

Evaluating local and regional supplier inputs to mega-infrastructure projects: lessons from the Moatize railway, Mozambique

Tatenda Zengeni, Basani Baloyi, Simon Roberts.

**Centre for Competition, Regulation and Economic Development, University of
Johannesburg**

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1. Introduction

High growth rates in many African countries since 2000 has been largely based on production of minerals and agricultural commodities (Baloyi et al. 2013). In turn, this growth has been associated with higher investments in infrastructure including major investments in transport infrastructure linked with large mining projects. The construction sector itself has accounted for a very substantial part of countries' higher growth rates while there are also potential backward linkages to input materials and machinery which can drive local industrial production or can be sourced as imports. This paper assesses the construction activities for the massive coal developments in the Moatize area of Mozambique. These are important in their own right given the size of the investments, and provide insights of wider relevance to resource associated infrastructure investments. The Moatize coal deposits are the largest known but not yet exploited reserves in the world. They are located some 500km from the nearest port at Beira and some 800km from the best port in the vicinity at Nacala. The exploitation of the reserves has thus been dependent on investment in the Sena railway line to Beira and the Nacala line, through Malawi, to the Nacala port. The total foreign investment into the Nacala project is equivalent to 35 percent of Mozambique's annual Gross Domestic Product (GDP).

Whether these investments are organised as part of enclave developments where there are few if any linkages with the local economy, or whether they are part of developing diversified local capabilities and industrialization, is a critical dimension of the overall impact on the Mozambican economy. Spatial development initiatives and corridors have been proposed in the African Union's Mining Vision policy document which draws from a range of policies including the Resource-based African Industrialization and Development Strategy (RAIDS) (AU, 2009).

The corridor frameworks recognize that there is a critical regional dimension to the questions of infrastructure, growth and development. First, major infrastructure developments often stretch across borders. Second, the development of diversified capabilities needs to be understood at the regional level and the large lead firms operate across the region. Third, initiatives to support such development need to be coordinated regionally if they are to have maximum impact. The significance of greater regional integration has recently been recognized by the Construction Industry Development Board in South Africa (CIDB, 2015).

The Moatize investments are also taken as a case study as a substantial proportion of the large investments have now been planned and are underway and can be studied, while other major deposits are still to be exploited (see Baloyi and Zengeni (2015) for a review of major projects). Tete's coal deposits were discovered over 100 years ago but have only recently been developed (World Bank, 2011). This has been done with the assistance of the World Bank's International Finance Corporation (IFC) whose mandate was to assist the government in selecting a suitable candidate through a competitive bidding process to develop the Moatize mine (IFC, 2008). In 2004 Vale, the Brazilian mining giant, was announced as the winning bidder and started production in 2011. Other mining TNCs including Rio Tinto and Beacon Hill are also mining coal resources in close proximity. Vale's contractual obligations included investments in the Nacala railway line and port.

The paper draws from a longer study which describes the transport infrastructure developments including the lead firms, the state actors, and the policy framework (Baloyi and Zengeni, 2015). Interviews¹ were conducted with consulting engineering firms, civil construction firms, raw material providers and institutions in South Africa and Mozambique. The direct linkages to the local and regional economies are critically assessed including

¹ See appendix 1 and 2 for list of firms interviewed in South Africa and Mozambique.

understanding how the investments have been organized. We assess the institutional dynamics in terms of the lead firms, the role of the Mozambique state, and influence of other organisations such as the World Bank. The study further assesses the relationship of the infrastructure investments with the development of capabilities at the local, national and regional level. The paper evaluates to what extent are local (Mozambique) and regional (especially South African) linkages being developed given competitive and procurement dynamics. Recommendations are made on local and regional capabilities development drawing from the findings, including key elements of a regional strategy for maximising the backward linkages of major infrastructure projects.

The paper is organized as follows. Section 2 sets out the rail infrastructure construction value chain with a focus on factors determining competitiveness. Section 3 provides the context of mining linked rail infrastructure development in Mozambique. Section 4 analyses the relationship between procurement framework and linkage development followed by various actors involved in infrastructure provision. It also assesses the structure of the Mozambican construction sector and response to infrastructure investment. Section 5 analyses the relative performance and strategies pursued by regional, foreign and local Mozambican firms in accessing the infrastructure market segment and Section 6 concludes the analysis and makes recommendations.

2. Railway infrastructure investment and linkages

Construction is typically separated into several segments, namely, housing, commercial and industrial buildings, civil engineering structures and infrastructures, public works and repair and maintenance. We are focused on large scale transport infrastructure, which involves civil engineering along with specialised work related to the specific transport mode. While, in general, construction has historically been localized, there has been growing internationalization as large firms with strong domestic bases seek work in other countries. Very large projects in developing countries have also often been undertaken by transnational construction firms and linked to the financing of the projects.

A further impetus to internationalisation of construction over the past decade has been the activity associated with the rise in commodity prices as companies jockey for projects that facilitate extraction. This has catalyzed the entry of traditional and new international construction firms competing over contracts tied to state or private clients (the latter being logistics consortiums and global mining giants). Mozambique is no exception.

Construction is considered a process rather than an industry as it links together a variety of actors working temporarily together in the conception, design, construction and maintenance of the built environment (Gann and Salter, 2000: 959). The project dimension implies the management of firms through complex interfaces in which collaboration is essential to deliver the product and service. Therefore, the performance of the project is dependent on the efficient functioning of the network rather than a single firm and requires that technological strategies are extended beyond the immediate bounds for effective management.

There are two ways in which the current state of localization and regionalization of the construction value can be framed. The first is to understand the drivers of competitiveness in the construction value chain which focuses on the firms and their ability to win contracts for work. The second is to analyse the governance of the construction value chain in terms of the decision rules, norm and standards and interests that influence the procurement strategy.

Drivers of competitiveness and capabilities

The increasing complexity of infrastructure projects requires a range of skills in order to execute the project within time, at competitive cost and at the specified quality, avoiding cost overruns and delays. The capabilities required are those that cut across all activities in infrastructure projects and these are augmented by “new” forms of organizing the construction project in order to enhance coordination and efficiency. There are generic capabilities relating to infrastructure projects such as project delivery management and coordination, knowledge management, construction logistics activities, and health and safety (Emuze, 2011). The complexity of large projects mean that the competencies required in coordination and management are significant and require teams with tacit knowledge to execute the project and monitor project implementation.

Knowledge management, transfer and sharing is also critical to ensure that construction activities meet with overall project objectives. Given the multiple actors on a construction site and also in the design phase, there needs to be a constant flow of information that is understood and can be actioned. This is supported by research on the drivers of competitiveness that has found that understanding the client’s requirements which is then effectively communicated across the chain is critical to the project’s competitiveness (Emuze, 2011). This flow of knowledge includes in formal plans and in informal and verbal communications.

Construction logistics activities include managing material supply, workers, site equipment and information flows. The project manager is responsible for logistics management. Conditions required in order to execute a construction activity are: availability of appropriate skills, materials, access to work area, plant and equipment, design information, completion of previous critical tasks, acceptable weather, safe work procedures. If one of these factors is not fulfilled the construction activity will be delayed or remain incomplete. The majority of cases in which quality is not satisfactory is due to procurement related barriers (Emuze, 2011). These include fraud and corruption in appointing contractors that cannot undertake the work. Moreover this tends to be in the design and construction and also in the way in which the client’s agent does not ensure quality. Therefore the role of all members of the value chain affect the quality of the project. Moreover, governments have enacted legislation for the protection of health and safety in construction projects. These standards are practiced by large private and public clients and are thus an important capability for complex projects such as civil construction. The competitive capabilities depend on the overall system that is organized for the project in question and the capabilities of the individual components of the system.

