and relatively cheap, more sophisticated machines will be used. If railways, roads and harbours are sound, better inventory management and faster delivery become possible. Better access to educational and medical facilities will improve labour productivity.²⁵ While studies of developed countries tend to question the association between infrastructure investment and increasing factor productivity,²⁶ this sort of investment does appear to generate significant spillovers in large developing countries.²⁷ In other words, initial investment in infrastructure is highly beneficial, but the spill-overs decline as the sophistication of infrastructure increases.²⁸

This reasoning certainly seems valid for central and northern Mozambique, given its vast reserves of natural resources: at some 23 billion tonnes, Tete province houses the largest unexploited coal reserves in the world.²⁹ Vale, which mines in Moatize, wants to

increase its output from 11 million tonnes a year to 22 million tonnes in 2014. Following the recent discovery of huge natural gas reserves (2.5 to 4.0 trillion cubic metres), Mozambique could become Africa's third largest natural gas exporter, behind Nigeria and Algeria, earning revenues of \$200 billion to \$400 billion over the next 40 years.³⁰ In 2012, foreign direct investment in Mozambique surged to \$5.2 billion, double that in the previous year, with some 78% going to the mining sector.³¹ Mining companies, development agencies and Mozambican authorities alike have identified the 'infrastructure deficit' as a major constraint on national development. For example, in 2010 it cost \$767 to move a standard 40-foot container through the port of Beira, compared to \$490 to move it through Cape Town harbour.³² It is reasonable to conclude that transport infrastructure has to be significantly improved if central and northern Mozambique is to realise its full economic potential.

Obviously, transport infrastructure is not the only condition for economic growth and the sustainability of political units; other common barriers to investment in developing countries include excessive government economic intervention, credit constraints, inadequate insurance markets, and political instability. These factors can slow economic growth as much as collapsed bridges, potholed roads and weekly blackouts. Nevertheless, the best possible economic and political environments will not trigger economic growth if poor transport systems sever producers from potential markets. Transport infrastructure should therefore be seen as a necessary – if insufficient – condition for development.

TRANSPORT INFRASTRUCTURE IN CENTRAL AND NORTHERN MOZAMBIQUE

Present state

Transport infrastructure depends upon distance and physical geography. Big rivers hamper the construction of railway lines and roads. Shallow coastal waters with coral reefs and mangroves are inimical to harbours. Mountain ranges can cut off a country from its neighbours. However, given adequate technical and financial resources, physio-geographical obstacles to human movement can be overcome. Hartshorne therefore regards physical barriers and transport infrastructure as sensible indicators of contiguity.³³ Physical barriers – which work to divide areas or regions – strongly influence the functionality of political units, as do transport systems, which work to pull them together.

In Mozambique, distance presents transport infrastructure with a serious problem. The country is 2 000 km long from north to south, but varies in width from 50 to 600 km. The level of vertical contiguity is low: Only one north-to-south transport axis, the Estrada Nacional 1 (EN1, or National Highway 1), connects the capital of Maputo to central and northern Mozambique. There are no railway lines from Maputo to towns further north. While the 545-km road route from Maputo to Johannesburg can be covered in five to six hours, non-stop road transport from Maputo to the northern port of Pemba takes about 26 hours. Public transport, meaning non-scheduled minibuses, takes about two and a half days. In previous years, this journey would have taken six days at best, with a good chance of not reaching Pemba at all.³⁴ Mozambique's low population density of 24 people

per square km also does little to encourage good transport infrastructure. Road density, measured in terms of kilometres of roads per square kilometre of territory, is one of the lowest in Southern Africa.³⁵ In other words, many rural areas in Mozambique are what geographers call ‘empty areas’,³⁶ meaning that they lack people and economic activity, and thus constitute centripetal forces working against horizontal contiguity.

Moreover, the Zambezi River, which is up to eight km wide downstream of Cahora Bassa, presents a major obstacle to the movement of people and goods. Only three bridges cross it in Mozambique: the Samora Machel Bridge (0.7 km), the Armando Guebuza Bridge (2.7 km) and the Dona Ana Bridge (3.7 km). The second major geomorphological obstacle to transport is the Great Escarpment, which separates the inner plateaux of Southern Africa from the relatively wide coastal strip. On the route from Tete to Beira, elevation decreases by 600 metres over a horizontal distance of 80 km. North-west of Tete, on the route to Lusaka and the Congolese-Zambian Copper Belt, altitude changes as rapidly. In northern Mozambique, the coastal plain narrows, and ties up with rugged *cuestras* that lead up to a 1 000 metre-high plateau. Except for the Zambezi River delta, only the coastal plain is suited to transport.

With regard to maritime transport, nature also does not favour Mozambique. Its coastal waters are shallow, mangroves cut off the coast from the open sea, and swamps abut the shores. Coral reefs abound. Nacala in the north is the only natural deep-sea port. It is the deepest port in East and Southern Africa, sheltered by a bay that is 60 metres deep and 800 metres wide at its entrance. There are no restrictions on ship movement or size. By contrast, the port of Beira, the second busiest after Maputo, lies at the end of a 40-km channel that has to be dredged frequently. Large laden ships cannot reach Beira at low tide because they would run aground. North of Beira, and besides Nacala, there are small harbours at Pemba and Quelimane, which could, as noted below, be expanded considerably.

Beyond natural conditions, transport infrastructure reflects corridors dating back to the colonial era. Portugal long dreamt of connecting its two colonies in Southern Africa, Angola and Mozambique, by acquiring territories that today fall in Malawi, Zambia and Zimbabwe. A famous map published in 1885, the ‘*mapa de cor rosa*’, or Pink Map, depicted a Portuguese empire stretching from Angola’s Atlantic seaboard to the Madagascan Strait. In order to realise this vision, the Portuguese had to extend their power from their coastal trading posts into the hinterland.³⁷ Initially, the governments of the two Boer republics supported Portuguese plans to build railway lines from Mozambique into the interior. For the Boers, this held the promise of using Mozambique as their gateway to the world, thus reducing their dependence on the Cape, which was controlled by the British. A railway line between Johannesburg and Maputo (then known as Lourenço Marques) was completed in 1895. However, the Portuguese dream of a lusophone empire stretching across Southern Africa cut right through the British Cape–to–Cairo vision. In 1891, faced with the British Empire at the height of its powers, Portugal withdrew any territorial claims beyond Angola and Mozambique.³⁸

The transport corridors envisaged for Mozambique were not affected by those political shifts, or the victory of the British over the Boers. Lourenço Marques was closer to Johannesburg than Durban and Cape Town, and therefore a more convenient port in principle. The British and the Portuguese also signed agreements aimed at establishing transport corridors ending at Beira and Nacala. These were meant to become gateways

to North and South Rhodesia (today's Zambia and Zimbabwe) and the Nyasaland Protectorate (today's Malawi). In 1898, a narrow-gauge railway line was completed from Beira to a village called Machipanda near Mutare (formerly Umtali), just across the Zimbabwean border. Today, the Machipanda Line has an annual capacity of 3 million tonnes. The Sena Line from Beira to the mining town of Moatize close to Tete was initially meant to connect Beira to Nyasaland. Construction began in 1912. It took 10 years for the track to reach the Zambezi River at the village of Sena, where the Dona Ana Bridge was opened in 1934. Although it has been rehabilitated by a joint venture of the Companhia de Ferros de Moçambique (CFM), Rail India Technical and Economic Services, and Indian Railway Construction International, the Sena Line can only carry 6 million tonnes a year, in other words, 14% of the export volume that Rio Tinto and Vale plan to reach.³⁹ Despite these limits, the Machipanda Line and Sena Line are key centripetal forces in central Mozambique, and link Malawi and Zimbabwe to the port of Beira.

