Final report

International Growth Centre

Background study for a strategy and policy framework to support the development of the construction and building materials industry in Mozambique

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December 2015

When citing this paper, please use the title and the following reference number:
C-36112-MOZ-1

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December | 2015

Background Study for a Strategy and Policy Framework to Support the Development of the Construction and Building Materials Industry in Mozambique

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Foreword

This report was written by the research team of the IGC Mozambique under the supervision of Country Director Cláudio Frischtak, at the request of – and in close collaboration with - the National Directorate of Building Materials and the National Directorate of Buildings of the Ministry of Public Works, Housing and Hydric Resources of the Government of Mozambique (MOPHRH), whose support and dedication we gratefully acknowledge.

This version of the report has been reviewed in December 2015, incorporating the feedback received during four consultation roundtables with industry stakeholders. The roundtables have been hosted in Nampula (31/8/2015), Beira (2/9/2015), Xai-Xai (4/9/2015) and Maputo (27/8/2015).

Outline

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List of Acronyms

CPI	Center for the Promotion of Investments
CB	Central Bank
CPCC	Council for the Promotion of Civil Construction
FFH	Fund for Housing Promotion
LEM	Mozambique Engineering Laboratory
MINEDH	Ministry of Education and Human Development
MIREME	Ministry of Mineral Resources and Energy
MEF	Ministry of Economics and Finance
MIC	Ministry of Industry and Trade
MINT	Ministry of the Interior
MITESS	Ministry of Labour, Employment and Social Security
MOPHRH	Ministry of Public Works, Housing and Hydric Resources
MCTESTP	Ministry of Science and Technology, Higher Education and Vocational Training
DNPE	National direction for public estate?
INEFP	National Institute for Employment and Professional Training
INNOQ	National Institute of Standardization and Quality
INE	National Institute of Statistics
NMU	Nhabinde, Marrengula and Ubisse

1. Introduction: Policy Objectives and Implementation Strategies

The construction industry has historically played an important role in the process of economic development in different countries. In the early stages of growth, there is often pent up demand for public infrastructure and housing. As the average income of the population rises, demand continues to run ahead of supply, and it is only at a much later stage – when the transition to a middle-income economy is complete, fertility rates decline, and the demographics point to an ageing population – that demand starts to abate.

Mozambique is not an exception. It is a young country, well-endowed with natural resources, which remains far from completing the demographic transition outlined above. The exploration of natural resources will allow for greater public and private expenditure in infrastructure and housing, as national income rises and creditworthiness improves. In fact, the construction industry has been experiencing a boom in recent years – this includes the construction of apartment buildings, hotels and related facilities, new office and shopping spaces, as well as railways, ports, highways, and water supply and wastewater disposal systems. Together, these investments already provide a sign of the transformation that the country will undergo over the next decade.

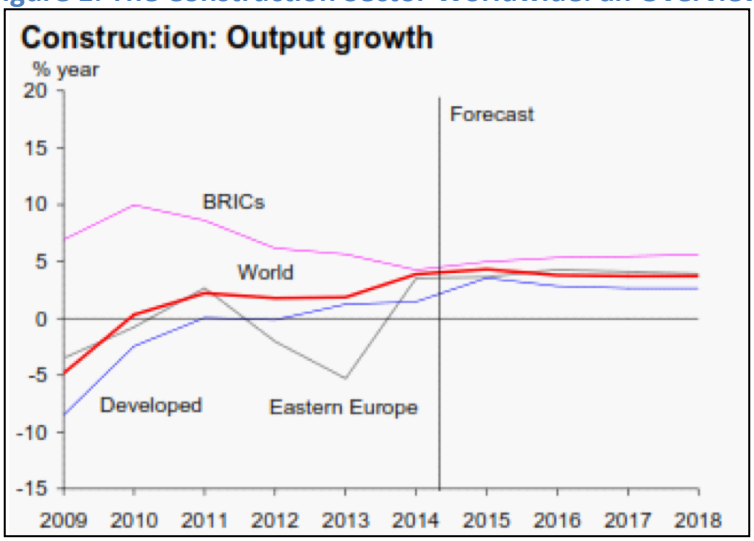
Since 1950, the construction industry has gone through a development process. Age-old artisanal methods, characterised by low labour productivity, high levels of material waste, and an inability to keep up with project timelines, have been progressively left behind. They have been replaced by modern construction methods, using heavy equipment and tools which enhance labour productivity, as well as new materials and construction systems. These changes required further training of the labour force and improved management practices.

The construction industry is part of an important value chain. First and foremost, it potentially generates demand for a multiplicity of industrial segments, which make up the construction materials sector – ranging from raw materials (crushed rock, sand, wood); to intermediate inputs (cement, bricks, steel); building components (hydraulic and electrical materials and equipment, frames); and finishing elements (glass, paints, varnishes) etc. Second, alongside the industry, there are important economic clusters that develop over time, ranging from financial, insurance and brokerage services, to maintenance and repair activities. In this context, it is worth reiterating the vital importance of an efficient financial system that can respond to the financial needs of both the final users (buyers of real estate) and the national construction companies.

Finally, the construction industry is critical to the well-being of significant parts of the population. Historically, construction is a very important employer, particularly in developing countries, and notwithstanding the adoption of more modern, more productive construction methods. Moreover, it plays a fundamental role in teaching new on-the-job skills to workers, many of whom had previously been farmers and petty traders. Above all, the housing construction industry is critical in supplying decent and affordable places for people to live. This has fundamental implications for household health, security and well-being.

How important is the industry globally? In 2013, construction accounted for a significant share – an estimated 5%- of the gross value added of world economy[1]? Furthermore, emerging economies are shown to experience a much faster pace of output growth than the world average (Figure 1). This growth is in line with a pattern outlined in the literature - the Bon Curve (Bon, 1992): as already noted, in the early stages of economic development the share of construction in gross domestic product increases, while it ultimately declines in advanced industrial countries. The reason is that sustained economic growth requires, and is accompanied by, heavy investment in physical, construction-intensive infrastructure. The intensity of this reduces with the expansion of the non-agricultural sectors, making this empirical relationship an inverted U shaped curve.