The success of a construction project is not only in the hands of the contractor – there is a range of different participants at each project stage, and knowledge requirements that need to be met (Table 1). These range from project managers, developers, facility managers and planning authorities identifying the need for a project through to consulting engineers, contractors and subcontractors. Facility managers or clients must ultimately be able to make use of the facility and to ensure that it is operating optimally and it serves its customers or its public.

Table 1: Construction Process Capabilities

Project Stage	Knowledge requirements	Participants
Conception	Do we need a project? What purpose will the facility serve? How much funding can we commit to the project? Where is it going to be built? How will the facility be procured? Who are the best firms to do the job? Who will look after our interests?	Development managers; property managers; project managers; financial consultants; facility managers; business managers; planning authorities
Design and specification	What does the client really want? What are the characteristics of the site for the facility? How do the relevant regulations apply to this facility? What will the facility look like? What kind of materials do we need, and in what quantity? How much is it going to cost? How will the facility be constructed?	Architects; engineers (building services, civil, structural); planning supervisors; facility managers; quantity surveyors; project managers; contractors
Construction of infrastructure	Have all materials been specified? Where can we obtain the materials? How and when do we need them on site? How can we organize ourselves better to do the job efficiently? How can different components be assembled efficiently? How can we ensure the quality of workmanship?	Contractors; project managers; specialist contractors; materials and equipment suppliers; architects; engineers
Commissioning and handover	Is the facility performing as expected? Is it serving the purpose for which it was created? Are all components and systems working effectively? Are all interest groups satisfied?	Facility managers (operators); architect; contractors; clients/or end users

Source: Emuze (2011)

Governance of large scale construction infrastructure projects

The governance framework must assess the importance of different actors and core linkages in influencing how the work is procured, financed and undertaken. This includes the extent to which local and regional industrial capabilities are built.

The procurement strategy is a critical aspect of governance as it determines what is acquired and how it is acquired. It is defined as the “process which creates, manages and fulfills contracts relating to the provision of suppliers, services or engineering and construction works and acquisition of rights and concessions” (Emuze, 2011: xxiii). Therefore, the procurement strategy determines what actors are involved and how teams of designers, suppliers and contractors work together and is the basis of the contractual arrangements entered into between the client and the project participants.

Clients and lead firms in large infrastructure projects and their linkages to core sources of power and financing are key dimensions. In Africa, governments including official development aid are the primary sources of funding of infrastructure in power, transport and water supply and sanitation (Foster and Briceno-Garmendia, 2010). Foreign governments have traditionally used aid (Overseas Development Assistance, ODA) as a means of facilitating entry of their own domestic firms. ODA has also been used to build capabilities within developing countries through linkage development programs. In transport infrastructure, the convergence of donor,

state and private interests has been facilitated through Public Private Partnerships. These actors are critical in determining infrastructure provision in Mozambique.

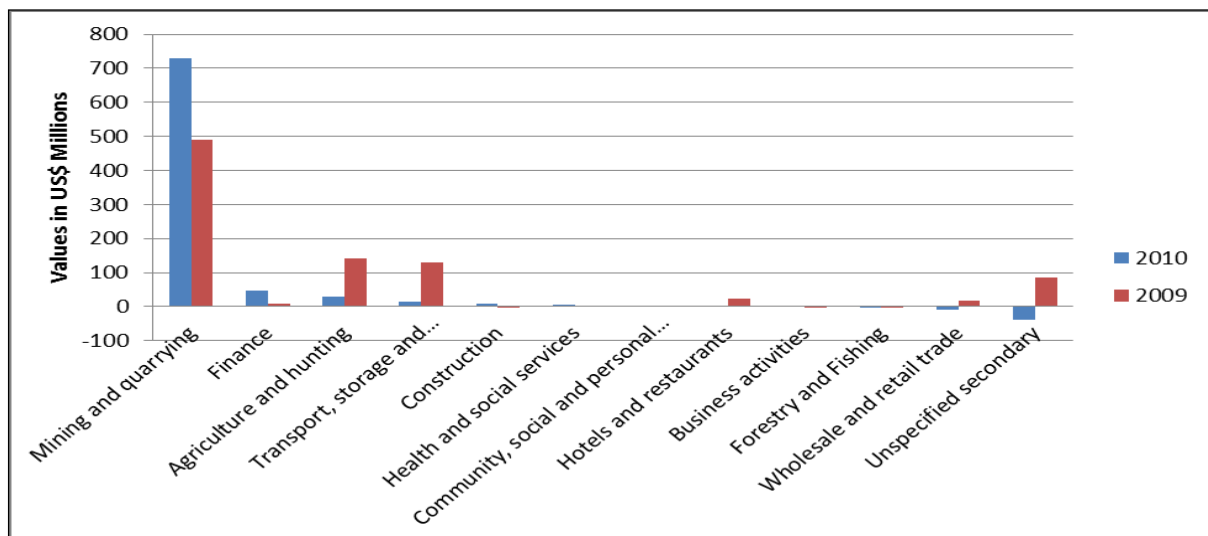
Multinational corporations (MNCs) tend to move with their supply chain with whom they have established relationships formalized through supplier contracts or through informal means (Unctad, 2005). At the same time, advanced capability requirements will naturally favour MNCs in a country such as Mozambique as these firms have the experience and capabilities (including within their networks of suppliers and subcontractors). MNCs can also transfer capabilities through integrating local businesses into their networks for a large project but are unlikely to do so unless this is part of the conditions attached to a project in the procurement phase. These dynamics will therefore have a bearing on the extent to which the construction supply chain for transport infrastructure provision can be localized and regionalized. Different interests underlie the arrangements and agreements reached between the parties and whether local capabilities, development and learning are ultimately promoted (see, for example, the political settlements framework of Khan, 2006).

The resources are being exploited by transnational mining companies from whom African countries seek to collect revenue. Donors and financiers can play critical roles, whether associated with the mining companies or not. The mining companies, in turn, are dependent on the state for permissions and rights, which can be accompanied by conditionalities. They are also dependent on transport infrastructure without which they cannot get their products to market.

3. Mining linked transport infrastructure provision in Mozambique

In recent years, Mozambique has experienced high rates of economic growth which has been heavily linked to discoveries of natural resources, along with growth in production of agricultural commodities. Large fields of coal and natural gas have been discovered. Mozambique is set to become one of the world’s most important coal exporters, and it is on its way to become the first liquified natural gas supplier in Sub-Saharan Africa (Ford 2012). These new developments have resulted in surges of foreign capital inflows into the country, dominated by mining and quarrying (Figure 1)

Figure 1: Mozambique Capital flows by Sector, 2009 and 2010



Source: IMF database (2014)

It is clear from an examination of current and potential extractive megaprojects that Mozambique's coal sector is very significant, especially in the current projects (Tables 2). Perkins and Robbins (2011) observe that 82 coal exploration licenses were granted to 33 mining companies in 2011 amongst other minerals.