Mozambique's role as a gateway to global trade for South Africa and its landlocked neighbours changed as soon as the country gained independence. The white minority government in South Africa, pursuing a policy euphemistically called 'transport diplomacy', sought to weaken the independent states in the region. South African imports and exports through Maputo declined from 4.2 million tonnes in 1977 to 2.2 million tonnes in 1982.⁴⁰ In the mid-1980s, Zimbabwe – which had inherited Southern Rhodesia's trade relations – only transported 15% of its foreign trade through Beira.⁴¹ One reason for this was that South Africa and its proxy, Renamo (Resistência Nacional Moçambicana), or the Mozambican National Resistance, started sabotaging transport corridors in Mozambique. More specifically, Renamo began to destroy transport linkages to Zimbabwe in central Mozambique as soon as Robert Mugabe's Zimbabwe African National Union (ZANU) took over from the Ian Smith regime. To a certain degree, the apartheid regime did not even have to take active steps to undermine transport infrastructure in Mozambique. It was in crisis in any case, as most or all whites trained to control and repair the trains and tracks had left in 1974.⁴² Keeping the costs of shipping via South Africa artificially low further hampered the development of non-South African ports in the region.⁴³

Since the end of Mozambique's civil war in 1992, much progress has been made. Today, according to the World Bank, 83% of the main road network is in 'good' or 'fair' condition, which is close to the global average for middle-income countries (Mozambique is a low-income country). The figure for 1990 was only 30%.⁴⁴ Meanwhile, the Maputo Development Corridor – a major trade corridor connecting the provinces of Gauteng, Limpopo and Mpumalanga in South Africa with Maputo – has become the most important spatial development initiative (SDI) in Southern Africa. One of our interviewees pointed to progress made in central and northern Mozambique, but acknowledged that significant improvements were mostly limited to the north-to-south axis, in other words, the EN1.⁴⁵ As noted earlier, 72% of the road corridor from Harare to Beira is in 'fair' condition (the remainder has not been rated). Some 82% of the Mozambican section of the road corridor from Lilongwe to Nacala is in 'fair' condition, while 18% is in 'poor' condition. Conditions in Malawi are considerably better. Only 40% of this corridor is paved.⁴⁶

According to another World Bank report, road quality in central and northern Mozambique varies between 'fair' and 'poor'. In rural areas, 40% of the roads are in 'poor' condition.⁴⁷ Our interviewees confirmed this negative picture; according to one, roads from Beira and Nacala to Mozambique's landlocked neighbouring countries are 'still in a

very bad state', as are roads linking coastal towns.⁴⁸ Another indicator of the state of the road network is the fact that more money is spent on maintaining untarred roads than on maintaining tarred roads.⁴⁹

Even after goods reach Beira, Nacala, Pemba or Quelimane, exporters still face major problems because these ports are very small. Until recently, Beira had a total throughput of 2.4 million tonnes a year; Nacala, 740 000 tonnes a year; Pemba, 80 000 tonnes a year, and Quelimane, 60 000 to 150 000 tonnes a year. The figures for South Africa's largest ports, Durban and Richards Bay, are 45 million and 80 million tonnes respectively. Moreover, Mozambique's harbours often lack even the most basic storage facilities. According to one of our interviewees, ports run by the Mozambican state are poorly managed.⁵⁰ For example, it takes four times as long to prepare imported goods for transport by rail or road in Beira than in Durban.⁵¹

There are more than a dozen small airports in central and northern Mozambique. International connections are available to Kenya, Malawi, South Africa, Tanzania and Zimbabwe, which can be reached directly from Beira, Nampula and Pemba. Smaller airports, such as Chimoio or Lichinga, only offer domestic flights. At some airports such as Cuamba, flights are provided on demand, meaning that there are no scheduled flights. Low safety standards make the flights adventuresome: the national carrier, Linhas Aéreas de Moçambique (LAM), or Mozambican Airlines, is not allowed to land in the EU because it does not meet European safety standards. According to LAM's chief executive officer, some of the runways in Mozambique are in such poor condition that the tyres of LAM's airplanes last half as long as they should.⁵²

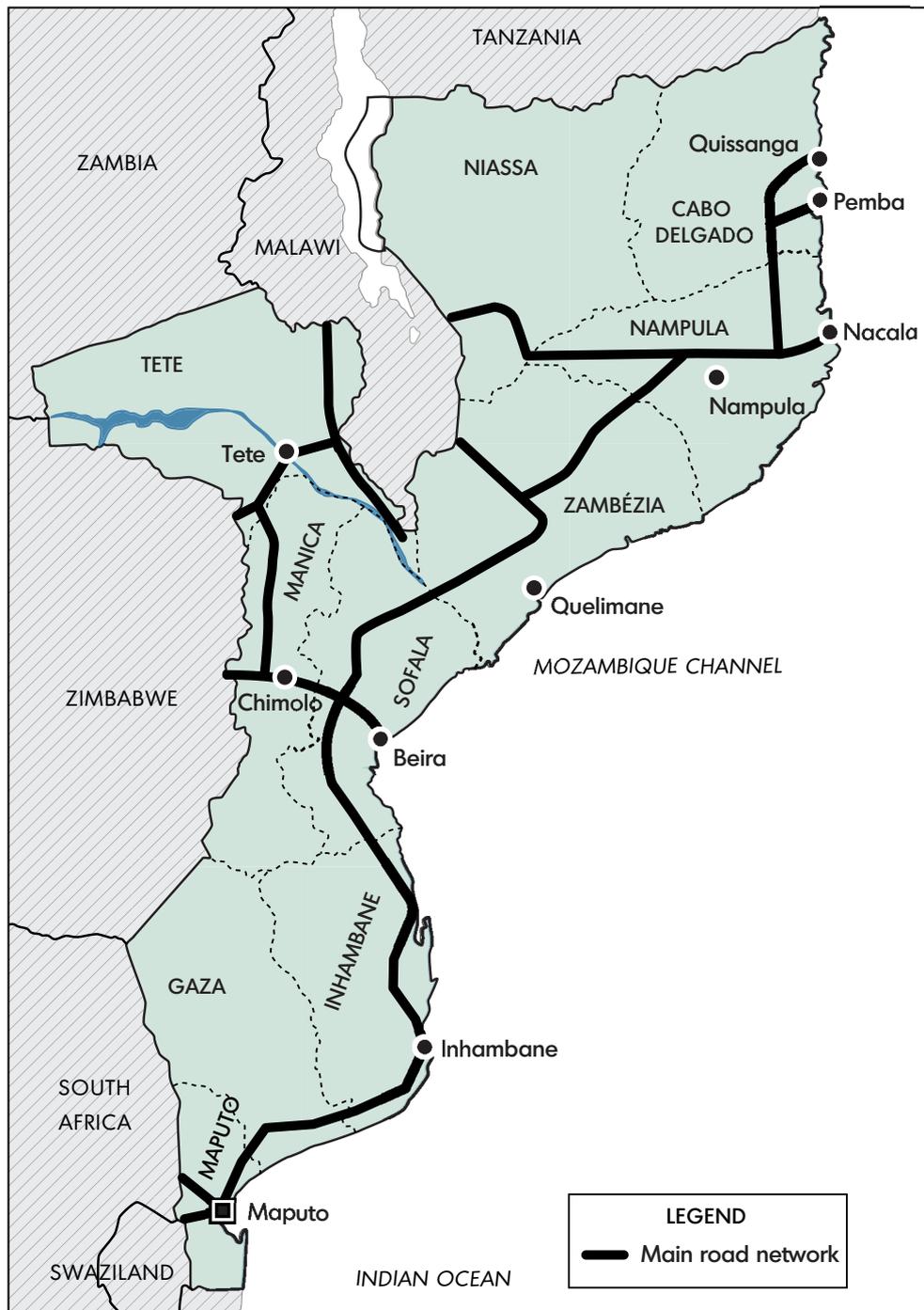
Current and future projects

Given the number of small-scale projects – most of which are run by foreign organisations – and poor access to state information, it is difficult to gain an overview of road infrastructure projects in central and northern Mozambique. Figure 1 shows the main road network in Mozambique. What it does not reveal is that while existing roads are being rehabilitated, not much is being done to reach people who live further away from those roads. It is therefore unclear whether these projects will have a meaningful impact on the majority of the people in central and northern Mozambique.

In 2011, Nampula province, where the port of Nacala is located, received the largest share of national expenditure on district roads, namely 19%, followed by Maputo province with 18%.⁵³ Paving major roads appears to be the prime objective. In recent years, various sections of the EN1 have been upgraded.⁵⁴ Some 192 km of the EN7, which connects the EN1 and the Quelimane area to Blantyre in Malawi, have recently been paved. Almost 181 km of the roads connecting Mocímboa da Praia to its hinterland have also been paved. The paving of 348 km of the EN8 from Nampula to Cuamba near Lake Malawi has begun. So has work between Montepuez and Marrupa on the route linking the port of Pemba to Lichinga near Lake Malawi. Further westwards, the section of this route from Litunde to Lichinga will be rehabilitated. This will include the construction of seven bridges. In Manica province, the road from Espungabera on the Zimbabwean border to Chimoio, in the corridor from Harare to Beira, is being upgraded.⁵⁵ Between Inhacufera and Machaze in Manica province, tests are being conducted to establish how the gravelly soil could be improved. A similar project has been conducted between Mopeia and Zero in Zambezia

province. These projects are aimed at limiting fluvial erosion, which undermines roads and can reach extreme levels during the rainy season. Between Muidumbe and Xitaxi in Cabo Delgado province, steep slopes aggravate fluvial erosion. This problem is being addressed by laying reinforced concrete road surfaces.⁵⁶