Figure 1: The Construction Sector Worldwide: an Overview



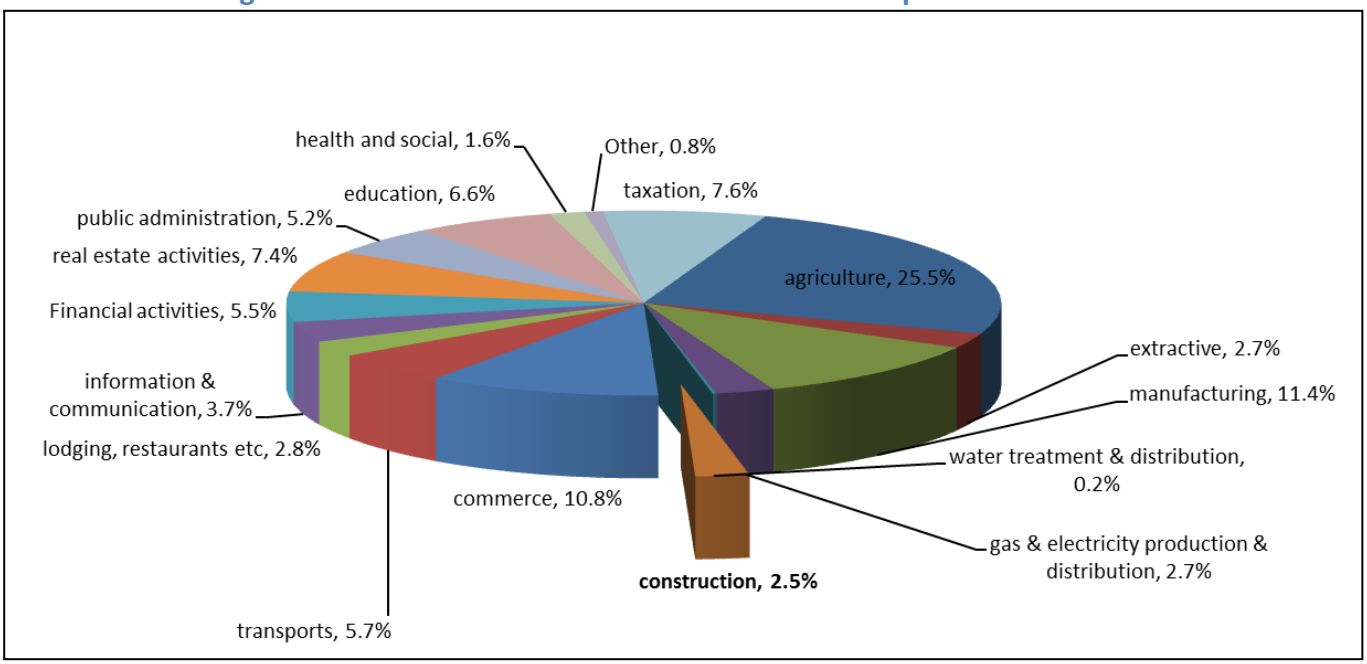
Source: Oxford Economics (2014)

Where is Mozambique positioned in the Bon Curve? From the late 1990s onwards, following the economic stabilisation program initiated in 1987, the construction sector in Mozambique has been expanding, representing an important source of employment, especially in the main cities. Still, the share of the sector in

[1] Oxford Economics (2014).

gross value added remains quite small at 2.5%, as shown in Figure 2 (versus a world average of 5%). Agriculture, commerce and manufacturing make up the greatest share of the total value added, contributing 47.7% in total.

Figure 2: Mozambican Real Gross Value Added Composition in 2013



Source: INE[2]

Mozambique is thus probably at the very beginning of the Bon curve, which denotes a significant potential for high and sustained sectoral growth in the future. Yet, what chance does the country have of moving up the curve in coming years? And what strategy and policies are required for the industry to maximise its medium to long-term contribution to economic development and an inclusive pattern of economic growth?

For Mozambique, the construction sector represents an important economic opportunity. Together with the natural resource industries – mining, natural gas, energy, and agribusiness – it has the potential to be a real catalyst of economic growth in the next decade. The key policy challenges are to develop a competitive industry; internalise the value chain; build capacity among all key agents – workers, managers, suppliers; and promote the entry of new firms and of indigenous entrepreneurs.

[2] http://www.ine.gov.mz/estatisticas/estatisticas-economicas/contas-nacionais/anuais

The aim of this document is to propose a policy and a set of strategies with the **Mission to realize the systemic competitiveness of the Mozambican construction industry, by addressing the barriers currently impeding its development.** The document details a number of initiatives and measures necessary to overcome such obstacles, and concludes that such changes could effectively transform the industry into a major driver of economic growth in years to come[3].

The **Vision** of the Policy Framework for the Development of the Construction and Buildings Materials Industries is of ***a dynamic construction sector, with strong links to local economic agents, which both simplifies access to dignified housing for the Mozambican population, and concurrently creates employment and business opportunities for local subcontractors and suppliers of building materials, thereby catalysing the industrial transformation of the Mozambican economy.***

This vision is consistent with the vision for industrialisation highlighted in the National Development Strategy (ENDE) of the Republic of Mozambique.

The remainder of this document is structured as follows. After briefly summarising the history of the construction industry in Mozambique and its recent dynamics, Chapter 2 provides an overview of the main structural features of the construction and building materials sectors in Mozambique. This sets the stage for Chapter 3 to identify the key barriers to the development of the construction industry, and those preventing Mozambican firms from competing effectively with international entrants. This chapter is based on evidence collected in 2012 and 2014, as well as on INE´s industrial surveys[4]. Consistent with the theoretical framework discussed in Chapter 3, the results indicate that policy and institutional barriers appear to be of the greatest significance to Mozambican firms, followed by demand, technological and skill-related constraints. Finally, Chapter 4 proposes four strategic pillars and nine broad policy objectives and implementation strategies, to

[3] Given the complexity of the issues involved and the limited availability of public financial resources, three points will be important for the effective implementation of this strategy: (1) to prioritize interventions, taking into account the government's budget constraints, (2) to incentivize the private sector in co-investing in potentially profitable areas where the public sector suffers limitations and the private sector can be work more efficiently and lower costs by, for example using instruments such as public-private partnerships (PPPs) and (3) to actively involve organizations of the civil society at the policy implementation stage.

[4] Our sample consisted of 70 firms based in Maputo and in the provinces of Beira and Nampula, the majority of them being in the construction sector. The survey also covered the largest associations and agents within the building materials sector. Notice that the building materials sector is characterized by high levels of informality. Even when firms are formally registered, their address is often not more than a post-box.

remove such barriers and promote the expansion of competitive construction and building materials sectors, namely:

Pillar A - Governance

1. Improve the governance of the Construction Industry by strengthening coordination, and the flow of information, within government, and between the government and the private sector. This would first entail establishing an ***Inter-Ministerial Forum of the Construction Industry,*** with the main goal of creating a high-level platform to discuss Construction Industry Policy, key Strategic Directives, and Implementation Action Plans. Then, the Inter-Ministerial Forum could be tasked with establishing a **Council for the Promotion of the Construction Industry**, the possible embryo of a future joint public-private National Institute for the Promotion of the Construction Industry. This Council would hold regular monthly meetings with associations and other strategic partners, such as the Mozambican Federation of Contractors (FME); the Association of Mozambican Consultancy Companies (AEMC); the Association of Engineers (*Ordem dos Engenheiros*); the Mozambican Industrial Association (AIMO); and the technical staff of the Ministry of Public Works and Hydric Resources (MOPHRH), among other partners and ministries. This Council should also maintain a close working relationship with the Coordination Unit of the National Development Strategy.

2. Enhance the level of intra-industry trust, while reducing search and screening costs, by supporting greater horizontal and vertical cooperation within the construction and building materials sectors. Encourage the development of consortia of construction companies, especially for larger/more complex works, in order to create an environment of greater mutual trust, while promoting knowledge-sharing and the improvement of methods and results.

3. Promote the structural transformation of the construction industry – regarding both services and materials - by strengthening the formal presence of Mozambican firms in the market. The first step is intended to reduce the level of informality in the industry, ensuring that local firms, already present in the business – albeit on an informal basis –, are able to participate directly and indirectly in formal transactions and contracts. Most importantly, informality is an effective barrier to the growth of indigenous firms and should be reduced to a minimum. The Council proposed in objective 1, if approved, could be tasked with identifying concrete steps to eliminate informality in the construction

industry. The first step could be to set up a Working Group to reform the current regime of direct and indirect taxation and benefits. This Working Group could also review the procedures regulating firm registration and public procurement, as they relate directly to the construction and building materials industries.