Table 2: List of current extractives megaprojects in Mozambique

Company name	Sector	Location	Capacity	Construction	Production
Hydroelectrica Cahora Bassa HCB HCB_North	Electricity generation	Cahora Bassa, Tete	- 2075 MW - 1240 MW	1995 – 1997	1998
Mozal Mozal I Mozal II Mozal III	Aluminium smelter	Beluluale Industrial Park, Maputo	- 245 000 tonnes - 245 000 tonnes	1998 – 2000 2001 – 2003	2000 2003
Sasol - 50% Expansion	Natural gas	Pande and Temane gas fields, Inhambane	154 GJ 183 GJ	2002 – 2004 2011	2004 Ramp up by 2016
Kenmare - 50% expansion	Heavy sands	Moma, Napula	- 600 000tonnes - 300 000 tonnes	2004 2011 – 2012	2007 2013
Vale	Coal	Moatize mine, Tete	25 million tonnes per year	2007 – 2011	2011
Rio Tinto	Coal	Benga mine, Tete	45 million tonnes per year	Acquisition in 2010	2012
JSPL	Coal	Changara district, Tete	10 million tonnes		2012 – 2016 ramp up
Beacon Hill	Coal	Moatize, Tete	87 million tonnes of reserve	Acquisition in 2010	2013

Source: Genesis Analytics (2013)

Overview of coal developments and transport infrastructure

Mozambique's Tete province in the middle of the country is home to the single largest discovery of unexploited coal in the world. These discoveries were made over a century ago and are only recently being developed. The former colonial power, Portugal, made little efforts in committing investments in prospecting and exploration. Developments in the first few decades after independence were held back by civil war that came to an end in 1992 during which time South African companies made failed attempts to explore the region. The growing interest in Africa's minerals sparked by the recent commodity boom has resulted in a number of MNCs jockeying for control of the region's coal resources. Ultimately, Vale, the diversified Brazilian mining and logistics giant, International Financial Institutions and the Government of Mozambique (GoM) have emerged as the primary drivers in exploiting Mozambique's coal.

In 2003, the GoM engaged the International Finance Corporation (IFC) to secure a developer and set conditions for the successful development of the Moatize coal mining project (Perkins and Robbins, 2011). The duty of the IFC was to assist government in identifying the best candidate after spending ten unsuccessful years of trying to lure investors to the Moatize mine. A total of ten companies which included mining giants such as Anglo American Corporation, Rio Tinto, Mitsubishi, Vale Do Rio Dolce (Vale) and BHP Billiton submitted bids for the project and Vale emerged as the overall winner. Vale, a Brazilian company bid \$123 million for the right to explore and develop the coal deposits (Perkins and Robbins, 2011). The government

saw this project as a key driver for the development of the Zambezi Valley due to the size of the project.

After being announced as the eventual winner in 2004, Vale had commitments to conduct feasibility studies for the coal project, develop the rail and port infrastructure and do pre-feasibility studies for setting up a 100 megawatt coal fired power station and other industrial projects (Perkins and Robbins, 2011). In 2007, the mining company obtained all the necessary requirements from government after spending \$80 million on feasibility studies and commenced construction work at the mine in 2008. It contracted the Brazilian companies Odebrecht and Camargo Correa to undertake construction and civil engineering work, which included the construction of one of the biggest coal handling preparation plants in the world with an annual capacity of 26 million tonnes (Perkins and Robbins, 2011).

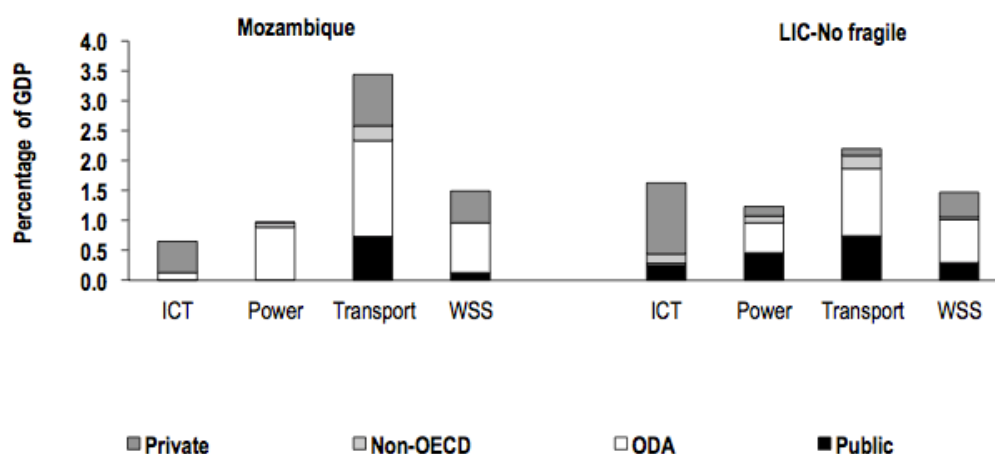
Transport infrastructure in Mozambique was primarily built as a political and economic imperative to link neighbouring countries' inland industries to ports.² Consequently the country's most developed logistics systems run west to east and do not adequately link the agrarian north of the country to the consuming south of the country, rather they have been used to facilitate international transit. Transport services became a key source of accumulation during the colonial period, contributing 31 percent to the Mozambique's foreign exchange in 1972 and 12.8 percent to GDP (Stephens, 1994).

Coal developments are, however, fast reshaping the infrastructure system although not necessarily in a break with the historical patterns. The main exit points for the Tete coal mining industry are through the Beira Corridor which connects the Sena railway line to the Beira port and the Nacala Corridor which connects the Nacala railway line through Malawi to the Nacala port. Tete is just over 500 km from Beira, its closest port, and just over 800 km from Nacala port.

For mining companies to reach their objective of increasing output for export markets the government's ability to provide the requisite infrastructure and meeting the financing gap for investing in new rail lines or rehabilitating the existing ones (Nhabine *et al*, 2012). As with other low income countries (LICs) Mozambique relies on ODA and public investment to finance transport infrastructure provision, however, private investment is also very important and more significant than public investment (Figure 2).

² The historical political imperative included the Afrikaners trying to side step the use of the British controlled logistics system in Natal.

Figure 2: Comparison of sources of finance for infrastructure in Mozambique and Low Income Countries



Source: Dominguez-Torres and Briceño-Garmendia (2011)

The private investment coupled with donors and IFIs have been particularly critical in the mega-projects such the railway lines for the transport of Moatize coal.

4. Procurement policies and Mozambique’s civil construction sector

An analysis of the Mozambican Procurement Policy Framework and its relationship with linkage development sets the context for an analysis of the extent to which both local and regional capabilities are being built. The procurement policies of public (state), donors and private (Vale) actors are analysed. We consider the need for advanced capabilities together with the potential for local participation, drawing on in-depth interviews with firms and institutions involved in the infrastructure for Moatize.

4.1 Public policy and procurement

Public procurement of public works, supply of goods and provision of services by government in Mozambique is guided by the provisions in Decree 15/2010 of May (ACIS, 2011). The regulation guides procurement for government public works, goods and services purchased by government at national, provincial, district, municipal and all state owned companies (ACIS, 2011). The regulation also covers procurement of any goods and services for government funded by donor governments. The Unit for the Supervision of Acquisitions (UFSA) is the government body responsible for the oversight of the procurement regulation. The application of the regulation requires that it comply with the following principles of legality, proportionality, purpose, reasonableness, equality, competition, impartiality, good faith, stability, motivation, responsibility, good financial management and other public law principles. The procurement legislation allows for special procurement processes that might be due to an agreement between Mozambique and another state. There is also provision for an exceptional regime including provisions being placed on contractors.

The two stage and preferred bidder tender modalities are mostly likely to be pursued in civil construction due to the complexity of the projects which require a balance between a technical and price assessment (Table 3). The bidding process in Mozambique follows standard international practice of bid preparation, announcement and evaluation (Table 4).