Figure 1: The main road network in Mozambique



Source: Compiled by the authors

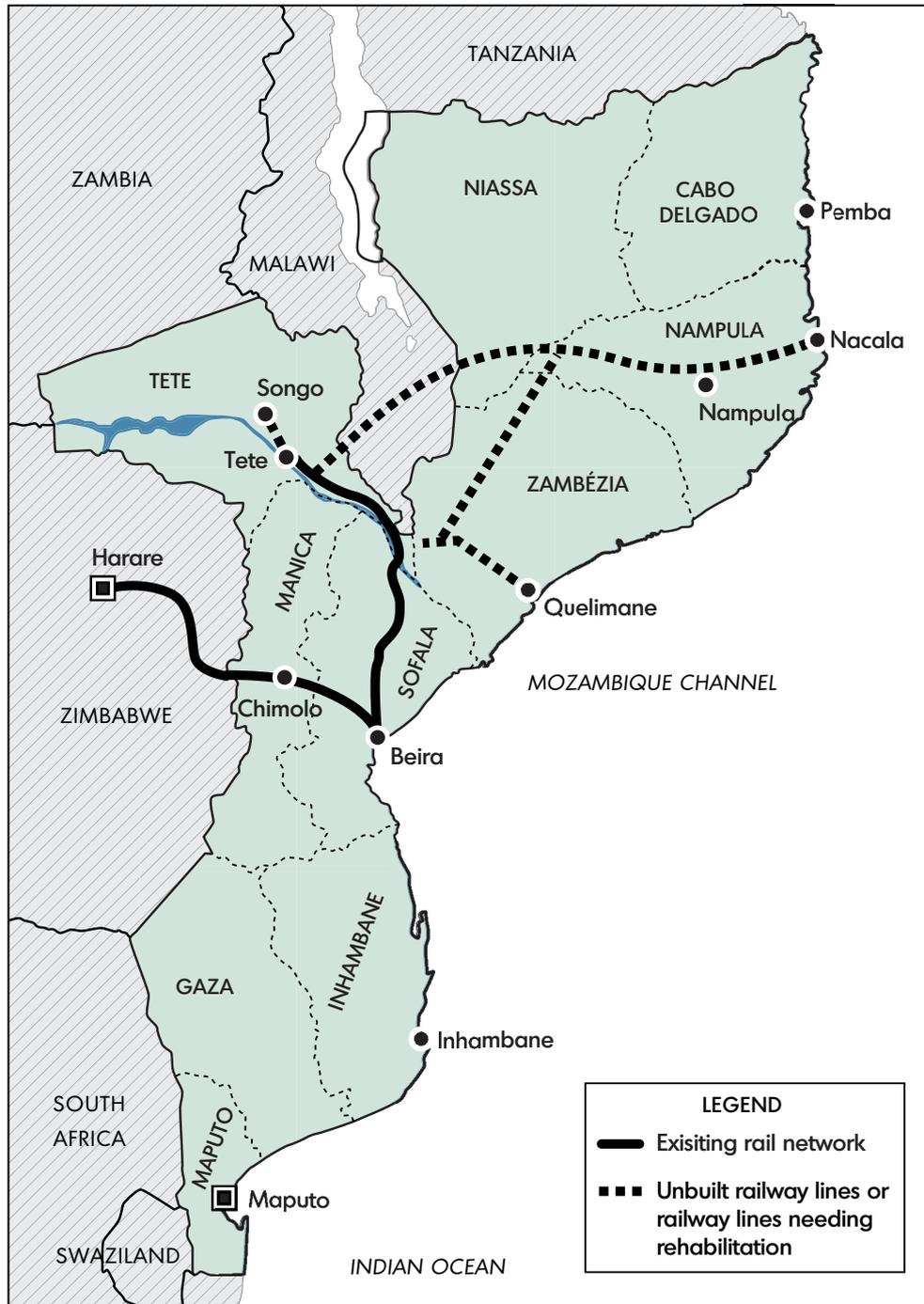
Some of our interviewees reinforced the notion that roads are being built for foreign investors rather than for local people. According to a senior representative of an international logistics provider, the upgrading of road infrastructure on a larger scale centres on Pemba in Cabo Delgado province, where oil and natural gas companies are seeking to link future operations to global markets. These companies usually plan and pay for transport upgrade projects.⁵⁷ Another interviewee stressed the role played by foreign state agencies, such as the Japan International Co-operation Agency, the South Korean Exim Bank and the Millennium Challenge Corporation. Major global construction companies have been contracted. Portuguese companies, notably Condurial, Motal Engil and Zagope, are playing a prominent role. Chinese enterprises – notably the China Communications Construction Company, the China Henan International Co-operation Group, and the Weihai International Economic & Technical Co-operative – appear to have been granted most but not necessarily the largest contracts. The Cooperativa Muratori e Cementisti (CMC) di Ravenna from Italy is also prominent.⁵⁸ A third interviewee said CMC and Motal Engil were the most important players in northern Mozambique. The only medium-sized Mozambican player he could think of was CETA Construção e Serviços.⁵⁹

In sum, there is almost no Mozambican ownership of or involvement in transport infrastructure projects. This is not surprising, given Mozambique's low level of economic development, but also does not favour a trickle-down effect. Projects designed for local people – including a road construction programme in Nampula and Zambezia aimed at providing farmers with easier access to local markets – are the exception. Government reports indicate that only about 120 km of roads have been rehabilitated under this programme.⁶⁰

Upgrading Mozambique's railways is even more urgent than upgrading its roads, because the huge volumes of raw materials – notably coal – that will soon be mined in the interior will have to be transported by rail. Upgrading the railway system could reduce the costs of transport from the coal fields in Tete province to the port of Beira from \$55 a tonne to \$25 a tonne.⁶¹ Figure 2 shows existing and envisaged railway lines in central and northern Mozambique. It shows that the new lines are aimed at linking the ports with the hinterland. They will also connect Beira to Quelimane and Nacala, and link Malawi and Zimbabwe with ports on the Indian Ocean. There appear to be fewer plans for connecting this part of the country to the Maputo area.

So far, only the rail project driven by Vale is actually underway. The expansion of the Sena Line, which is expected to cost about \$45 million, began in March 2012. When completed, its carrying capacity will be doubled to 12 million tonnes of coal a year.⁶² Further upgrading the Sena Line makes sense because the port of Beira is equipped to handle a variety of bulk and non-bulk cargo, including petroleum products. Beira's new coal terminal, opened in June 2012, was constructed in partnership with Rio Tinto and Vale. It can handle up to six million tonnes of coal a year. Some 300 000 tonnes of coal can be stored at the terminal, and it can load ships carrying up to 35 000 tonnes. The capacity for shipping coal at Beira is scheduled to increase to 20 million tonnes a year.⁶³ Investment in this port is approaching the \$500 million mark.⁶⁴ Given that this will still not be enough to handle Vale's exports, the Brazilian giant is also sponsoring the construction of a railway line from Moatize to Nacala. This line will enter Malawi. At present, the port of Nacala handles only 200 ships a year, but it is being expanded at a cost of \$200 million⁶⁵ to raise its coal-handling capacity to 40–60 million tonnes a year.⁶⁶

Figure 2: Existing and envisaged railway lines in central and northern Mozambique



Source: Compiled by the authors

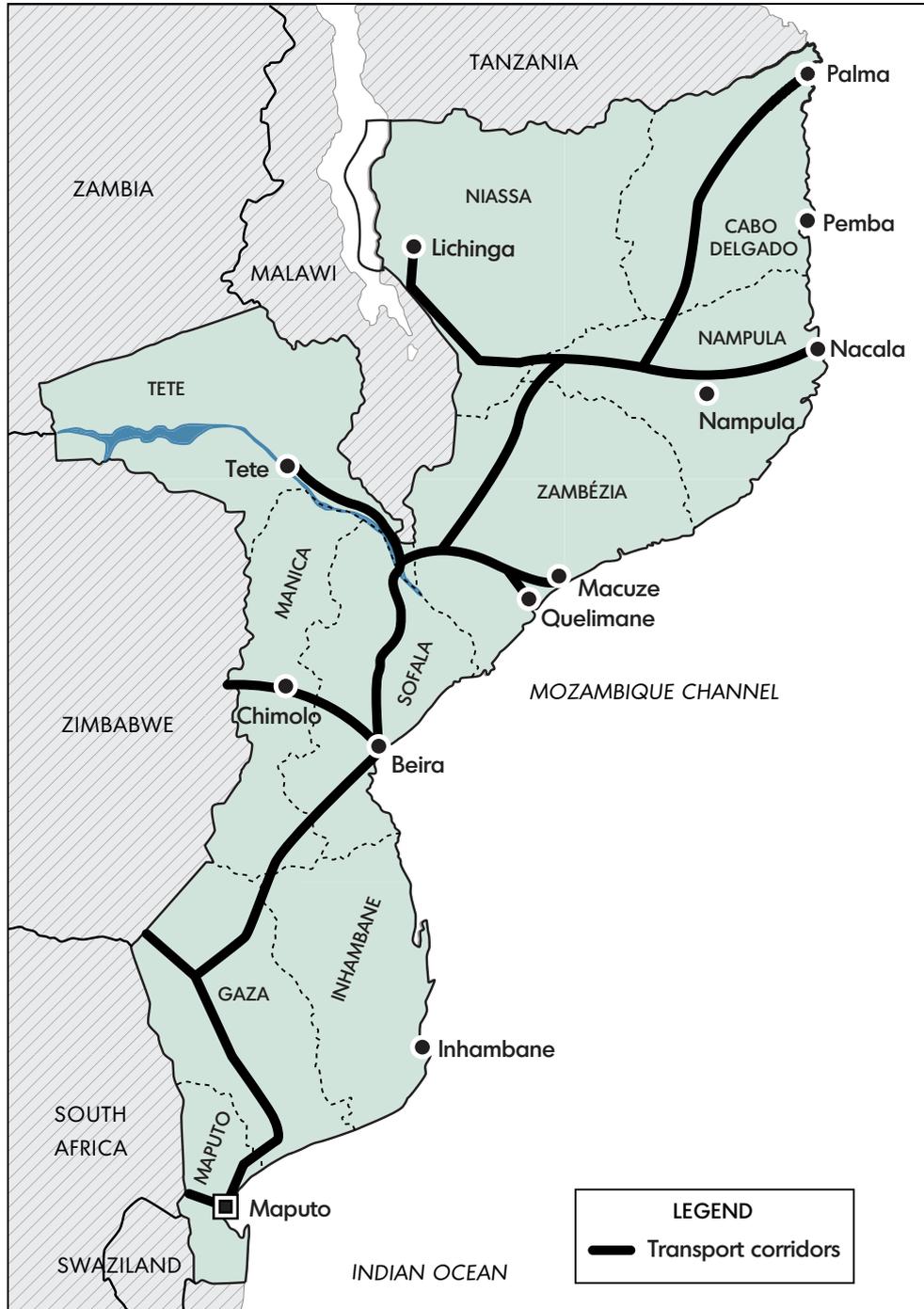
Several other foreign companies have proposed comparable projects: Rio Tinto favours a railway line from Moatize to Quelimane, where a new deep-sea port will be built if the project is realised. The expanded port of Quelimane – or a totally new one at nearby