Pillar B - Quality

4. Increase the overall level of product quality, and industry productivity, by fostering better management practices and technological improvements[5]. One of the first tasks for the future ***Council for the Promotion of the Construction Industry*** could be to study cross-country experiences, and establish a National Program for the Quality of Public Works. This could possibly be achieved by introducing a scoring system similar to the Brazilian QUALIOP. The system would reward certification, and the conformity of construction processes to international standards, in all public works tenders, in a gradual and increasing manner. This approach could also be extended to construction materials.

5. Enhance the quality of the construction industry workforce, by establishing a comprehensive program for technical training and skills acquisition, with a focus on the mid ranks of the workforce. **The Council for the Promotion of the Construction Industry** could take the lead in the design, roll out and advertisement of the program, with the active involvement of not only the public and private sectors, but most importantly, of education and training institutions. It is worth noting that this objective is aligned to one of the industrialisation pillars defined by the Ministry of Trade and Industry. This foresees improvements in the quality of the Mozambican workforce through investments made in vocational training; linkages forged between higher education and the processes for capabilities certification; and the promotion of internships. These aspects are equally relevant for the construction sector workforce.

[5] One approach could be to disseminate tools and instruments allowing managers to regularly assess/diagnose their day-to-day practices, following the example of the Brazilian Management Excellence Model (MEG), which has recently been extended to South-Africa (SAEXIII).

6. Progressively bring Mozambican firms up to international standards. This would require a multi-pronged approach. ***First***, the government should encourage Mozambican firms to bid for and engage in public works of increasing complexity, starting with simpler projects (such as the building of secondary roads), but mostly through multi-year maintenance contracts of public assets (such as highways). ***Second***, cooperative ventures among Mozambican firms should be promoted, with technical assistance offered by primary contractors of sizable and complex projects procured by the government

Pillar C - National Synergies

7. Design a **National Plan for the Utilisation of Natural Resources for the Production of Construction Materials.** The plan should focus first on Natural Gas, given the high value-added of the materials which would benefit, in terms of cost and quality, from its stable and cost efficient supply (for example cement and ceramics, among others). In addition, the plan should assess the possibility of using other natural resources, such as wood and hard-burnt coal, in the production of traditional building materials, so as to integrate local producers into a wider value-chain.

   In relation to natural gas, over the coming 1-2 years, Mozambique will need to define how best to make use of its reserves: In particular, the proportions that will be allocated to direct and indirect consumption. Natural gas has many alternative uses, both as a fuel and as an input into productive processes. An elastic supply of gas could promote entry into the building materials sector for both domestic and international firms on a competitive basis. Mozambique could in fact become a regional hub for certain building materials. The National Plan would define the location of two or three main production clusters of construction materials, taking into account the source of raw materials, transportation logistics, market?, and the point of access to natural gas.

Pillar D – Financing

8. Supply affordable housing to the population, protecting the most vulnerable urban and rural segments from land grabbing. The dual objective - of improving population living standards, and of creating what may be the largest (and potentially relatively stable) market for the building materials sector - would thereby be attained. In order to achieve this aim, the government should design a **National Plan for**

Social Housing, contemplating first, the introduction of more cost-efficient construction processes, and related tools and components, directed to large scale housing projects. Second, the Plan should ensure that construction processes respect regional and urban-rural variations, including the use of local designs, raw materials and methods. Finally, the Plan should establish a set of actions to support the development of the mortgage industry, with the active involvement of private banks.

9. Enhance access to credit for firms in the construction and building materials industry. International experience underlines the importance of progressively developing a market for securities (such as infrastructure bonds) and the leasing of equipment, with an emphasis on medium-sized contractors. More specifically, the Inter-Ministerial Forum – once created - should convene a **Working Group on Financing Instruments for Construction Firms**, tasked with suggesting specific recommendations by 2017.

These pillars are aligned with the industrialisation pillars specified in the National Development Strategies, which focus on the enhancement of workforce capabilities and investments in infrastructure, amongst other things.

2. The Mozambican Construction Industry

This chapter provides an overview of the history and recent dynamics of the construction industry in Mozambique, followed by a description of the main features of the construction and building materials sectors in the country.

2.1. The Construction Industry in Historical Perspective

The construction industry in Mozambique can be traced back to the 1930s, when the first small-scale firms producing cement and bricks were established. Portugal's economic strategy in the 1930s reserved a special role for its African colonies - including Mozambique - as reservoirs of cheap labour; suppliers of primary goods; markets for industrial goods; and important bases for investment and overseas employment for the Portuguese. The Portuguese authorities introduced deliberate measures to build the first generation of locally based commercial and industrial ventures in Mozambique. By 1975, Mozambique was the 8th strongest industrial power in Africa, with a relatively diversified industrial base (Tyler et al, 1999).

Mozambique's independence in 1975, followed by the adoption of a centrally planned economy, led to systematic state intervention in economic affairs. Incentives for private sector investment were suppressed, causing a large-scale exodus of human and physical capital, with devastating long-term implications for the industrial capacity of the country. At this point, the government reinforced centralisation, created state companies, and hardened price-control mechanisms to oversee the allocation of scarce resources in the economy. The government nationalised the cement, iron and steel industries. It also created civil and heavy construction state companies at the regional level, under the Ministry of Public Works. In 1977, the government announced the nationalisation of the housing market. To address the problem of the scarcity of qualified labour, the government increased expenditure in the education sector, and established training schemes in partnership with Russia and Cuba.

While these economic reforms succeeded in increasing gross production and employment up until 1981, by 1983 it became clear that these policies were unsustainable. The measures implemented lead to costly distortions in the allocation of resources, and, in particular, to the disruption of production in the construction

industry's value chain. Moreover, the reforms did not accomplish their stated goal of reversing the long-term effects of the colonial ban on the development of domestic businesses. Rather, they failed to create a more skill-oriented system of apprenticeship and capacity building for workers and managers.

Rural production suffered dramatically during this period, reducing the supply of raw materials to the construction industry, as well as the demand for industrial output. Production of tea, cashew nuts, cotton and sugar, the country's main exports at independence, dropped dramatically. The combined effect of the reduced supply of domestically produced raw materials; the limited access to foreign exchange reserves associated with declining exports; and the drop in the demand for housing and infrastructure, brought the construction industry to the brink of collapse.

By 1987, the cement industry was working at less than 50% of its capacity. The civil and heavy construction sectors were stagnant, surviving on state subsidies and public tenders, whilst continuing to employ a workforce, a significant proportion of which was redundant. Moreover, the war - coupled with natural disasters - destroyed whatever limited infrastructure existed, and disrupted the existing road network. Colonial era logistics and accumulated expertise, as well as market intelligence, within the civil and heavy construction sectors, had in fact suffered a second adverse shock, following the reported massive exodus of skilled labour. Furthermore, the nationalisation of the housing market in 1977 blocked a potential channel for the development of domestic entrepreneurial skills, as well as an important source of capital and economic growth.

Mozambique turned to the World Bank and to the International Monetary Fund in 1984. This was followed by the introduction of the Economic Rehabilitation Program (SAPs) in 1987, and a market-friendly Constitution in 1990. For the construction industry, the SAPs privatisation and liberalisation policies implied not only changes in terms of asset ownership, but also: (i) greater exposure to global competition; (ii) the emergence of a competitive housing market; and (iii) new opportunities for partnership with foreign private capital.