Table 3: Description of Tender Modalities

Tender Modality	Description
Pre-qualification	Tendering process which is limited on participation, requiring only bidders who qualified on a preliminary phase to submit their proposals to participate ³ .
Limited tender	Is intended for small and medium enterprises, it is adopted either when the value of public works does not exceed MT3.5million (meticais) or supplying of goods and service that does not exceed MT1, 750million (meticais).
Two stage tender	Bidders offer at a technical proposal in the first stage in the evaluation phase and in the next stage a final technical proposal and price proposal ⁴ . This tendering procedure is used when the contracting entity is not capable of defining in a precise manner the technical specifications of the tender.
Small scale tender	Contracting that takes place when the price estimates is lower than 15 percent of the limit established in Limited tender discussed earlier and is restricted to micro and small enterprises ⁵ .
Direct contracting	Is applicable only when the service or good to be supplied can only be obtained from one single contractor or if the contractor previously contracted can undertake maintenance work of a similar standard. However the procedures for each type of tender basically follow the same procedure as in a general tender.

Source: ACIS 2011

Table 4: Description of Tender Process and Institutional Involvement and Role

Action	Tender Preparation	Announcement	Evaluation
Institutions	Executive Management Procurement Units (UGEA)Department	Executive Management Procurement Units (UGEA)	Tender Committee
Description	<p>a. Government Department intending to procure goods and services sends a request to the UGEA with the following information (technical specifications, the purpose of procurement, specific requirements that must be made of bidders and the estimated cost and budget provision).</p> <p>b. UGEA verifies and prepares tender document that must first be approved by requesting government department before advertising.</p>	<p>a. All tender documents are at the very minimum to be written in Portuguese</p> <p>b. National tenders must be announced twice in newspapers and also at the headquarters of the procuring department.</p> <p>c. International tenders must be published in the Republic Bulletin and or on internet page or by any other means.</p> <p>d. Published tender must contain the following; tender announcement, announcing that a tender will be held, invitation of bids from the public and awarding of the tender to the winning bidder.</p> <p>e. In the case of tenders for public works they must specifically indicate the classification of companies eligible for the project.</p>	<p>a. The committee is comprised of at least three members who are qualified to decide on the evaluation process and at least one of the three must be a civil servant linked to the UGEA</p> <p>b. The functions include opening tenders, requesting clarifications to tenderers on behalf of the procuring entity, seeking expert advice when necessary, evaluating and ranking proposals, proposing changes in the initial proposals in the case of two-stage tender and submitting evaluation report with a recommendation of the winner to the contracting entity</p> <p>c. The committee opens the bid in at a public meeting attended by the bidders and other interested parties. The public meeting proceed by identification of the tender process, reading of the list of bidders, opening of the bids, reading of the main contents of each bid (price offered, name of bidder, discounts being offered and the provisional guarantee), signature of each member of the jury and signing of the minutes of the meeting, which is done before meeting closure (ACIS, 2011). After the closure of the public meeting the bids are evaluated by Tender Committee in a closed door session based on the majority decision of the present members.</p>

Source: ACIS 2011

³Procurement Regulation, Article 85, paragraph 1.

⁴Procurement Regulation, Article 94 paragraph 1.

⁵Procurement Regulation, Article 106.

A tender can be evaluated simply on price, along with proven ability to deliver the project on specification and time, or a more complex set of criteria can be used which can include local content criteria. The consulting tender includes the elements that ought to be on the tender and the weightings that are to be allocated to each. These factors are listed below along with the ranges of points that may to be determined, out of a total of 100 (Table 5). The factors are a mix between technical parameters (consultant's experience, qualifications) and also local content (in the employment of Mozambican consultants and the knowledge transfer to Mozambicans). However, there are no specifications as to how knowledge transfer is measured, and local participation does not translate into the proportion of local value-added.

Table 5: Parameters considered and the points awarded for consulting services

Parameter	Points awarded
Consultant's experience	From 5 to 10 points
Methodology	From 20 to 50 points
Qualification of Key staff	From 30 to 60 points
Transfer of knowledge	From 0 to 15 points
Participation of national consultant	From 0 to 10 points

Source: ACIS 2011

Lastly, provisions can be made to restrict participation based on nationality or preferential margins to national bidders or nationally produced goods. The preferential margin for public works is 10 percent of the pre-tax contract value and nationally produced goods are given 15 percent of the pre-tax value.

As firms operating in Mozambique for more than six months are obliged to register their companies, it is important to note that nationality for legal persons is based on "being legally incorporated and registered in Mozambique and having at least 50 percent of their social capital held by a natural person with Mozambican nationality or held by a legal person which itself has at least 50 percent of its social capital held by a natural person with Mozambican nationality". Therefore nationality in effect is determined based on citizenship and thus the preferential margins provisions would preclude foreign legal persons from obtaining preferential points. The adoption of preferential margins is not only at the discretion of the applicant, however, as the intent to apply such a margin is subject to the approval of the Ministry of Finance.

Foreign tenderers are required to have an agent in Mozambique with special powers to be served with a process and to respond according to law to the tenderer's acts, provide their legal, financial, economic and technical qualification position in their home country, and proof that they are not bankrupt in Mozambique and in the home country. They are required to submit all written documents required in the Portuguese language.

To summarise, while price and quality are given more weight in the evaluation process, provisions are made for local participation, depending on the determination made for the project in question.

4.2 Donor procurement policies with reference to the Sena rail corridor

The World Bank and the European Investment Bank (EIB) have been the main donors in the infrastructure rehabilitation of the Sena railway line and port infrastructure. The World Bank committed US\$110 million in 2004 for the rehabilitation of the Sena line, a project that was assessed as a qualified failure in 2011 (Fischer and Nhabinde, 2012). Since then, the EIB has stepped in as the lead financier of a new tranche of financing for the project cost of the port

and railway to the tune of US\$188.5 million. Given their heavy involvement in financing the Sena Corridor, this section analyses the procurement policies of the World Bank and EIB.

The donor agencies procurement rules bias the participation of multinationals in two ways. First, donors' procurement guidelines strictly follow international competitive bidding processes through the publication of procurement notices and pre-qualifying bids on their websites and across international media platforms. For the World Bank, projects in excess of US\$1million for services and US\$500,000 for goods are restricted to international competitive bidding. Second, donors restrict the participation of firms that are not financially independent from the state such as state owned companies. This means that in a country that does not have large firms with capabilities to compete with international firms, the state cannot leverage the resources from its state owned enterprises as a means of supporting local suppliers. An interview with a consultant that manages the World Bank's procurement process confirmed that the practice is to prioritise price and quality in the evaluation of contracts while local content is not taken into account at all because the World Bank does not give differential treatment to foreign and local companies belonging to member states.⁶ Local Mozambican firms tend to lose out because the evaluation criteria consider experience as an important factor. This is a challenge which characterizes the Bank's procurement policy throughout the least industrialised world.

Multinational participation can be accompanied by linkage development or local content policies, however in practice these appear to be weak. The World Bank's localisation criteria allot points for knowledge transfer and the participation of national experts, which together with consultant experience, methodology and key experts, are part and parcel of the evaluation of quality (Table 6). However, since there is no measure for defining knowledge transfer, the inclusion of national experts and knowledge transfer could result in a bidder claiming localization points purely based on its hiring of national citizens in the project – a strategy that in most cases would have been used in order to exploit the national's local knowledge of the sector.

Table 6: Quality Evaluation

Factor	Score range
Consultant experience	0-10
Methodology	20-50
Key experts	30-60
Transfer of knowledge	0-10
Participation of national experts	0-10
Total	100

Source: Interview with World Bank Consultant.