Macuze – is projected to handle 20 million tonnes of coal a year.⁶⁷ Like Vale, ENRC also wants to upgrade Nacala, but unlike Vale it would prefer to bypass Malawi.⁶⁸ Jindal Steel & Power plans to upgrade the port of Beira and link it by rail to Songo at the Cahora Bassa Dam. Ncondezi Coal has proposed a rail spur off the Sena Line to service its envisaged coal-to-liquids plant. One of our interviewees suggested that several Indian mining companies active in Tete province and southern Malawi are likely to join forces with Ncondezi Coal in creating coal and iron export capacity.⁶⁹

In June 2012, Mozambique's Ministry of Energy and Clean Carbon Industries signed an agreement allowing a feasibility study of a coal-to-liquids plant which would convert low-grade coal, which is not a strong export product, into 40 000 barrels of fuel and chemical by-products every day. Half of its output would be reserved for the Mozambican market, thus lowering fuel prices. The remainder could be exported to neighbouring countries.

Pemba, another potential deep-sea port in the far north, may become a major harbour for exporting liquid fuels.⁷⁰ It could also export minerals, especially graphite from the nearby Balama ore body, which contains more graphite than the rest of the world.⁷¹ Development in the far north – with Pemba as its potential gateway – differs from the dynamics generated solely by coal in Tete, Beira and Nacala. Besides graphite, natural gas plays a key role. The Rovuma Basin is thought to contain some 850 billion cubic metres of natural gas – three times as much as remaining reserves under the North Sea. Natural gas obviously requires different transport infrastructure than solid minerals. The US company Anadarko Petroleum and the Italian firm Eni intend establishing facilities for liquefying natural gas in Cabo Delgado province. Liquefied natural gas would be exported by ship, possibly to the booming Asian economies and, in smaller quantities, to South Africa.⁷² Alternatively, natural gas may be exported by pipeline to neighbouring countries or used for domestic power generation in order to cover the demand of energy-intensive users such as the mines in Tete province. A petrochemical industry, including fertiliser plants, could also be developed. Aluminium smelting is another option.⁷³

Coming back to rail and road networks, government plans reflect the ideas pursued by foreign companies: maps used by the Ministry of Transport and Communication show that several transport corridors are being planned for central and northern Mozambique. Two of them start at Beira and run to Tete and the Zimbabwean border. This indicates that the rehabilitation of the Machipanda Line and Sena Line is supported by the Mozambican government. A third corridor is meant to connect Nacala to Lichinga by rail. A fourth corridor involves a new road from Lichinga to Pemba. Besides these coast-to-hinterland corridors, the government envisages a north-to-south rail corridor from Mocímboa da Praia to Mutarara, where the Dona Ana Bridge crosses the Zambezi River. It would link up with another railway line from Beira via Gaza province to Maputo. This backbone project could effectively integrate all coast-to-hinterland corridors in central and northern Mozambique, thus ending the infrastructural dissonance inherited from colonial planning. However, it is unclear whether these plans will come to fruition, as they have not been proposed or supported by foreign companies. Two other corridors appear to be at an early planning stage. They are meant to connect the ports of Macuze and/or Quelimane to the north-to-south rail corridor.⁷⁴ Figure 3 shows the transport corridors being planned by the Ministry of Transport and Communication.

Figure 3: Transport corridors envisaged by the Mozambican government

Source: Adapted from Ministry of Transport and Communication, '*Initiative de desenvolvimento especial*', internal document obtained by the authors, n.d., p. 4

Local airports are also being upgraded in collaboration with overseas partners. However, these projects are far smaller than the rehabilitation of railway lines, roads and harbours. Most importantly, the Brazilian company Odebrecht has transformed the military airport

in Nacala into one suitable for civilian use, at a cost of about \$100 million. This project was funded by the Brazilian Banco Nacional de Desenvolvimento Econômico e Social, or Brazilian Development Bank. The second major airport project in central and northern Mozambique is the upgrading of the Pemba airport, at a cost of some \$300 million. Concessions will be granted for the operation of these two airports.⁷⁵

ASSESSING TRANSPORT INFRASTRUCTURE PROJECTS IN CENTRAL AND NORTHERN MOZAMBIQUE

Concessions and weak state authorities

The central role played by foreign companies in upgrading transport infrastructure in central and northern Mozambique has resulted from their strong business interests in those areas, and the limited capacity of the Mozambican state. Total state revenue amounts to only \$2.4 billion a year, and state expenditure to \$3.2 billion a year. By contrast, Rio Tinto and Vale turn over \$42 billion and \$32 billion a year. Their recent investment in central and northern Mozambique also goes beyond the financial capacities of the Mozambican state. The government depends on foreign aid to fund infrastructure projects: for example, the World Bank provided \$110 million to cover CFM's share of the pre-2010 rehabilitation of the Sena Line.⁷⁶ As a result, contractors for these big projects are not selected exclusively by the state, and the foreign companies that drive these projects have a major say.⁷⁷ Awarding concessions is standard procedure. This has reached a point where entire railway corridors, such as those linking Beira and Nacala to their hinterlands, and the ports of Beira, Nacala and Quelimane, are operated by foreign companies.⁷⁸ Our research suggests that concessions are usually granted on the basis of market principles, notably costs and efficiency.

However, foreign donors say this approach is deficient in three major respects. First, the concessions and their financial implications are not properly integrated with state planning. Second, the terms of the concessions are often unclear. For example, a concession for building 703 km of roads in Tete province does not clearly specify investment requirements.⁷⁹ Third, concessions are not granted for entire corridors, as recommended by the World Bank. Separate concessions are granted for railway lines, roads and harbours, which works against co-ordinated development.⁸⁰ In some cases, market principles are ignored in favour of clientelism and self-enrichment. Thus the previously mentioned minister of transport and communications, Paulo Zucula, was dismissed in September 2013, presumably because he had appropriated public tenders for the port of Macuze and a coal terminal at Beira, whereas the Council of Ministers wanted to award these contracts to a company owned by the ruling Frente de Libertação de Moçambique (Frelimo), or Mozambique Liberation Front.⁸¹

The prominent role of private companies in transport infrastructure projects reflects the government's positive experiences of public-private partnerships in respect of the Maputo Development Corridor. In 2010, the government launched a similar project for Tete province. A newly formed company, Estradas do Zambeze, has been granted concessions to build road corridors from Cumancho on the border with Zimbabwe via

Tete to Zobwe on the border with Malawi, from Tete to Cassacatize on the Zambian border, and from Mussacama to Calomué, which lies on the route from Tete to Lilongwe. The road from Cumancho to Zobwe is the only major road in central and northern Mozambique rated by the World Bank as being in 'good' condition.⁸² Estaradas do Zambeze is also responsible for financing, building, operating and maintaining a new bridge across the Zambezi River about six km downstream from the Samora Machel Bridge. It is collaborating with a consortium of three Portuguese companies: Mota Engil, Sociedade de Construções Soares da Costa, and Opway.⁸³ Other private–public partnerships are envisaged for the construction of the EN6 from Beira to Machipanda, the shortest route from Zimbabwe to the Indian Ocean, and a road from the EN6 near the Zimbabwean border straight to Tete.⁸⁴