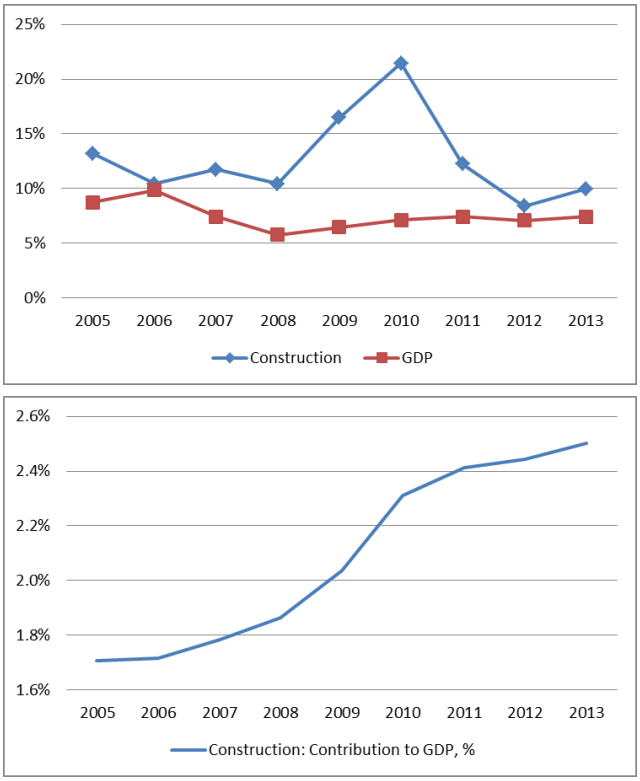
However, it became clear that competing in a global industrial environment required a number of assets, tools and capabilities that Mozambican firms did not have the opportunity to develop or invest in. Despite strong dynamism, and potentially a large domestic demand, these firms have since faced institutional and technological barriers, among others, which have severely constrained their growth (as discussed in chapter 3).

2.2. Recent Dynamics of the Construction Industry

Mozambique has sustained an average economic growth rate of 7% over the last decade, with the construction industry expanding at an even higher rate (Figure 3 - top panel). This has led to a gradual increase in its contribution to gross value added (bottom panel). Empirical evidence provided by Lowe (2003) shows that the share of the construction sector to GDP in developing countries ranges from 3 to 6%. Mozambique's construction sector appears at the lowest end of this range, with an estimated share of 2.5% in 2014. This is expected to grow with investment in social and economic infrastructure in the accelerated growth areas (growth poles) foreseen in the National Development Strategy, combined with a response to an excess demand for housing, offices and other real estate assets[6].

[6] In the U.S. for example, the construction sector – including transportation infrastructure and housing - contributed an estimated 3% to GDP (US$380 billion) in 2010. In China, the contribution of construction to GDP increased from 3% in 1981 to 7% in 1999 (You-jie, L. and Paul Fox, 2001); while the construction sector's 2013 contribution to Brazilian GDP was estimated at 5.4%, according to the Brazilian Chamber of the Construction Industry (CBIC). In Singapore, one of the earlier countries to recognise the importance of the sector, construction accounted for 4.4% of the country's nominal value-added in 2013. According to Aized et al (2007), the development of the construction industry in Singapore over the past four decades also provides a good example of a holistic and comprehensive long-term policy approach. The Singaporean government recognised the importance of the sector's continuous development, through a strategy addressing constraints related to human resources, materials, technology, corporate development, improved documentation procedures, procurement, contracts, operating environments, payment chains, trade associations and institution building. It did so while relying on a central body governing the construction industry- the Building and Construction Authority (BCA) - created in 1999. Specifically, in Singapore, any construction firm wishing to undertake a public-sector project must register with the BCA under the Contractors' Registry System (CRS). The criteria for registration, which is subject to occasional review, include: track record; paid up capital; personnel employed; quality certification; and environmental, health and safety management systems. The licensing scheme for contractors requires firms to be financially sound; have good safety records; and to employ qualified and experienced personnel to manage the firm and supervise works. Aized et al (2007) report that the institution of the registry system can be considered as 'good practice', that has resulted in streamlining pre-qualification procedures, making them more efficient.

Figure 3: Macroeconomic Trends of the Construction Sector in Mozambique

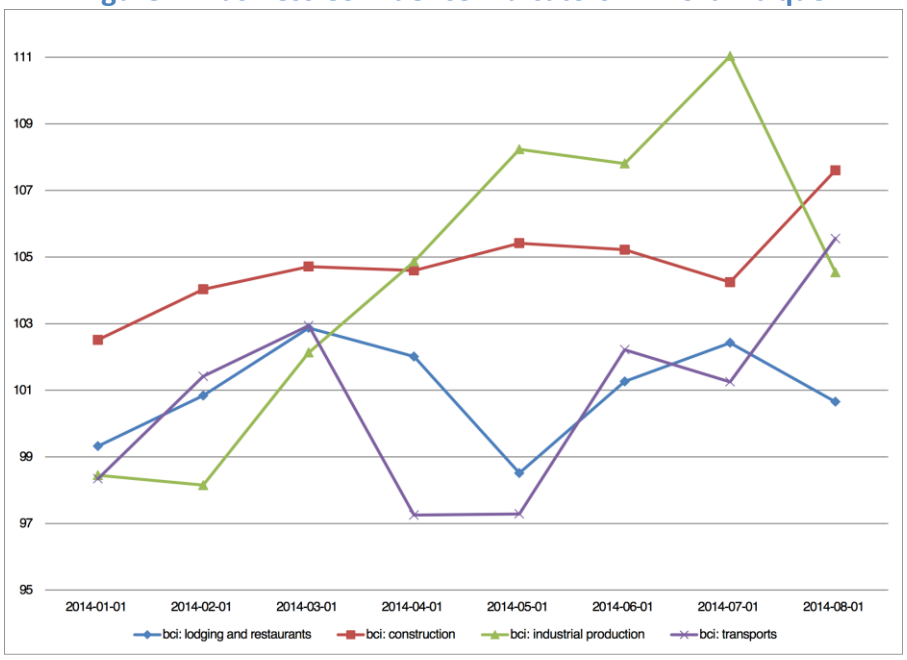


Source: INE

Since the end of the civil war in 1992, Mozambique has spent billions of dollars building and repairing roads, enlarging harbours and rehabilitating railways. Commercial and residential real-estate construction has grown in response to rural–urban migration combined with the emergence of an urban middle class. In the last five years, Mozambique has also experienced an increasing demand for heavy construction works in railways, roads, airports, ports, dams and production facilities, in response to major investments in coal, and more recently natural gas. At the same time, the country's housing deficit is estimated to be approximately 2.5 million units, a potential source of pent-up demand for construction services and materials (Sutton, 2014).

Business confidence in the construction sector has remained strong (Figure 4). According to a monthly survey conducted by the National Institute of Statistics (INE) in 2014, confidence in the construction sector (red line) has been high, and on average, better than confidence levels in other sectors such as industry, lodging, restaurants and transportation. Net of seasonal variation, it is clear that the current boom and positive prospects are feeding into greater levels of confidence.