The EIB localisation criteria from this perspective is far stronger as borrowers may grant a 15 percent margin of preference for goods manufactured or produced in the country (defined as having at least a 30 percent local content ex-factory). The bidding documents must clearly indicate such preference. The comparison is then made between the price (net of taxes and duties at least a 30 per cent local content ex-factory) of the imported good increased by 15 percent and the price (net of taxes and duties at the place of delivery). Bidding documents must clearly indicate such preference. However, this preference system is only for manufactured goods and not locally produced services (such as consulting engineering, or civil construction works). The implication of omitting construction works in the case of

⁶ Interview with World Bank Consultant

infrastructure construction projects is that local capabilities have less chance of being developed in what is the largest area of spend (the civil infrastructure construction, as mentioned earlier) of the infrastructure construction value chain.

4.3 Structure of Mozambique civil construction sector

The Mozambican construction value chain has become increasingly competitive, as increased construction activity has led to new entrants including MNCs. Mozambique has an estimated 2,490 construction companies in total (Table 7). Contractors operating in Mozambique must obtain a license with the Ministry of Public Works. These companies are graded according to their capital and human resources which is a litmus test meant to determine their ability to undertake different projects of varying complexity and scope. There are seven grades and the depth of their expertise and capital increases incrementally from one to seven. The majority of local Mozambican firms fall in the range between the first and fourth grade with the third grade having the largest number.

Table 7: Classification of construction companies and minimum capital requirement

Class	# of firms	Maximum value per class 000' Meitcas	Minimum capital requirement 000' Meitcas	Permanent technical team
1	156	350	20	1 civil builder
2	248	850	50	1 civil builder with five years' experience
3	1283	2500	150	1 mid-level engineer and 1 civil builder
4	314	5000	500	1 engineer or architect and 1 mid-level engineer
5	226	15000	1500	2 engineers or 1 engineer and 1 architect or 1 engineer to 2 mid-level engineers
6	49	50000	5000	3 engineers and 1 mid-level engineer or 2 engineers, 1 architect and 1 mid-level engineer
7	214	Over 50000	10000	5 engineers and 2 mid-level engineer or 3 engineers, 1 architect and 2 mid-level engineers with more than 5 years' experience

Source: Sutton (2013), Republic de Mozambique (2008)

Distinguishing between foreign and local Mozambican firms is very difficult as the foreign firms register in Mozambique and adopt Portuguese names. However, an interview with an official from the department of public works confirmed that the majority of foreign firms are located in the seventh grade while the local Mozambican presence in that grade is small in comparison. The significance of this finding for our study is the fact that the firms that have the ability to undertake large complex projects are those in the seventh grade and thus this will most likely be a firm that is foreign in origin.

Historically local Mozambican, and firms of South African, Portuguese and Italian origins populated the civil construction sector with a presence in Mozambique that spans between 10 to 20 years. In many ways, the foreign established firms can be said to have become indigenised, and are widely viewed as such. For example, the largest construction firm in Mozambique is an Italian multinational, CMC, however this firm is viewed as a local Mozambican firm, thereby enjoying the same treatment as locally owned Mozambican firms when tendering for work despite it being multinational.

In the last five years, a new crop of firms has emerged adding to pricing pressures and the scope of work on offer. These firms are new entry Portuguese, Spanish, Brazilian, Chinese,

Indian and South African contractors. Some firms have entered the Mozambican market as a consequence of the poor performance of construction activity in their home countries, such as a result of the financial crisis mainly for European firms. Firms from Brazil, China and India have entered into Mozambique motivated by growing their supply chain and demand-side factors as firms from these countries are also heavily invested in Mozambique's mineral extractive industries. In addition, the presence of Chinese firms is motivated by the Chinese government's policy of exporting a surplus construction sector to developing countries through state financed construction projects as spelt out in the Forum On China-Africa Cooperation (FOCAC) (ADB, 2011).

4.4 Public and private sector procurement policies and practices in tendering and linkage development

Vale and the state-owned railway-line company Caminhos de Ferro do Mozambique (CFM) are the sponsors of the rehabilitation and expansion project of the Nacala Corridor. The route consists of seven sections and the concession for each of these sections is controlled by different companies. The table below illustrates the name of the companies, the sections the companies managed and the equity partners for each of the companies. It is clear from the distribution of equity, that effectively Vale is the main owner of each of the companies and thus the concession (Vale has a controlling share of approximately 70 percent) while CFM has a significant share in three of the four concessionaires (Table 8). An important partner to the agreement is the 10 percent stake that has been allotted to Insitec, a financial group with links to the former President of Mozambique (EU, 2012).

Table 8: Nacala Corridor - Equity Distribution

Concessionaire Company	Section	Equity Distribution
CLN	2, 8, 9	CFM (20%) and Vale (80%)
VLL	3	Vale (100%)
CEAR	5	CFM (49%) and Vale (51%)
CDN	6 and 7	CFM (49%) Vale (51%)

Source: Authors construction using interviews with firms

The shareholder agreement that Vale and CFM entered into has given Vale the responsibility of leveraging its capital base to raise the finance required for the works, this also includes raising finance for CFM's shares too. Therefore CFM is indebted to Vale and will repay its share of the concession after 12 years once the line has earned enough revenue.

Governance of Procurement

A Special Purpose Vehicle (SPV) called SDEICN was created to manage the construction, procurement and the finances on behalf of each of the four concession companies. The SPV stakeholders are comprised of Vale, CFM and the market (i.e. Insetec). The board of directors' of the SPV comprises of three individuals from Vale and two individuals from CFM. The staff complement of the SPV is 120.

The SPV is governed by a management contract that states amongst other things the procurement rules that are to be followed for the purchase of goods and services. These rules detail how goods and services must be procured and the extent to which the SPV can make procurement decisions vis-à-vis the concession company. However, given the distribution of ownership and the volume of technical staff, it is also clear that Vale has more decision-making power.

Procurement Process

Vale's supply chain for its project or activities is structured in a manner that it claims ensures local participation while price and quality factors are not compromised. Its supply chain is categorized into three groups, namely, global, national and local. The global category denotes goods and services that are purchased globally because they are key technologically intensive inputs or are complex activities that require an international sourcing platform to acquire them competitively. Construction activities are part of this group.

The national category is for goods and services that can be purchased within the country from firms that are registered as Mozambican entities. The local category denotes goods and services that are owned by national citizens through a 51 percent share and are procured locally. These tend to be small and medium size companies that the company procures such services as cleaning and maintenance services, hotel services.

MNCs benefit from the procurement of infrastructure construction being done under the global category. In addition, the SPV draws from its vendors list, which comprises of service providers who either by invitation or by application have been pre-qualified. Those firms that are invited onto the list are generally firms that have worked with Vale such as the Brazilian construction company Odebrecht or are well known to provide the goods and services.

According to interviews with construction companies competitiveness factors such as price, logistics, quality and experience are the overwhelming factors when awarding a contract in infrastructure project. Local content is also viewed as important, however, this depends on the category under which the good or service is being evaluated. Note that private advertisement is done irrespective of Mozambique's procurement legislation that states that projects above a certain threshold must go through a public tender. Considering that CFM represents government in the partnership, it is clear that Vale's procurement practices have a greater bearing on procurement processes than those of CFM.