Public–private partnerships require active and effective collaboration and co-ordination between the state and its private partners. One of our interviewees stated that this did not exist among the government and foreign mining companies or among the mining companies themselves, which, according to him, pursued their projects in isolation. As a result, the upgrading of transport infrastructure was proceeding slowly, and was accompanied by risks of duplication. He added that a government master plan for transport infrastructure in central and northern Mozambique would not only speed up the entire process, but could also ensure that local communities benefited.⁸⁵ Apparently, our interviewee envisaged something more elaborate and comprehensive than the current plan of the Ministry of Transport and Communication referred to previously. Another interviewee agreed that there was a lack of coherent government decision-making about large-scale transport infrastructure projects.⁸⁶ A third, who works for a Western donor agency, confirmed that Mozambique urgently needed a transport master plan, notably to integrate planning for all modes of transport.⁸⁷ A fourth interviewee concurred that effective central planning of public–private co-operation on transport infrastructure was lacking. Therefore, foreign companies are compelled to gain access to and deal with state authorities in isolation.⁸⁸ This assessment is confirmed by Mozambique's National Roads Administration, which has acknowledged that the Mozambican authorities are hard-pressed to manage and co-ordinate the current road construction boom.⁸⁹ Provincial and municipal authorities lack human and financial resources. For example, according to a World Bank report, the departments of transport and public works in Tete province do not communicate with one another.⁹⁰

Our interviewees concurred that the efforts of foreign companies to upgrade transport infrastructure have been slowed down by local and national authorities, and that there was considerable friction between foreign companies and state-owned enterprises.⁹¹ While foreign companies are compelled to build or upgrade transport infrastructure in order to operate in central and northern Mozambique, Mozambique's state-owned enterprises want to own and manage this infrastructure.⁹² At times, the Mozambican authorities and foreign companies appear to mistrust one another. The poor involvement of Mozambican society has exacerbated this problem, which is rather surprising, given the large number of public events about transport infrastructure projects organised by CSOs.⁹³ In April 2013, local people blocked access to Vale's facilities in Moatize, claiming that the Brazilian company had not compensated them adequately for losses in their pottery businesses.⁹⁴ In order to solicit local support for their projects, at least some foreign companies have begun to convene public meetings with local communities.⁹⁵ Moreover, allegations of

corruption have surfaced, as leading members of Frelimo, including former defence minister Alberto Chipande, are shareholders in the Northern Development Corridor (Corredor de Desenvolvimento do Norte, or CDN). CDN is a private company that has won the concession for rehabilitating the railway line from Moatize to Nacala until 2020. Vale holds 51% of CDN's shares.⁹⁶

Trickle-down effects

The World Bank regards foreign investment in Mozambique as the trigger of a wider growth and development strategy that consists of upgrading transport infrastructure, enhancing subnational economic competitiveness, developing local enterprises by fostering linkages with foreign companies, and strengthening local institutional capacity for economic governance and the management of social and environmental impacts.⁹⁷ In this approach, development is linked to population density and distance. It is aimed at reinforcing vertical contiguity at the subnational level so that rural areas will benefit from development impulses generated by subnational urban centres. In central and northern Mozambique, the World Bank is focusing its attention on the Beira and Nacala corridors. The former is meant to facilitate mining near Tete (the first growth node) and agricultural production at Chimoio (the second growth node). Beira (a third growth node) will serve the other two as a gateway to overseas markets, and also holds an endogenous potential for serving agribusiness and manufacturing. Poor local government capacity, inadequate local skills, and inadequate transport infrastructure have been identified as important challenges.⁹⁸

Further northwards, the Nacala corridor, with the towns of Nacala and Nampula as growth nodes, is seen as promising not only because of mining. The World Bank also emphasises that Nampula is the most populous province in Mozambique, and has considerable potential for agribusiness and tourism. The Nacala Special Economic Zone, established in 2009, has already attracted foreign investment, including investments in manufacturing for the local market. Besides inadequate transport infrastructure, the lack of local skills and training, which hampers productivity in the agricultural sector, is cited as an obstacle to growth. Other stated problems are poor collaboration between local, provincial and central government as well as donor agencies, and corruption.⁹⁹

Foreign investment in central and northern Mozambique is surrounded by problems and uncertainties. Investment in Tete province is concentrated in the Moatize district. Together with the town of Tete, Moatize absorbs 97% of all foreign investment in the province. This suggests that considerable intra-provincial disparities are being built up. Furthermore, foreign investment in this region is very capital-intensive. Apart from Vale's investment, which cannot be linked to data on direct job creation, the World Bank has calculated that it takes \$109 100 to create one job.¹⁰⁰ However, given the scale of the foreign investments, job creation has been significant: in 2009, Vale employed 3 600 construction workers in Moatize, 93% of whom were Mozambicans, and this figure rose to more than 5 000 in 2010. Vale expects to employ about 1 000 mine workers in Moatize in the near future and 11 000 jobs may be created indirectly.¹⁰¹ The number of investments is stagnating, though; only those companies that have already invested in the area are increasing their investments.¹⁰² This calls into question the assumption that foreign investment in one sector triggers investment in others. The World Bank estimate

that Vale will purchase local goods and services worth \$250 million a year, equal to 3% of Mozambique's GDP, remains to be proven. The estimate that Vale's operations could account for 8% of Mozambique's GDP and 15% of state revenue by 2015¹⁰³ is far more likely, but does not say anything about trickle-down effects.

Given these mixed but generally positive forecasts, it is hardly surprising that the Mozambican government is optimistic about the impact of foreign investment on national development. According to the Ministry of Transport and Communication, the upgrading of transport infrastructure must be seen in the context of globalisation, which calls for strategies to increase international competitiveness, and results in sustainable economic development, thus reducing poverty in turn.¹⁰⁴ At the SADC Regional Infrastructure Investment Conference held in Maputo in June 2013, President Armando Emilio Guebuza described infrastructure development as the main driver of economic growth.¹⁰⁵ There is some evidence supporting this optimistic viewpoint beyond the mere generation of royalties and taxes. Among other things, upgrading transport infrastructure does bolster global competitiveness. For example, international venture capital firms have begun to invest in agriculture along the transport corridors connecting Beira to the hinterland. These projects have not yet matured, in the sense of attracting permanent private investments in the place of venture capital. The pipelines required for bankable agribusiness remain to be consolidated.¹⁰⁶ In Nampula, Chiquita is investing \$55 million in a specialised training centre for banana production. Biofuels and nuts are the other crops that interest overseas companies.¹⁰⁷ This form of 'densification', meaning the provision of feeder infrastructure for small-scale agriculture, is a key objective of SDIs. It complements the goal of 'deepening' – in other words, the integration of small and medium enterprises into large projects. In consequence, regional disparities in foreign investment between the vibrant Maputo area and the rest of the country are declining. In 1990–2003, 75% of all foreign direct investment went to the Maputo area, mainly due to the Mozal aluminium smelter. In 2005–2009, this figure dropped to a mere 12%.¹⁰⁸

However, the lack of local participation is a major shortcoming of current investments in upgrading transport infrastructure in central and northern Mozambique. Local small and medium enterprises are too weak to become involved in large-scale projects,¹⁰⁹ and contracts are usually awarded to foreign construction companies. Even CETA Construção e Serviços is based in Maputo. According to foreign aid organisations, the poor incorporation of small and medium enterprises is due to interrelated capacity and financing problems.¹¹⁰ The lack of local skills is also problematic. For example, the World Bank has reported that there are no motor vehicle mechanics in the entire Tete province, and all vehicles have to be serviced and repaired in Maputo. Nearly 50% of the economically active population are effectively illiterate. More than 75% went to school for five or fewer years. The failure rate is nearly 50%, and the drop-out rate about 30%. Only 25% of school-leavers find jobs in the formal economy.¹¹¹ International aid organisations assume that maintenance work on transport infrastructure will eventually be awarded to local enterprises.¹¹² However, this prediction appears uncertain at best.

Trickle-down effects remain uncertain at the macro level as well. A senior representative of a major foreign mining company argued that local people would eventually benefit from access to private port and rail facilities built and owned by foreign companies. However, he stressed that, besides facilities for shipping primary products such as coal, foreign companies would have to provide facilities for commuter and light goods transport as

well. This interviewee expected the Mozambican authorities to ensure that this would be done.¹¹³ However, it seems unlikely that foreign companies will want to share their transport infrastructure with local commuters and Mozambican firms. Moreover, transport infrastructure would need to be adapted: rail wagons for transporting coal are of little use to commuters, and terminals built for shipping minerals are irrelevant to small and medium enterprises that service local markets. Since the envisaged rail and road corridors will link ports to mines instead of reaching people who live in remote areas, it is not clear how they are meant to generate positive effects for Mozambican firms that supply markets in towns and villages off the main rail and road routes. Apart from this, toll roads may become common in central and northern Mozambique because they generate revenue needed for maintenance. At present, Mozambique spends 80% less than it should on road maintenance,¹¹⁴ and could probably not generate sufficient funds for road maintenance without introducing a toll system. Foreign companies and their employees could obviously afford the tolls, but a tolling system would practically preclude local people from using new roads and bridges.