Figure 4: Business Confidence Indicators in Mozambique

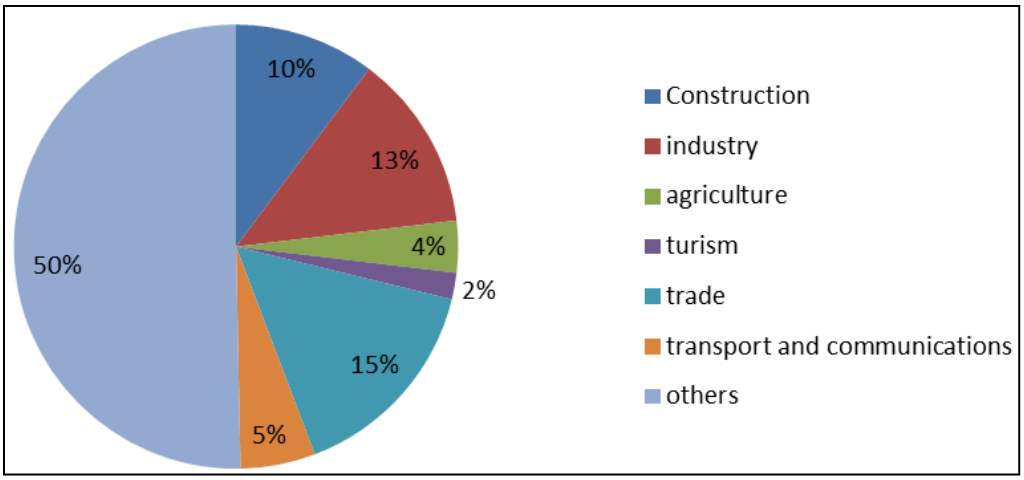


Source: INE

In 2014, construction received 10% of total credit provided within the economy, compared to trade (15%), agriculture (4%) and industry (13%), as shown in figure 5. Arguably, this would not characterise a scarcity of credit to construction, insofar as it is four times its GDP share of 2.5%. However, credit availability it is still perceived as a barrier, likely due to the fact that its distribution is possibly quite skewed against SMEs[7].

[7] According to Fumo and Jabbour (2011), lack of funding is one of the most relevant problems for small and medium sized enterprises in Mozambique; and it is related mainly to difficulty in accessing credit and complying with credit guarantees.

Figure 5: Credit Given to All Sectors of the Economy in 2014



Source: Bank of Mozambique

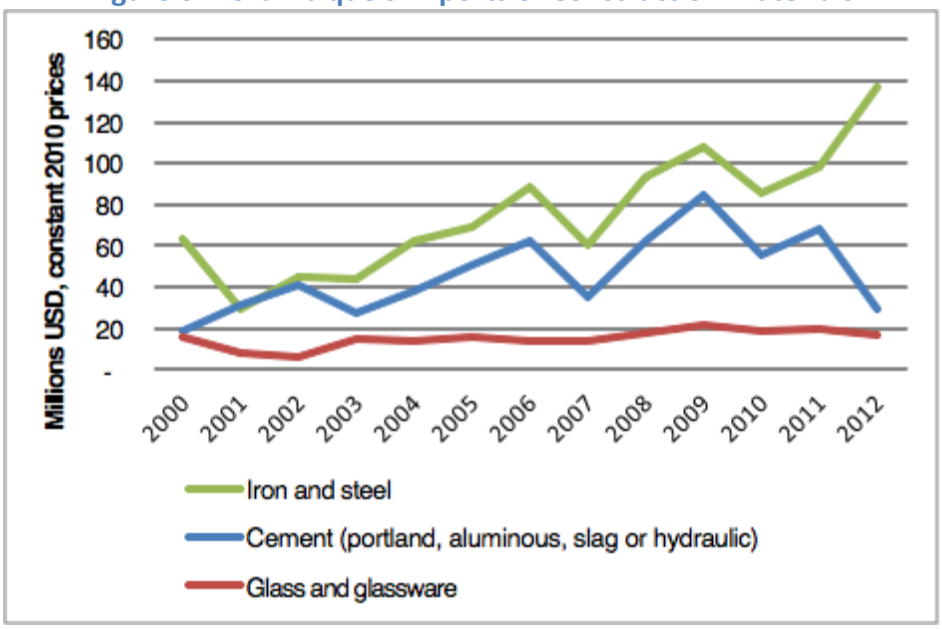
The weight of investment flow to the construction sector was still quite modest - at 1.9 % - in 2009 (PIREP, 2010). Foreign direct investment (FDI) in the last ten years has mostly been directed to extractive activities, and the manufacturing industry (in 2000-2012, these sectors averaged 53% and 21% respectively, of total FDI inflows). The share of the construction industry has historically been in the order of 1%, reaching a 2005 peak of 8%, and returning to its long-term average in the immediate aftermath[8].

Finally, despite the construction boom, the building materials sector (cement, iron and glass, among others) has grown by a yearly average of only 2% in the period 2005–12 (Sutton, 2014). A distinguishing feature of this industry in Mozambique, is the sharp divide between the larger, mostly foreign owned firms, and the medium and small-sized domestic companies. The former enjoy the advantages of business links to foreign investors and markets. Domestic firms, on the other hand, suffer from a range of weaknesses, including low product credibility; a lack of certification, technology and qualified labour; and limited access to credit. This has led to an overall failure of the domestic industry to meet the growing demand from the construction sector, with contractors covering the supply gap with imports (Figure 6). Interestingly, from 2011 to 2012, while imports of iron and steel-based products continued to grow, those of cement began to decrease in response to the recent strengthening of internal production[9].

[8] Among foreign investors in the construction sector, the Chinese play an important role. Investment in construction has, on average, accounted for 4% of total Chinese investment, over the last ten years. Chichava and Alden (2012) estimate that, of the total employment created by Chinese investments, 11% is in the construction sector.

[9] The share of imported cement is declining especially, due to (1) the entry of a new company in 2011, Cimento Nacional, with a production capacity of 250,000 tonnes per year, and (2) the expansion by 400,000 tonnes of the annual production of Cimentos de Moçambique, the market leader since the Mozambican independence. According to the governmental

Figure 6 Mozambique's Imports of Construction Materials



Source: UN Comtrade

2.3. The Structure of the Construction and Building Materials Sectors

The Construction Sector. According to the latest data from the MOPHRH, there are a total of 2,493 formal companies in the construction sector. These are divided into seven categories, according to their size, and technical and financial capacity. Following ACIS (2008), contractors are registered and licensed to bid for public works contracts of different categories based on a minimum capital requirement. Figure 7 (a) shows the capital requirement for Class 1 (licensed to work on contracts of a value not exceeding 350,000 meticais) up to Class 7 (the class licensed to work on contracts of a value exceeding 50 million meticais). A different class license (in Portuguese *alvará*) corresponds to each class. In addition, for each class of alvará, there is also a minimum requirement in terms of technical staff that the firm must retain (Figure 7, b)[10].

plan for 2014, the expected start-up of five new cement plants should reduce the level of imports even further. Apart from Cimentos de Moçambique, there are three other producers now operating, each with a single factory: Cimentos de Nacala, Sunera Ltd and Cimento Nacional Lda. Total industry capacity is already in excess of domestic consumption, but operational problems and regular interruptions to production tend to limit supply. In particular, Mozambique has abundant deposits of limestone, but the logistical challenges to mining many of the deposits have limited the supply of clinker to domestic cement makers (over 3 million tonnes of clinker were imported during the period 2005–12). (Sutton, 2014).

[10] "Public Works and Civil Construction Contractors Licensing Regulation", Annex 4 and "Regulation of Activities of Public Works and Civil Construction Contractors", Article 36 and Ministerial Diploma 101/2005 of 18 May.