According to interviews, government has not developed any linkage development programme that will help to foster the transfer of technical skills and knowledge between foreign multinationals and domestic enterprise. Thus far, only discussions have been held between industry players and government. Vale argues that local content that is being done is being done through its own initiatives as fostering local content is amongst one of its core principles. These initiatives have led to the increase in its expenditure in Mozambique towards the economy. Vale estimates, that 74 percent of the firm's procurement expenditure was sourced through the Mozambican economy in 2013. However only 30 percent of this expenditure was sourced from the local category i.e. Mozambican nationals, meaning that local participation is still low.

4.5 Mozambique construction firms response to rail infrastructure investments

A key insight from review of the projects and the firm interviews is that local civil construction firms, including those with older origins in MNCs, do not have a foot in rail infrastructure projects. The Nacala and Sena rail projects are dominated by Portuguese, Brazilian, South African and Chinese firms (Table 9). All but one of the local construction firms interviewed have not been involved in rail infrastructure projects. Their lack of involvement is not necessarily due to them not possessing the requisite capabilities to do the civil work required of a rail infrastructure project as they include firms who have undertaken large scale projects such as roads, schools, hospitals, factories, bridges and culverts. The skills involved in such projects (for example, earth works, foundations, structural steel and concrete) are transferable in the civil works for a rail infrastructure project.

Table 7: Companies operating in construction of the Nacala and Sena lines

Infrastructure construction & bridges	Home Country
Aveng Lennings Railway Services	South Africa
Mota-Engil	Portugal
Samaque	Brazil
OAS	Brazil
Superstructure	
Aveng Lennings Railway Services	South Africa
CR2OG	
Rails	
Nippon Steel	Japan
Sleepers and Culverts	
Wegh	Italy
Infraset	South Africa
Signaling	
Ivensys	United Kingdom
Oversight/Consulting engineering	
SRK	South Africa
Worley Parsons	Australia (South African domiciled)
Diversion and realignment	
CR2OG	
Bridges	
Soares da Costa	Brazil
Sena Line	
Rehabilitation Services	
Mota-Engil	Portugal
Grinrod Rail (Subcontract)	South Africa
Visabeira	Portugal

Source: Authors construction using interviews with firms

The procurement strategies used by the main financing agents (the private mining firm and donor agencies) of the major infrastructure projects are amongst the key factors explaining the reasons why local Mozambican civil contractors are precluded from these projects. Local firms highlighted possible participation and selection biases that may favour the involvement of multinational firms. The requirement of a long track record or experience and the lack of financial depth are, according to the firms interviewed, amongst the main reasons that undermine the ability of local firms to win major contracts, rather than their cost competitiveness. First, tender evaluations have on occasion proven some of the firms interviewed more cost competitive, but it is their limited track record that counts against them. Second, some firms are sub contracted to do the work by the major foreign firms who win the major projects (on account of their track record, networks and financial depth) in order to minimize the cost.

The localization of government procurement could be used as a stepping stone which enables the firms to gain the necessary experience or track record that can make it easier for them to get involved in the mega infrastructure projects. However, each of the firms interviewed lamented that localization is not a factor considered in the government procurement process; with one mentioning that local content is not pursued as projects are mainly funded by donors who impose their own rules that the government has to follow in spite of there being a preference system in the government legislation.

From a financing perspective, a major obstacle is the inability to obtain a bank guarantee required by the major projects as Mozambique's capital markets are underdeveloped and

interest rates are exceptionally high. Firms rely on their internal resources to finance their projects, and these come under pressure due to government client's delayed payments.

Another challenge is that the mega infrastructure projects, rail being one, are too big in scope for the local Mozambican contractors to swallow in spite of the grade 7 status. The firms also do not have the international best practice health and safety standards that large multinational firms require.⁷ According to the only local firm in our sample with prior experience in rail infrastructure projects, they would need to be broken down further into parts that can be taken on by local Mozambican firms in their 7th grade. Taken together this implies an upgrading path based on building linkages into the major projects, financing mechanisms and transfer of capabilities largely through on-the-job experience.

Last, the supply chain coordination is a big challenge for local construction firms. They face chronic shortages and/or high prices of crucial materials (machinery and equipment, cement, and steel) which reinforces the importance of supply chain stretching back into import sources. There are also widespread complaints about the poor quality of local cement problem which is exacerbated by the fact that government has put in place a requirement in the tendering process that forces contractors working on its projects to use cement produced locally. This is also enforced through a requirement to use cement of quality 32 which is only produced by Cementos de Mozambique, the state owned company that is co-owned by Insitec. In addition, smaller and local Mozambican firms are less able to coordinate their supply chain because the supply chain is characterised by a queuing system wherein larger more established firms are catered to first perhaps as a result of the magnitude of their demand. The queuing system is more pronounced in cement and machinery and equipment as shortages are more acute. These dynamics in the supply chain undermines their competitiveness as they will have the tendency towards longer lead times, which mars their ability to win contracts. The coordination failures are more pronounced outside of Maputo, where implements and inputs are less available and higher cost.

5. Strategies of competitive firms along Mozambique's rail infrastructure

We compare the regional (i.e. South Africa) versus global (i.e. Brazil, Chinese, Portuguese and Italian) responsiveness to Mozambique's rail infrastructure demands. The winners of the Nacala and Sena line contracts have been listed above, here we analyse the corporate strategies used by the firms from different countries to access the market for rail infrastructure projects. All the lead contractors for the Nacala and Sena line segments are foreign. Clients' expectations of the contractors to whom they award contracts are obviously instrumental in shaping the competitive dynamics in the market. Price, along with quality and lead/delivery times are clearly important, along with the proven financial depth to meet project requirements. Interestingly, the capacity to deliver a combined engineering, procurement and construction management (EPCM) packages was not rated as important by interviewees. This may relate to the fact that firms tender for projects that are already being financed by a sponsor (usually a private client) that elects to work with a consulting engineer and thus follows a traditional client driven civil contracting procurement strategy.

⁷ Interview with one of the largest local Mozambican construction firms.

Table 8: Clients in South Africa and Mozambique According to 27 Firms interviewed

	Price		Quality		Lead/delivery times		Aftermarket Services		Innovation		Capacity for EPCM		Financing		Local Supplier	
	Mo	SA	Mo	SA	Mo	SA	Mo	SA	Mo	SA	Mo	SA	Mo	SA	Mo	SA
Consulting Engineers	3	3	3	3	3	3	1	1	1	1	1	1	3	3	3	1
Civil Contractors	3	3	3	3	3	3	1	1	1	1	1	1	3	3	3	1
Earth moving/yard machinery	3	2	3	3	3	3	3	3	3	3	1	1	1	1	3	1
Rail engineering	3	3	3	3	3	2	1	1	1	1	1	1	3	3	3	2
Track products	3	3	3	3	3		1	1	1	1	1	1	3	3	3	1

Source: Authors construction using interviews with 27 firms. **Note:** 3 means very important; 2 means important and 1 means not important. Mo=Mozambique SA=South Africa.

Note that Chinese firms have been the most successful in entering the market by financing the projects they eventually design and build in transactions linked to mineral exploitation.

The importance of aftermarket service provision and innovation capabilities to clients varies depending on the activity of the firm along the value chain. Suppliers of machinery equipment observed that the ability to provide aftermarket service for the purchase or lease of machinery equipment has in recent years become an important consideration for clients in the region as they realize that infrastructure facilities for repairs, maintenance and spare parts are essential for their competitiveness. Therefore, aftermarket sales are a core capability for machinery suppliers along the value chain such as earth moving equipment, signalling equipment and rail yard equipment suppliers. Machinery suppliers also note that large multinational clients tend to be sophisticated purchasers of equipment since some of the contracts may be in the range of billions of Rands. Moreover, there is associated customization to project specification.