Regional co-operation

Transport infrastructure matters not just because a good railway line or good road decreases the costs of transport. A well-structured transport network also enables the integration of production processes across national boundaries, thereby allowing intra-regional specialisation. The ports of Beira and Nacala are natural global gateways for Malawi and Zimbabwe, and perhaps even Zambia and Katanga provinces in the DRC. These countries and regions would greatly benefit from improved transport corridors through Mozambique, as these would significantly ease barriers to overseas trade. A well-functioning railway line from Malawi to Beira would reduce the costs of transporting Malawi's sugar exports from \$75 a tonne to \$25 a tonne.¹¹⁵ The port of Beira presently handles 50 trucks a day to Zimbabwe, more than 100 a day to Malawi, and five a week to Zambia. Shipments to Botswana and the DRC are increasing. An envisaged oil terminal with a capacity of 65 000 cubic metres could serve not only the domestic market but also the DRC, Malawi, Zambia and Zimbabwe.¹¹⁶ SADC expects the demand for transit traffic through central and northern Mozambique to increase to 6.1 million twenty-foot equivalent units (TEUs)¹¹⁷ in 2030, and 12 million TEUs in 2040.¹¹⁸

There are, indeed, some promising developments in respect of regional co-operation on transport infrastructure. As noted earlier, the railway line from Moatize to Nacala financed by Vale will pass through Malawi. In December 2011, Vale agreed to invest \$2 billion in the 238 km of railway line in southern Malawi. When the line becomes operational, Malawi will earn \$8 million a year in concessions. Transport time from Malawi to the port of Nacala is expected to drop to 38 hours, with trains travelling at 50–70 km an hour. At present the journey takes five to seven days, with trains travelling at 15–20 km an hour.¹¹⁹ The Malawian government recently announced it would soon upgrade a 200-km railway line from Limbe to its inland port Nsanje on the Shire River in order to increase maximum axle load to 18 tonnes. This multi-million dollar project, which is financially supported by the Common Market for Eastern and Southern Africa (Comesa), the East African Community (EAC) and SADC, is scheduled for completion in December 2017. It is germane to regional integration because the Mozambican

government has undertaken to link Nsanje by rail with Beira. CFM is already working on a 45-km railway line on Mozambican territory to Nsanje. The Malawian government has not yet responded to CFM's offer to lay the remaining 100 km of track from Nsanje to the Malawian commercial centre Blantyre.¹²⁰

Besides SADC, the African Union also seeks to facilitate regional co-operation on transport infrastructure. Its Programme for Infrastructure Development in Africa (PIDA) identifies the Beira and Nacala corridors as one of four priorities in Southern Africa.¹²¹ They have been given medium priority, second to the Dar-es-Salaam Corridor, the Maputo Development Corridor, and the North–South Corridor.¹²² Comesa, the EAC and SADC have begun to address rail and road projects along the Beira and Nacala corridors in the context of the envisaged Tripartite Free Trade Area.¹²³ Yet this sort of institutional embeddedness often does not mean much in practice. To the best of our knowledge, the only organisation that has made a substantial effort to co-ordinate transport infrastructure projects across national borders is the Regional SDI Programme of the Development Bank of Southern Africa (DBSA), which supports local and national authorities in the region as well as private companies involved in transport infrastructure. When the DBSA promotes an SDI, it starts by establishing an institutional framework that ties relevant national authorities to the SDI Programme. Following this, opportunities for the SDI in question are scanned and a strategy based on anchor projects is drafted. Feasibility studies are conducted, following by trickle-down strategies to unlock economic potential along the corridor. The DBSA has identified three transport corridors in central and northern Mozambique as potential SDIs: the existing corridor from Beira to Harare, a yet-to-be built corridor from Macuze/Quelimane via Tete to Lusaka, and one from Nacala to Lichinga and Lilongwe, which slightly differs from the previously noted projects undertaken or envisaged by ENRC and Vale.¹²⁴

However, the DBSA does not implement these strategies itself. Its objective is to provide its partners with a toolkit for facilitating foreign investment – and economic growth – along transport corridors. This hints at a key shortcoming of transregional transport infrastructure projects in Southern Africa, namely that they are planned and managed by national authorities. Therefore, although the Mozambican Ministry of Transport and Communication officially recognises that regional co-operation via SADC is essential for becoming more globally competitive,¹²⁵ our research has revealed shortcomings in the regional embeddedness of transport infrastructure projects in central and northern Mozambique. One of our interviewees argued that more needed to be done to harmonise the upgrading of transport infrastructure in Mozambique with regional projects and with similar initiatives by neighbouring countries.¹²⁶ Another even said that SADC was playing a marginal role in these projects because of disagreements among its member states.¹²⁷ A third confirmed that SADC was not important in his main area of expertise, namely road construction.¹²⁸ The main reason for SADC's weak role in respect of transregional corridors is probably that the ports in East and Southern Africa compete with each other. Successful development of the Beira and Nacala corridors would probably divert current trade away from Durban and Richards Bay, thus costing South Africa revenue and jobs. Friction among SADC member states thus hampers the upgrading of transport infrastructure. Most prominently, Malawi's aforementioned inland port at Nsanje has not been used since it was launched in October 2011 because Mozambique insists on a feasibility study on the navigability of the Shire and Zambezi Rivers.¹²⁹

LOOKING AHEAD

Public–private partnerships could greatly improve transport infrastructure in central and northern Mozambique. The rail and road corridors connecting the ports of Beira and Nacala with mines in Tete province are receiving particular attention from foreign companies and international donors. The proposed corridor from Pemba in the far north to Lake Malawi and the Beira–Harare corridor are promising transregional projects. In order to realise the potential of using business interests to rehabilitate public transport infrastructure, the interaction between national and regional political authorities and foreign companies must be improved. If this is done, the resultant projects would improve contiguity in central and northern Mozambique and beyond.

Yet our research suggests that it remains unclear whether the benefits of these major developments will trickle down to communities. While the Mozambican government, international donors and foreign companies have all raised expectations in this respect, not much has happened thus far. In fact, evidence suggests that the benefits of current transport infrastructure projects will remain limited to foreign companies. Local disparities, such as those between the towns of Moatize and Tete on the one hand and the rest of Tete province on the other, are likely to increase. People who live some distance away from the main rail and road routes will probably not be connected to the transport system in the near future. Many of them also lack the skills to benefit from the economic impulses generated by foreign investment. The few local small and medium enterprises are too weak to become part of new value chains, and may be excluded from using the transport infrastructure built largely for the mines operated by foreign companies.

This pessimistic assessment is reinforced by recent developments in southern Mozambique. The state is earning a lot of money from the export of gas from the Pande and Temane gas fields to South Africa, but not much has been done to boost the local economy.¹³⁰ The much-vaunted trickle-down effects of the Mozal aluminium smelter to Maputo has dwindled since the completion of construction work, which is a general feature of foreign projects in Mozambique.¹³¹ Even more troublesome is the recent resurgence of Renamo-induced violence in central Mozambique. Since late 2012, Renamo fighters have repeatedly attacked civilian and military targets, mostly on the EN1 between Inchope and Caia. At the time of writing, the EN1 could only be traversed in military convoys.¹³² Although Renamo has apparently failed to expand low-intensity violence from the centre to the rest of the country, its hit-and-run tactics continue to threaten the north–south road link and even the Sena Line.

Regardless of Renamo's recent return to violence, it is far from certain that Mozambique will succeed in upgrading its transport infrastructure. One interviewee referred to the example of the United Africa Feeder Line (UAFL), a regional shipping company linking the Mozambican ports of Beira, Maputo, Pemba and Nacala to Durban. UAFL markets its shipping route as a cheap and reliable alternative to road transport.¹³³ In December 2013, the CMA CGM Group launched the Rhino Express feeder, a similar shipping route that connects Durban to Beira, Maputo, Nacala, Pemba and Quelimane. These initiatives demonstrate that land transport in central and northern Mozambique remains deficient, and that major companies, at least those working with CMA CGM and UAFL, do not see this situation changing in the near future. Besides raising questions about development in central and northern Mozambique, the CMA CGM and UAFL

transshipment projects point to a key topic for follow-up research, namely the extent to which South Africa and especially its ports in KwaZulu-Natal still serve as the region's gateway to the world, and provide the regional periphery with its main global linkage.¹³⁴ Air transport is an even better example of Mozambique's indirect integration with the global economy: Johannesburg's OR Tambo airport is connected to Europe, North America and the Far East, and also provides frequent flights to Beira, Nampula, Pemba and Tete.¹³⁵ Johannesburg is a sophisticated business centre, providing major corporate services such as banks and mining consultancies. 'Soft' factors, such as good schools and universities and a wide range of leisure activities, further boost its attractiveness for managers of global corporations.¹³⁶ As a result, most of the foreign companies referred to in this study have regional headquarters in Johannesburg, which appears to serve as their springboard to central and northern Mozambique. Nairobi is beginning to show the first signs of playing a similar role.¹³⁷ Therefore, foreign investment and the upgrading of transport infrastructure in central and northern Mozambique are not only issues of global-local interaction. They are embedded in regional dynamics, and should be seen in the context of the economic dynamics of East and Southern Africa.