Figure 7: (a) Minimum Capital Requirement by Value of Public-Work Contract (B) Minimum Requirements in Terms of Technical Staff by Classes of Registration

(a)

Class	Maximum value of each work (in thousand meticais)	Minimum company capital (in thousand meticais)
1st	350	20
2nd	850	50
3rd	2500	150
4th	5000	500
5th	15000	1500
6th	50000	5000
7th	> 50000	10000

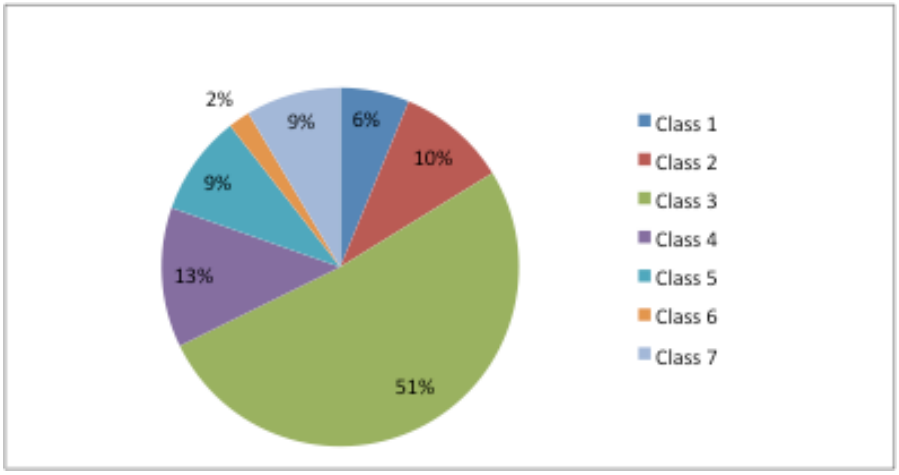
(b)

Class	Permanent Technical Team	Technical Director
1st	1 civil builder or similar	Civil builder or similar
2nd	1 civil builder or similar with 5 years experience	Civil builder or similar with 5 years experience
3rd	1 mid-level engineer and 1 civil builder	Mid-level engineer
4th	1 engineer or architect and 1 mid-level engineer	Engineer, architect or mid-level engineer with five years experience
5th	2 engineers or 1 engineer and 1 architect or 1 engineer and 2 mid-level engineers	Engineer or architect with over five years experience
6th	3 engineers and 1 mid-level engineer or 2 engineers, 1 architect and 1 mid-level engineer	Engineer or architect with over five years experience
7th	5 engineers and 2 mid-level engineers or 3 engineers, 1 architect and 2 mid-level engineers with more than 5 years experience	Engineer or architect with over five years experience

Source: ACIS (2008)

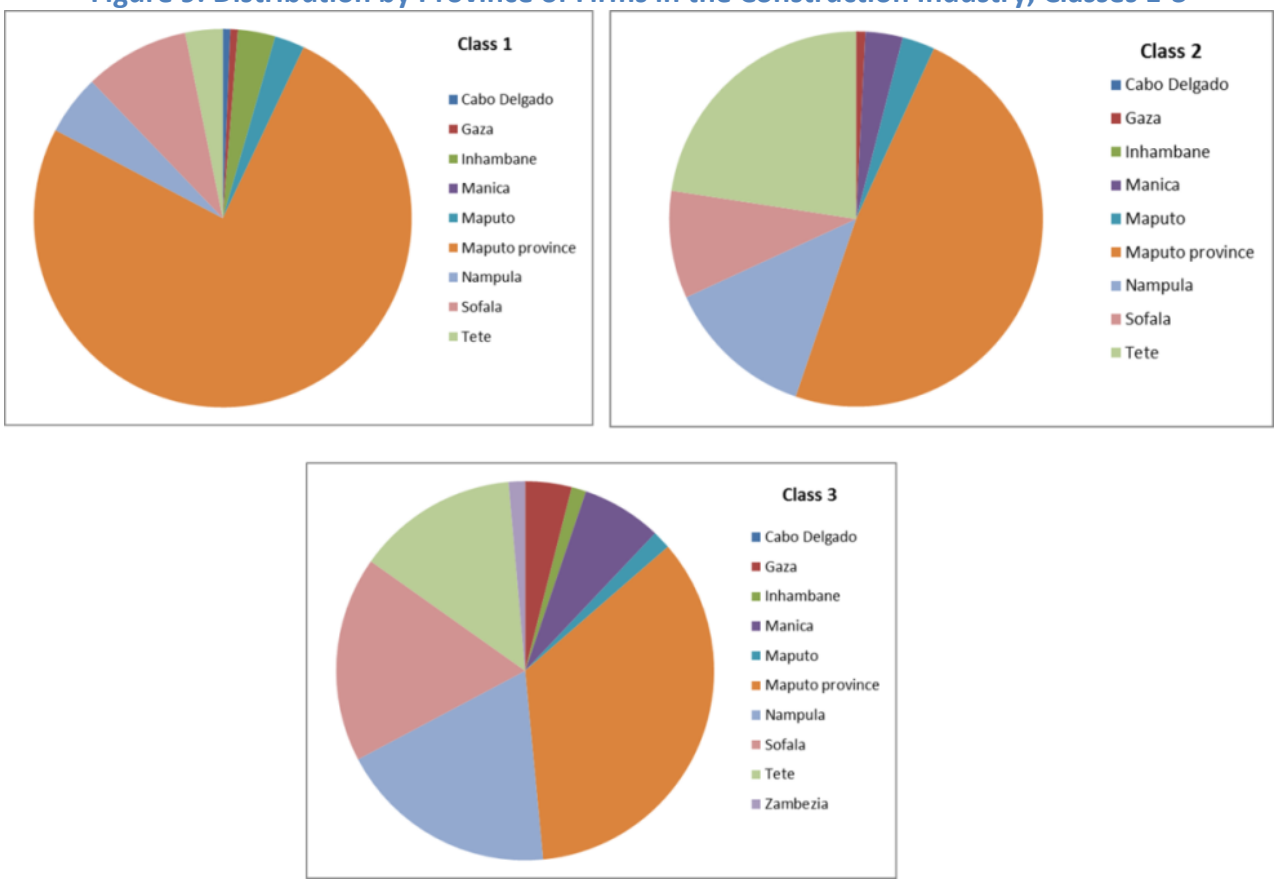
Figure 8 shows the distribution of companies across categories. Classes 1 to 4 encompass small and medium sized enterprises, employing on average up to 50 employees at peak employment. Together, these 4 categories represent approximately 80% of the contractors in the country. At the same time, some 9% of companies are in Class 7, not an immaterial number, as ***215 firms*** falling in the top category are therefore able to respond to more demanding tasks.

Figure 8: Mozambican Construction Firms: Distribution across Classes



Source: Calculations based on MOPHRH 2014 data

Figure 9: Distribution by Province of Firms in the Construction Industry, Classes 1-3



Source: Calculations based on MOPHRH 2014 data

PIREP (2010) provides data on the distribution of construction companies by sub-sector in 2000. "Residential buildings construction" was the largest, accounting for about 65.5% of the total, followed by "Construction-

specific activities", with 27.5%. The latter includes demolition and preparation of building sites, electrical installations, plumbing and air conditioning, carpentry and window frames plastering, flooring and other finishing activities. Companies providing construction services specific to large infrastructure projects, including motorways, roads, bridges, and water-transport networks, represented only 7% of the sector.