How then do market participants across the construction value chain respond to client expectations? The table below compares South African domiciled firms' strategies to those strategies perceived to be deployed by new entrant firms from countries that are the main rivals to the South African domiciled firms. The table was constructed using information gathered from eleven civil construction firms in South Africa and Mozambique. There is a sharp perceived difference in the approach to price between on the one hand South African and established Portuguese and Italian origin firms and, on the other, Chinese and new Portuguese and Spanish origin firms.

Table 9: Strategies Used to Facilitate Market Entry

Strategy	China	SA	Est. Portuguese & Italian	New Portuguese /Spanish
Price below cost	3	1	1	3
Project completion	3	3	3	1
Low cost inputs	3	2	2	2
Client Networks	3	3	3	3
Project Finance	3	1	1	1
Strong coordination of supply chain	3	3	3	1

Source: Authors construction using interviews with 11 civil construction firms in South Africa and Mozambique. Note: 3 means very important; 2 means important and 1 means not important

The entrance of Chinese state-owned contractors has added to pricing pressures. These contractors use cheaper inputs (particularly lower quality plant and machinery) and are perceived to be heavily subsidised by the state. New entrant Portuguese and Spanish firms, especially civil contractors, are viewed to have followed an aggressive pricing strategy in which the price is set below the cost. This pricing strategy is a desperate survival strategy to exploit the market opportunities presented by the Mozambican market in order to cross subsidise the loss making operations in their home countries. However, the sentiment amongst the South African firms interviewed is that whilst this strategy initially worked, there is a growing weariness and awareness amongst clients as the new entrants push to win at any cost meant that they fast ran into cash problems and thus could not complete the work.

South African firms that have managed to counter these dynamics have done so by completing projects on time at the highest level of quality and service by implementing zero claim policies. Concrete evidence of the implications of the different approaches is that there are a number of cases where South African companies have been called upon to complete projects that have been abandoned or have been ill constructed by these firms. Quality workmanship has earned South African firms the respect of clients given their solid track record and reputation. These are firms that have been operating in Mozambique for some time and have experience across countries and can use their knowledge of logistical difficulties of coordinating the supply chains in remote isolated parts of the region as a competitive advantage.

Two South African firms that are relatively new to Mozambique have faced the same steep learning curve that other new foreign entrants, particularly European firms operating in Mozambique, face. They admitted that they are less timely in project delivery and quality is affected by the fact that they have not developed strong capabilities required to coordinate their supply chain. A South African civil contractor that has been the most successful at penetrating the region noted that an important factor that has worked as a competitive advantage is an employment policy that attracts a diverse multicultural work force. This has enabled them to mobilise their established pool of human resources, including those from Mozambique, to their Mozambican projects.

Strong coordination of the supply chain both through its organisation and access to competitively priced inputs is critical in construction activity, but more so in Mozambique as there is a systemic lack of availability in the supply of construction materials and services. Chinese firms have been the best able to coordinate their supply chain. This is because they are vertically integrated state owned firms (i.e. they have integrated construction materials and civil capabilities) with access to cheap inputs that are imported from China. South African and established Portuguese and Italian firms also follow a strong coordination of the supply chain and low cost input strategy. Foreign Direct Investment in parts of the value chain for which capabilities can be easily built and for which lower transportation costs enhances competitiveness has been amongst the strategies pursued. This is reflected by a South African diversified construction group with manufacturing capabilities in heavy low cost precast concrete products that has made investments in Mozambique and elsewhere in the region to serve the Mozambican market.

However the firms interviewed argue that the emphasis on low input cost is done without compromising on the quality of the inputs in order to deliver a quality project unlike the Chinese model of pursuing low input costs. These companies either import their inputs from South Africa or from China, Pakistan and India depending on cost and quality. The Chinese low input cost model is most pronounced in the earthmoving equipment segments of the value chain since the equipment is cheap and there are no infrastructure facilities to cater for client needs such as: repair and maintenance and spare part sales.

The establishment of strong relationships with clients was identified as an important strategy. Strong client relationships facilitate the dissemination of information on up-coming projects and create the opportunity for repeat work. There is a large degree of informality in nurturing these relationships, as they are not formalised into long term-exclusive right contracts as clients tend to be spoilt for choice. Firms from different countries adopt different strategies to nurture these relationships as a means of creating opportunity for further work. According to interviews, Chinese firms armed with their financing package strategy tend to use government-to-government bilateral negotiations as a means of nurturing client relations. Crucially, it is the Chinese government's strategy to develop its financing packages for construction projects in Lusophone countries through the island of Macau. Macau is a former Portuguese colony which was returned to China and thus has Portuguese speaking Chinese, who are used to enter Lusophone countries.

First tier domiciled South African firms (i.e. consulting engineers) are the main gateway of entry for second tier South African domiciled firms (i.e. track product producers and civil contractors). The large South African consulting engineering companies interviewed are multinational companies with Anglo Saxon origins (United Kingdom, United States of America and Australia) and have offices all around the world. All aside from one have entered South Africa by acquiring established local South African consulting engineering firms. The strategy has been used to use South Africa as a regional base from which to expand their footprint across the African continent where they have opened offices too. Their global presence means that their branches around the world have worked with global private clients particularly in the extractive industry such as Vale and Sasol in their operations in other parts of the world. This experience and relationship is then used to gain entry into other markets where these global clients have established new operations such as Mozambique.

Second tier South African domiciled firm nurture their relationship with these consulting firms because a) they have information on upcoming projects as they are the first contractor the client approaches and hire in the conceptual phase of the project which helps them to prepare for tenders and b) they have a degree of influence on the decisions taken by the client on whom to contract for the construction phase of the project. It is not uncommon for consulting engineers to recommend contractors and materials suppliers that they have worked with in the past, especially those that they have worked with in the prefeasibility phase of the project. However, the recommendation must be factually based on the competencies of the contractor and the consulting engineer must demonstrate these competencies to client.

6. Conclusion and recommendations

The study has shown two critical regional dimension issues with regards to the questions of infrastructure, growth and development. First, the development of diversified capabilities needs to be understood at the regional level and the large lead firms operate across the region as evidenced by large South African firms. Second, initiatives to support such development need to be coordinated regionally if they are to have maximum impact.

The direct linkages to the local and regional economies were critically assessed including understanding how the investments have been organized. An assessment of the institutional dynamics in terms of the lead firms, the role of the Mozambique state, and influence of other organisations such as the World Bank was done. The study further assessed the relationship of the infrastructure investments with the development of capabilities at the local, national and regional level. An evaluation of the extent to which local (Mozambique) and regional (especially South African) linkages are being developed was also done. In light of the above the following conclusions can be made in the following paragraphs.

There are three main actors responsible for rail infrastructure provision in Mozambique: donors, mining companies and the state. The procurement policy frameworks designed and coordinated by each of these actors were analysed in order to gauge the extent to which they factor in the building of local capabilities through local content policy or local linkage development policy as part of their procurement process. The analysis of the state's procurement framework revealed that while price and quality are given credence in the evaluation process, provisions are made for local participation, which gives preference margins to local Mozambican firms. The effectiveness of this tool is limited by the fact that its implementation is discretionary as there are no obligations on the part of the applicant to adopt preferential treatment.

The analysis also revealed that donor and private companies' procurement policies have inherent selection and participation biases that favour the inclusion of multinational companies while local Mozambican firms are less likely to participate. The size of these projects means this is understandable but they also do not have provisions that favour building of local capabilities. The study highlighted the potential for regional linkages and cooperation in building capabilities in Mozambique. South African firms have not been favoured by links to the lead mining company, international donors, or by state support and financing, however, they have won some major contracts and subcontracts.