ENDNOTES

- 1 Email correspondence with a senior representative of a major foreign mining company active in Mozambique, 2 October 2012.
- 2 World Bank, *Prospects for Growth Poles in Mozambique*. Washington, DC: World Bank, 2010, p. 75.
- 3 Human Rights Watch, 'What is a House without Food?' *Mozambique's Coal Mining Boom and Resettlements*. New York: HRW, http://www.hrw.org/sites/default/files/reports/mozambique0513_Upload_0.pdf, accessed 22 July 2013.
- 4 CIP (Centro de Integridade Publica), *El Dorado Tete: Os Mega-Projetos de Mineração*. Maputo: CIP.
- 5 World Bank, 2010, *op. cit.*, p. 66.
- 6 Odendaal N, 'Baobab's Tete project PFS study reveals potential', *Mining Weekly*, <http://www.miningweekly.com/article/baobabs-tete-project-pfs-study-reveals-potential-2013-03-28>, accessed 1 July 2013.
- 7 Greve N, 'Coal mining drives \$34bn Moz infrastructure development', *Engineering News*, <http://www.engineeringnews.co.za/article/coal-mining-boom-drives-34bn-infrastructure-development-in-mozambique-2013-01-23>, accessed 1 July 2013.
- 8 Flak A, 'Rio Tinto bids for rail project', *Business Report*, <http://www.iol.co.za/business/companies/rio-tinto-bids-for-rail-project-1.1498574#.UdFuvvn0E8o>, accessed 1 July 2013.
- 9 Hartshorne R, 'Recent developments in political geography II', *American Political Science Review*, 29, 6, 1935, pp. 948-949, 951-952; Hartshorne R, 'Political geography', in James PE & CF Jones (eds), *American Geography: Inventory and Prospect*. Syracuse: Syracuse University Press, 1954, p. 178.
- 10 Hartshorne R, 'Political geography in the modern world', *Journal of Conflict Resolution*, 4, 1, 1960, pp. 52-53, 61-62.
- 11 Hartshorne R, 'The functional approach in political geography', *Annals of the Association of*

- American Geographers*, 40, 2, 1950, p. 105; Hartshorne R, 1954, *op. cit.*, p. 187; Hartshorne R 1960, *op. cit.*, pp. 60–61, 64–65.
- 12 Hartshorne R, 1954, *op. cit.*, p. 197; Hartshorne R, 1960, *op. cit.*, pp. 59–60.
- 13 World Bank, *World Development Report: Reshaping Economic Geography*. Washington, DC: World Bank, 2009, pp. 6, 36–37.
- 14 Radelet SC & JD Sachs, 'Shipping Costs, Manufactured Exports, and Economic Growth', paper presented at the annual meeting of the AEA in Chicago, 1998, pp. 6–7, 9–11, 15.
- 15 Gallup JL *et al.*, 'Geography and economic development', *NBER Working Paper*, 6849, 1998, pp. 9–10.
- 16 Ranganathan R & V Foster, *The SADC's Infrastructure: A Regional Perspective*. Washington, DC: World Bank, 2011, pp. 9, 13.
- 17 Curtis B, *The Chirundu Border Post: Detailed Monitoring of Transit Times*. Washington, DC: World Bank, 2009, p. 20.
- 18 Teravaninthorn S & G Raballand, *Transport Prices and Costs in Africa: A Review of the Main International Corridors*. Washington, DC: World Bank, 2008, p. 76.
- 19 Gravity models of trade predict trade flows. Simple gravity models are based on the economic sizes of and distance between two states. Limão N & A Venables, 'Infrastructure, geographical disadvantage, transport costs and trade', *World Bank Economic Review*, 15, 3, pp. 467–469.
- 20 Indirect costs of transport comprise, for instance, sales losses due to delays at customs and power outages.
- 21 World Bank, *Mozambique: Investment Climate Assessment*. Washington, DC: World Bank, 2009, pp. 65–66.
- 22 Dominguez-Torres C & C Briceño-Garmendia, *Mozambique's Infrastructure: A Continental Perspective*. Washington, DC: World Bank, 2011, p. 2.
- 23 Public infrastructure needs exclude what companies will have to build privately, eg, on mining sites. In contrast to our analysis, this figure also covers infrastructure for telecommunication and water.
- 24 Dominguez-Torres C & C Briceño-Garmendia, *op. cit.*, p. 12.
- 25 Straub S, *Infrastructure and Growth in Developing Countries: Recent Advances and Research Challenges*. Washington, DC: World Bank, 2008, pp. 7–8.
- 26 Hulten CR & RM Schwab, 'Does infrastructure investment increase the productivity of manufacturing industry in the U.S.?', in Lau LJ (ed.), *Econometrics and the Cost of Capital*. Cambridge, MA: MIT Press, 2000, pp. 143–164.
- 27 Hulten CR *et al.*, 'Infrastructure, externalities, and economic development: A study of Indian manufacturing industry', *World Bank Economic Review*, 20, 2, 2005, pp. 291–308.
- 28 Fernald JG, 'Roads to prosperity? Assessing the link between public capital and productivity', *American Economic Review*, 89, 3, 1999, pp. 619–638.
- 29 Kotze C, 'Prefeasibility study on Mozambique \$9.5bn CTL plant finalised this month', *Mining Weekly*, <http://www.miningweekly.com/article/prefeasibility-study-on-mozambique-95bn-ctl-plant-finalised-this-month-2012-10-11>, accessed 22 July 2013.
- 30 Smith D, 'Boom time for Mozambique, once the basket case of Africa', *The Guardian*, <http://www.guardian.co.uk/world/2012/mar/27/mozambique-africa-energy-resources-bonanza>, accessed 2 July 2013.
- 31 Campbell K, 'Natural resources continue to drive Mozambican economy and attract foreign interest', *Mining Weekly*, <http://www.miningweekly.com/article/natural-resources-continue-to-drive-mozambican-economy-and-attract-foreign-interest-2013-05-10>, accessed 2 July 2013.

- 32 World Bank, 2010, *op. cit.*, p. 104.
- 33 Hartshorne R, 1960, *op. cit.*, pp. 59–61.
- 34 Email correspondence, senior representative of a Western donor agency, 9 October 2012.
- 35 Dominguez-Torres C & C Briceño-Garmendia, *op. cit.*, p. 12.
- 36 Cohen SB, *Geopolitics: The Geography of International Relations*. Lanham: Rowman & Littlefield, 2009, pp. 35–36.
- 37 Birmingham D, *Portugal and Africa*. London: MacMillan, 1999, pp. 110–121; Nowell CE, *The Rose-Colored Map: Portugal's Attempt to Build an African Empire from the Atlantic to the Indian Ocean*. Lisbon: Junta, 1982, pp. 127–136, 189–196.
- 38 Newitt CE, *Portugal in Africa: The Last Hundred Years*. London: Hurst, 1981, pp. 33–40.
- 39 World Bank, 2010, *op. cit.*, p. 55.
- 40 Gibb RA, 'Imposing dependence: South Africa's manipulation of regional railways', *Transport Reviews*, 11, 1, 1991, p. 32.
- 41 Waller P, 'Das Verkehrssystem im südlichen Afrika: Kann die Abhängigkeit von Südafrika abgebaut werden?', *Geographische Rundschau*, 40, 12, 1988, p. 46.
- 42 Gibb RA, *op. cit.*, pp. 31–33.
- 43 *Ibid.*, pp. 35–36.
- 44 Dominguez-Torres C & C Briceño-Garmendia, *op. cit.*, p. 11.
- 45 Email correspondence, senior representative of a Western donor agency, 9 October 2012.
- 46 Ranganathan R & V Foster, *op. cit.*, p. 13.
- 47 Dominguez-Torres C & C Briceño-Garmendia, *op. cit.*, pp. 7, 12.
- 48 Email correspondence, senior representative of an international logistics provider, 9 October 2012.
- 49 National Roads Administration, *Roads Sector Programme: 2011 Annual Report*. Maputo: National Roads Administration, 2012, p. 17.
- 50 Email correspondence, senior representative of an international logistics provider, 9 October 2012.
- 51 Ranganathan R & V Foster, *op. cit.*, p. 18.
- 52 Duval Smith A, 'You cannot do everything alone', *Africa Report*, 50, 4, p. 90.
- 53 National Roads Administration, *op. cit.*, p. 14.
- 54 *Ibid.*, pp. 23–24.
- 55 *Ibid.*, pp. 24–26.
- 56 *Ibid.*, pp. 18–22.
- 57 Email correspondence, senior representative of an international logistics provider, 9 October 2012.
- 58 Email correspondence, senior representative of a private consulting company, 1 October 2012.
- 59 Email correspondence, senior representative of a Western donor agency, 9 October 2012.
- 60 National Roads Administration, *op. cit.*, p. 15.
- 61 Stratfor, 'Unrealized potential in Mozambique's coal industry', *Geopolitical Weekly*, <http://www.stratfor.com/sample/analysis/special-series-part-2-unrealized-potential-mozambiques-coal-industry>, accessed 6 June 2012.
- 62 Agência de Informação de Moçambique, 'Mozambique: New Beira coal terminal inaugurated', <http://allafrica.com/stories/201206050075.html>, accessed 2 July 2013.
- 63 *Ibid.*
- 64 *Ibid.*