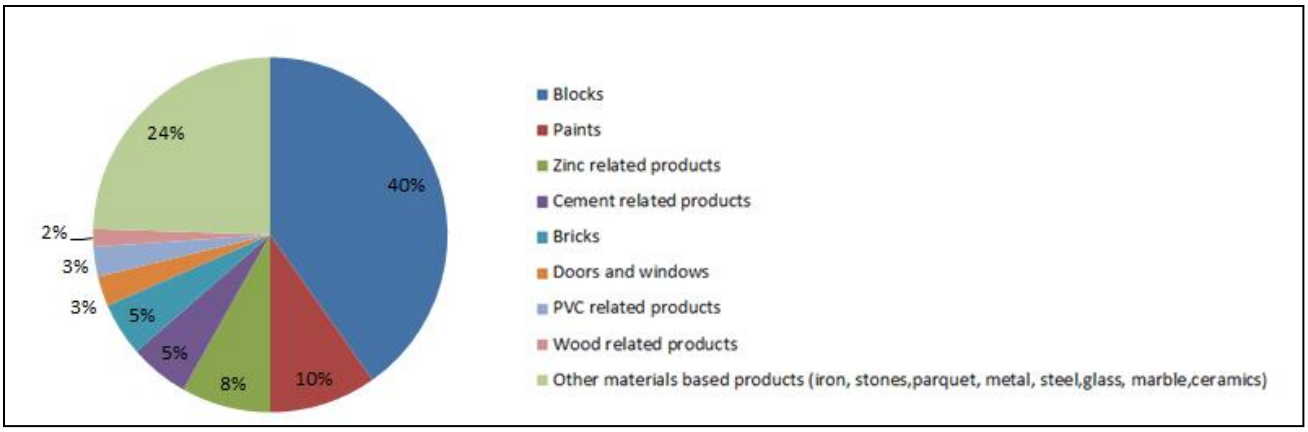
Finally, most firms of classes 1-3 are concentrated in Maputo (Figure 9). The size and dynamism of the Maputo market implies a relative preponderance of smaller companies - Class 1 - in the province. The provinces of Sofala and Nampula also play an important role in the distribution of micro sized companies. For small firms - Class 2 and 3 - Maputo City and Province continues to be most attractive, but the provinces of Inhambane, Nampula and Sofala are in second, third and fourth place respectively.

The building materials sector. The MOPHRH reports that the building materials industry in Mozambique is comprised of a total of 184 formal companies. This is a very limited number, arguably inconsistent with the size and dynamism of the construction industry. Only a few segments of the sector are subject to significant economies of scale (for example, cement). One should therefore observe a relatively large number of firms, with a few in highly concentrated markets, but the majority in markets that are more fragmented and regionalised. This can, however, be explained by the fact that the sector is characterised by a high degree of informality.

Figure 10 provides an indication of the distribution of companies by type of materials produced. A large share, roughly 40%, is involved in the production of various types of building blocks, while 5% produce bricks. The latter are relatively easy to produce, requiring only clay and a ceramic oven, heated by any type of fuel. Another 10% of firms produce paints, mainly using imported intermediate inputs; and 8% produce zinc-based products, such as tin roofs. The remainder produce a wide range of materials composed of metal, glass, steel and marble. Finally, 5% of firms produce cement, while a smaller proportion produce PVC and wood based products[11].

[11] Notice moreover, that In Mozambique, almost all large construction companies produce their own supplies. Major companies include the Hariche Group, Mukoque Construction and SOMOFER. Traders in construction materials sell to both construction firms, and wholesalers and retailers. In some cases they also offer logistics, business brokering, storage and distribution services (Sutton, 2014).

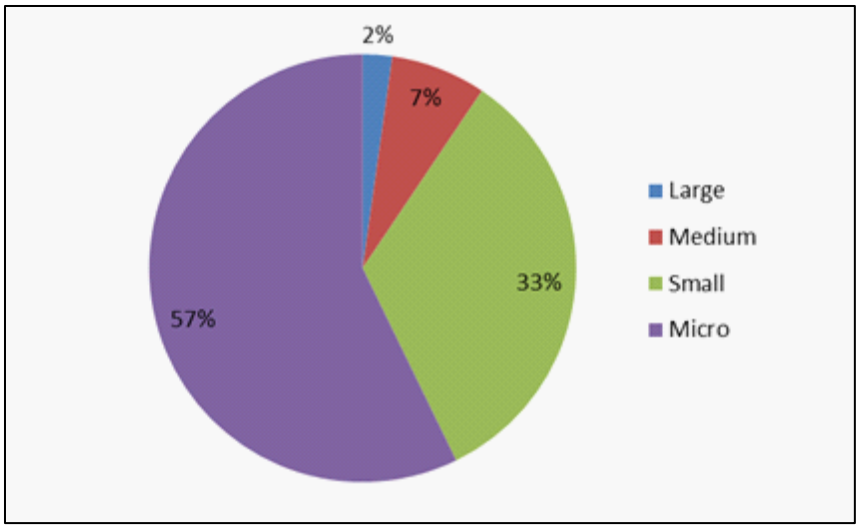
Figure 10: The Building Materials Industry: Main Categories of Products



Source: Calculations based on MOPHRH 2014 data

The size-distribution of firms in the building materials industry is heavily biased towards micro and small enterprises (Figure 11): 57% of the firms employ 1-9 full-time staff, and 33% 10-49. Medium-sized firms (50-299 full-time employees) account for only 7% of the total, and large firms (300 employees and above) for no more than 2%. ***This suggests relatively greater structural weakness in the building materials sector, when compared to construction services – both in terms of firm number and size distribution.*** While, in the construction sector, one-third of the firms are class 4 or above - i.e. medium to larger size - in building materials, only 9% are medium and or large. These figures also provide an indication of the degree of informality in the sector: in most – if not all – developing economies, micro and small enterprises tend to "slip" into informality in order to survive.

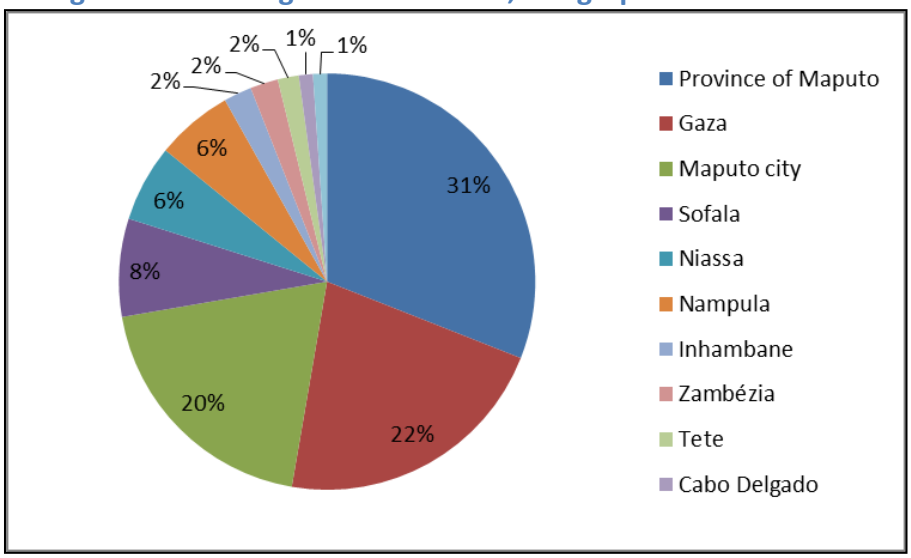
Figure 11: Building Materials Firms, Distribution by Size



Source: Calculations based on MOPHRH 2014 data

Finally, most building materials firms are concentrated in the southern region, as Maputo acts as a catalyst for various economic activities (Figure 12). Together, Maputo city and province account for roughly 50% of registered firms, with the remainder distributed between Gaza (22%) and Sofala (8%). This distribution is in part a reflection of the lack of communication infrastructure, which discourages firms from decentralising their activities, but it is also driven by the attractiveness of the Maputo market.