Majority of South African firms reported shortages of critical skills particularly technical skills and key inputs due to the limitations of the Mozambican industrial base. The key input requirements along the rail infrastructure construction value chain consist of construction materials (i.e. cement, concrete products, aggregates, reinforcing and structural steel) and machinery and equipment supplies (particularly earth moving equipment). All materials aside from cement (which is locally purchased although of poor quality) are imported through local distributors or directly by companies from South Africa and other cheaper sources (i.e. India, China and Pakistan).

There is a clear indication of regionalisation taking place in Mozambique's rail infrastructure construction sector by virtue of the presence of South African domiciled firms in the major rail infrastructure projects. The continuation of regionalisation is also contingent on the nature of infrastructure financing as this sets the tone for the procurement strategy pursued. This is because in spite of the fact that the infrastructure project is being implemented in partnership with the state through a PPP arrangement, Mozambique's procurement legislation is such that the ultimate decision maker in the procurement process is the main sponsor.

Consequently, while traditional donors (e.g. World Bank, IFC, EIB) sponsored procurement practices aim to achieve competitiveness, it remains uncertain whether or not private and foreign state sponsored infrastructure projects will take into consideration competitiveness or nationality defined networks or a combination of the two in their procurement practices. For instance, the Nacala rail infrastructure case study showed that procurement practices are guided by a combination of competitiveness and national networks as Vale relies on its network of Brazilian firms while it also pursues a global sourcing strategy. On the other hand it is also true that Chinese sponsored projects have a tendency of only being open to Chinese firms. Therefore, further regionalization through private and state sponsored infrastructure projects under the current state will be determined by the whims of these actors' procurement practices.

As predicted the procurement environment favours foreign multinational companies as the evidence shows that there are no local Mozambican firms participating in the case study projects. The competitive strategies exercised by regional multinationals and those from China, Portugal, Italy, Brazil in response to procurement practices and business operating

environment are; competitive pricing, strong coordination of the supply chain, establishing strong relationships with clients which boost chances for repeat work and skills development due to unavailability of certain skills in Mozambique.

The procurement strategies used links with the financing agents. Private mining firms and donor agencies of the major infrastructure projects were found to be amongst the key factors explaining the reasons why local Mozambican civil contractors were precluded from these projects. The multinational participation and selection biases that colour the procurement regime are not necessarily driven by price competitiveness issues but rather by: the long track record, which is difficult for the local firms to fulfil because at least those interviewed are newly established firms; financial depth required for a mega project, which is difficult to come by as due to the poor capital markets and the firms lack of reputation and, mere size of the project, which packaged too big for the firms to swallow in spite of their seventh grade status.

Given the above, the following recommendations are made. First, given that civil construction sector is set to grow at the back of infrastructure investments and investments made in mineral exploitation, there is a clear need for the Mozambican government to formulate a sector specific strategy that will develop the civil construction sector's capabilities.

Second, there is scope for joint partnerships that could be mutually beneficial in building Mozambican capabilities, including partnerships with South African domiciled firms. A more integrated approach to jointly building capacity and capabilities is possible. It is important to note that this study was conducted at a time when the Construction Industry Development Board of South Africa (CIDB) has recently concluded a feasibility study on how it can assist its members to export contracting services to other African countries. The study was driven by the realization that South African contractors can apply and build their capabilities in projects across the continent. The CIDB study recommended the following, establishment of an information centre on cross-border opportunities and high level country reports, providing export business advisory to emerging contractors, and creating appropriate business relationships with established contractors among others (CIDB, 2015).

Third, finance is very important as firms need to prove their financial depth in order to participate in large projects through bank guarantees. This is a huge barrier for local Mozambican firms, due to under developed capital markets and limited track record in the industry makes accessing financing from banks a challenge. Therefore development financing is required through state backed guarantees. The possibilities of this financing are, highly dependent on the state's ability to extract the rents from resource exploitation. The continuation of regionalisation is based on the relative competitiveness of South African firms but it is also contingent on the nature of infrastructure financing as this sets the tone for the procurement strategy pursued. Therefore regional development financing of infrastructure is required to ensure that both local and regional participants in the infrastructure construction value chain benefit from these activities.

Fourth, the high price of key inputs also reflects the possibilities that exist in building strategic construction material manufacturing and retailing capabilities in Mozambique. The case of building a steel plant in Mozambique could be of benefit not only to the Mozambican industrial complex but also to the South African industrial complex as it could help to push down the price of steel in both countries.

Fifth, there is a need to change the discretionary nature of the state's procurement provisions by ensuring that the procurement lever is used to develop the capabilities of local Mozambican civil work firms. This should be done by a) enforcing preference margins favouring local Mozambican civil works firms' participation in cases where they have capacity b) enforcing

preference margins for joint ventures between foreign and local Mozambican firms in activities for which there are nascent capabilities to ensure that local Mozambican firms can deepen their capabilities.

Sixth, large multinational firms, specifically South African domiciled firms, have been involved in skills development. The use of South African training facilities is not only reflective of the sector's comfort with exploiting existing training relationships, however it is also reflective of the lack of trust that the sector has in Mozambique's training facilities. Further investigations are required to assess whether or not Mozambique's training facilities adequately meet the requirements of the sector. This must come at the back of research that digs deeper into local Mozambican's capacities and capabilities in civil construction across a range of complex infrastructure projects. Notwithstanding, there is a need for a skills plan that matches the firms skills requirements with the Mozambique's training curriculum. This could be done through partnerships entered into by South Africa civil firms, local Mozambican and Mozambican and South African training institutions.

Last, there is a need for system that reduces the delays at borders in Mozambique. That will enable construction companies to receive materials on time and meet project deadlines which also reduce cost to the client when projects are completed on the scheduled time. Government to Government relations between South Africa and Mozambique are required to understanding the governments' infrastructure plans and this information must be disseminate this information to South African domiciled construction value chain. Moreover the South African trade desk in Mozambique could provide a one stop shop that helps to deal with Mozambique's legislation and tender information.

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Appendix 1: Interview list South Africa

Rail Consulting engineers	Location
SMEC	Ferndale
Worley Parsons	Rosebank
ARUP	Melrose
Civil engineering	
Aveng Grinalker	Boksburg
Murray and Roberts	Bedfordview
Group five	Sunninghill
WBHO	Wynberg
Basil Read	Boksburg
Rail Construction	
Aveng Lennings Rail SERVICES	Boksburg East Johannesburg
Grindrod	Sandton
Rail Raw Material Provides	
Construction Machines	
Plasser South Africa	Rooderpoort
Yale Engineering Products (Import)	Honeydew Johannesburg
Bell Equipment	Boksburg
Barloworld	Isando
Sleepers Manufacturers	
Aveng infraset	Germiston
Cement	
Lafarge	Industria West
Afrisam	
Signaling Equipment	
ERB Technologies	Midrand
Rail	
Aveng Trident Steel	Mpumalanga
Scaw Metals	Newcastle

Appendix 2: Interview list Mozambique.

Institutions	Location
Ministry of Planning	Maputo
IPEME	Maputo
CTA	Maputo
Ministry of Public Works	Maputo
US SPEED	Maputo
World Bank	Maputo
Civil Engineering firms	
Texteira Duarte	Maputo
Canol	Maputo
Terratech	Tete
CETA	Tete
Arouca	Tete
ALM	Tete
Equipment Suppliers	
Equestra	Tete
Clients	

Vale	Tete
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