- 65 Frost & Sullivan, *A Snapshot of Key Infrastructure Developments Across Africa*. Cape Town: Frost & Sullivan, 2013, p. 14.
- 66 World Bank, 2010, *op. cit.*, p. 56.
- 67 Kim J, 'Mozambique eyes Quelimane port upgrade for coal exports', *International Business Times*, <http://s3.ibtimes.com/mozambique-eyes-quelimane-port-upgrade-coal-exports-373532>, accessed 2 July 2013; Stumpf H, 'Mosambik forciert Ausbau der Schienenwege', <http://www.gtai.de/GTAI/Navigation/DE/Trade/maerkte,did=800208.html>, accessed 22 July 2013.
- 68 Stumpf H, *op. cit.*
- 69 Email correspondence, senior representative of an international logistics provider, 9 October 2012.
- 70 Odendaal N, 'Mozambique govt studies coal-to-liquid plant', *Engineering News*, <http://www.engineeringnews.co.za/article/mozambique-govt-studies-coal-to-liquid-plant-2012-06-18>, accessed 2 July 2013.
- 71 Campbell K, 'Australian miner reports huge Mozambique graphite resource', *Mining Weekly*, <http://www.miningweekly.com/article/australian-miner-reports-huge-mozambican-graphite-resource-2013-06-14>, accessed 2 July 2013.
- 72 Economist Intelligence Unit, 'Work on strategic options for gas development speeds up', <http://country.eiu.com/article.aspx?articleid=1729231957&Country=Mozambique&topic=Economy>, accessed 14 February 2013.
- 73 *Ibid.*
- 74 Ministry of Transport and Communication, *Initiative de desenvolvimento especial*, internal document obtained by the authors, n.d., p. 4.
- 75 Frost & Sullivan, *op. cit.*, p. 13.
- 76 World Bank, 2010, *op. cit.*, p. 55.
- 77 Email correspondence, senior representative of an investment bank that focusses on Mozambique, 28 September 2012.
- 78 Dominguez-Torres C & C Briceño-Garmendia, *op. cit.*, pp. 16–17.
- 79 Documents provided by a Western donor agency.
- 80 Harding A, *Review of the Effectiveness of Port and Port Terminal Concessions*. Gaborone: USAID Southern Africa, 2009, p. 5.
- 81 Hanlon JP, *Mozambique News Reports & Clippings 226*, <http://www.open.ac.uk/technology/mozambique/news-reports-2013>, accessed 23 September 2013.
- 82 Dominguez-Torres C & C Briceño-Garmendia, *op. cit.*, p. 7; National Roads Administration, 2011, *op. cit.*, pp. 26–27.
- 83 For further information see: <http://www.estradasdozambeze.co.mz/>.
- 84 National Roads Administration, 2011, *op. cit.*, pp. 26–27.
- 85 Email correspondence, senior representative of a major overseas mining company operating in Mozambique, 2 October 2012.
- 86 Email correspondence, senior representative of an investment bank that focuses on Mozambique, 28 September 2012.
- 87 Email correspondence, senior representative of a Western donor agency, 9 October 2012.
- 88 Email correspondence, senior representative of an international logistics provider, 9 October 2012.
- 89 National Roads Administration, *op. cit.*, p. vi.
- 90 World Bank, 2010, *op. cit.*, p. 62.

- 91 Email correspondence, senior representative of an international logistics provider, 9 October 2012.
- 92 Email correspondence, senior representative of a major overseas mining company operating in Mozambique, 2 October 2012.
- 93 Email correspondence, senior representative of an investment bank that focuses on Mozambique, 28 September 2012.
- 94 N.a., 'Vale em rota de colisão com população reassentada', *O Pais*, <http://www.opais.co.mz/index.php/sociedade/45-sociedade/25004-vale-em-rota-de-colisao-com-populacao-reassentada.html>, accessed 23 July 2013.
- 95 Email correspondence, senior representative of a major overseas mining company operating in Mozambique, 2 October 2012.
- 96 *Africa Confidential*, 'Mozambique: Scramble for Nacala', 54, 7, 2013, p. 12.
- 97 World Bank, 2010, *op. cit.*, pp. 20–21.
- 98 *Ibid.*, pp. 22–24.
- 99 World Bank, 2010, *op. cit.*, pp. 22–24.
- 100 *Ibid.*, p. 51.
- 101 *Ibid.*, pp. 53–54.
- 102 *Ibid.*, p. 51.
- 103 *Ibid.*, p. 54.
- 104 Ministry of Transport and Communication, *op. cit.*, p. 2.
- 105 *allAfrica*, 'Southern Africa: Summary and way forward', <http://allafrica.com/stories/201307012103.html>, accessed 22 July 2013.
- 106 Ware G, 'AgDevCo plants, waters and waits', *Africa Report*, 41, p. 92; <http://www.beiracorridor.com/>.
- 107 World Bank, 2010, *op. cit.*, pp. 60, 76–77.
- 108 *Ibid.*, p. 16.
- 109 Email correspondence, senior representative of a Western donor agency, 9 October 2012.
- 110 Documents provided by a Western donor agency.
- 111 World Bank, 2010, *op. cit.*, pp. 61, 64.
- 112 Email correspondence, senior representative of a Western donor agency, 9 October 2012.
- 113 Email correspondence, senior representative of a major overseas mining company operating in Mozambique, 2 October 2012.
- 114 Dominguez-Torres & C Briceño-Garmendia, *op. cit.*, p. 13.
- 115 SADC, *Regional Infrastructure Development Master Plan: Transport Sector Plan*. Gaborone: SADC, 2012, p. 15.
- 116 World Bank, 2010, *op. cit.*, p. 100.
- 117 TEU stands for 'twenty-foot equivalent unit'. It is an inexact unit of cargo capacity used to describe the capacity of container ships and container terminals, based on the volume of a 20-foot-long intermodal container.
- 118 SADC, *op. cit.*, p. 16.
- 119 *Daily Times*, 'Malawi signs railway deal with Vale Mining', <http://www.bnltimes.com/index.php/daily-times/headlines/business/3105-malawi-signs-railway-deal-with-vale-mining>, accessed 14 February 2013.
- 120 *Nyasa Times*, 'Malawi govt says Limbe-Nsanje railway detailed designs due October', <http://www.nyasatimes.com/2013/05/13/malawi-govt-says-limbe-nsanje-railway-detailed-designs-due-october/>, accessed 22 July 2013.
- 121 For further information, see: <http://www.pidafrica.org/index.html>.

- 122 SADC, *op. cit.*, p. 40.
- 123 For further information, see <http://www.tripartitegis.org/>.
- 124 Scholvin S, *The Geopolitics of Regional Powers: How Do Geographical Conditions Influence South Africa's Regional Economic and Political Relations?* unpublished dissertation submitted at the University of Hamburg, 2013, pp. 166–168.
- 125 Ministry of Transport and Communication, n.d., *op. cit.*, p. 2.
- 126 Email correspondence, senior representative of a Western donor agency, 9 October 2012.
- 127 Email correspondence, senior representative of an investment bank that focuses on Mozambique, 28 September 2012.
- 128 Email correspondence, senior representative of an international logistics provider, 9 October 2012.
- 129 *Nyasa Times*, 'Malawi officials in Mozambique to discuss Nsaje port', <http://www.nyasatimes.com/2012/02/06/malawi-officials-in-mozambique-to-discuss-nsanje-port/>, accessed 19 August 2013.
- 130 Economist Intelligence Unit, 'Mozambique', <http://country.eiu.com/Mozambique>, accessed 23 July 2012.
- 131 Conchiglia A, 'South Africa and its Lusophone neighbours: Angola and Mozambique', in Adebajo A *et al.* (eds), *South Africa in Africa: The Post-Apartheid Era*. Scottsville: KwaZulu-Natal University Press, 2007, pp. 247–249; Grobbelaar N, 'Every continent needs an America: The experience of South African firms doing business in Mozambique', *SAIIA Business in Africa Report*, 2, pp. 66–67.
- 132 Plagemann J, Mosambik: Rückkehr des Bürgerkriegs?, *GIGA Focus Afrika*, 10, 2013.
- 133 Email correspondence, senior representative of an international logistics provider, 9 October 2012.
- 134 Draper P & S Scholvin, *The Economic Gateway to Africa?: Geography, Strategy and South Africa's Regional Economic Relations*, SAIIA Occasional Paper, 121, 2012, pp. 14–17.
- 135 *Ibid.*, pp. 21–22.
- 136 *Ibid.*, pp. 23–25.
- 137 *Ibid.*, pp. 33–34.

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