Figure 12: Building Materials Firms, Geographical Distribution



Source: Calculations based on MOPHRH 2014 data

In sum: the latest MOPHRH data points to three salient structural characteristics of the Mozambican construction industry.

First, in both the construction and the building materials sectors, the majority of firms are micro or small/medium-sized. Combined with their lack of experience, this makes it very difficult for them to successfully compete with their foreign competitors, such as South African, Portuguese or Chinese construction firms.

Second, there is a significant difference between the construction and the building materials sectors. The latter is a producer of tradable goods, facing significant import competition, and characterised by a relatively small number of formal firms (less than 7% of the industry total), 91% of which are small and micro.

Third, there is a significant geographical concentration of firms in the construction sector in the Maputo province, whilst in building materials, there is also a strong presence in the provinces of Sofala and Nampula. However, outside of those three provinces, there are relatively few firms, at least in the formal sector. One significant corollary: as the decentralised demand for housing and infrastructure picks up in coming years, the industry should also expand to other provinces, and hopefully a gradual reduction in informality will accompany this process.

3. Obstacles to the Development of the Construction Industry

The construction industry holds great potential for broad-based growth, employment generation, capital formation, and technological absorption and development. Through its backward and forward linkages, it stands as a foundation for structural change (Bakar, 2009, Wells, 1986, The World Bank, 2004, Ofori, 2005). Despite the potential of the construction industry for fostering structural transformation and economic development, institutional and related barriers appear to have been the main constraint to the growth of the sector (World Bank, 1984). In what follows, we provide the theoretical framework that explains how such barriers can emerge.

3.1. A Theoretical Framework

Generally, buyers and sellers enter into construction transactions, requiring significant amounts of capital, and facing uncertainty and exposure to two basic problems of asymmetric information: hidden information and hidden action (Tirole, 1993 and Williamson, 1995). The problem of hidden information arises because construction projects are highly demanding in terms of information about the market players, the quality of materials used, the level of effort required, actual costs, and technical specifications. This information is not readily available and is costly to obtain.

Once the contract for a construction project is awarded, the hidden action problem emerges. Due to the monetary amounts involved, market practices include requests for payment of some project costs before the project activities are undertaken. Without appropriate enforcement mechanisms, this raises the risk of opportunistic conduct, including shirking, delays, and the delivery of poor quality goods (Williamson, 1995).

A solution to both problems would be to write detailed and complete contracts. This, however, is nearly impossible, as market players in the construction industry cannot anticipate every contingency, and their output is also a function of the environment. Contingencies increase with the time-scale involved in delivering the project. Informational asymmetries result in increased uncertainty and risk when embarking on construction projects. To safeguard against the associated economic and financial costs, principals – typically the government in public works - resort to the use of incentives for effort. Additionally, in most countries, the industry makes widespread use of insurance, often combined with limited liability mechanisms. Suppliers invest in building reputation as a signalling device of their capability to deliver; while the government

introduces standards and regulations for minimising transaction costs, and creates adequate mechanisms for the resolution of business disputes. The basic objective is to increase the level of trust in the market.

Countries have succeeded, by improving contract enforcement capabilities, through an effective judiciary system and an appropriate regulatory framework. Moreover, a better institutional and legal framework encourages the lowering of prices for financial services. This increases the availability of project finance at affordable interest rates - fundamental for a sustained take-off of construction projects.

Most developing countries are lagging behind because the degree of trust is low, while the institutional framework is still evolving against the backdrop of a weak judiciary system. In such an environment, market segmentation is the dominant feature (Wells, 1986). Financial sector intermediaries demand high interest rates, consistent track records, and levels of collateral that are hard for domestic construction companies to comply with.

An additional problem for such companies is related to the way business is conducted in response to the problem of discontinuous production and fragmented demand. The dominant market practice is subcontracting, meaning the use of casual labour associated with widespread reluctance to invest in fixed capital. This is an appropriate response to uncertainty because it provides a high degree of adaptability and flexibility in the use of resources within the industry. However, subcontracting only leads to the desired results where construction resources (manpower, material, machines, and technology) are readily available and of a high standard. These constraining factors have serious implications for most developing countries, where there is often a significant scarcity of qualified manpower; access to materials and machines for hire is limited; and the technology base is low (Wells, 1986, Ofori, 2005, Bakar 2009, Wong and Tomas, 2010).

From our surveys, the available empirical evidence for Mozambique corresponds with the findings of the literature: institutional and policy-related barriers play a crucial role in the development of the construction sector, and extend to building materials.

3.2. Evidence from INE Surveys

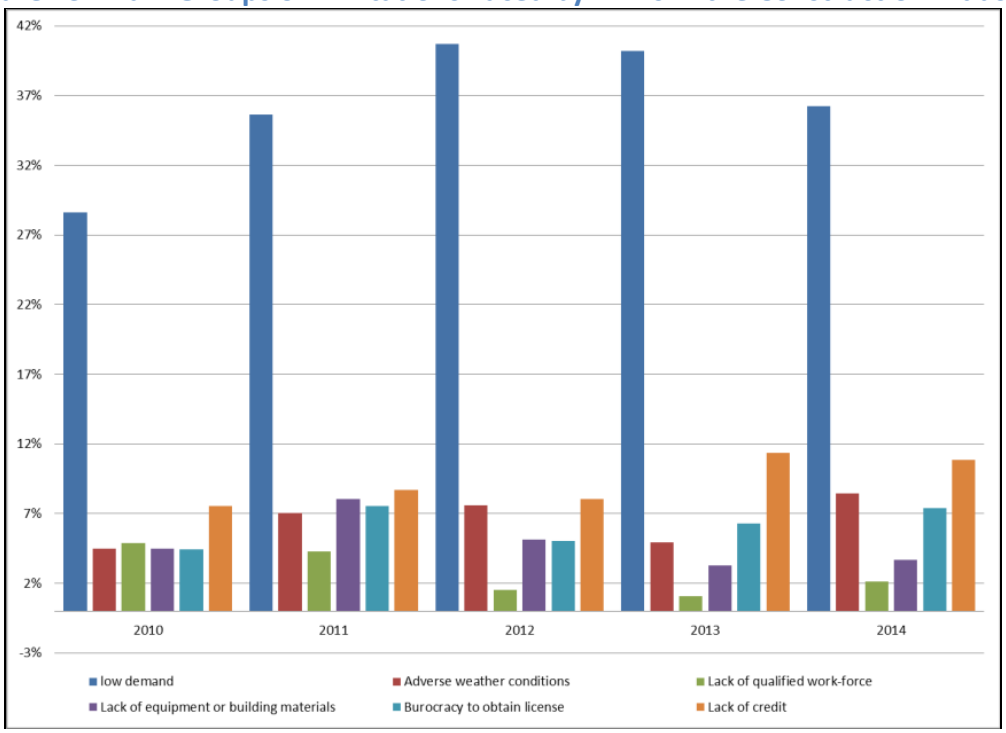
Since 2007, the Mozambican National Institute of Statistics (INE) has been producing monthly indicators of business confidence for each sector of the economy[12]. The types of limitations recorded by INE's monthly survey include adverse weather conditions, low demand, lack of qualified work-force, lack of equipment or building materials, bureaucracy in obtaining licenses, lack of credit and unspecified 'other factors'. Aside from weather conditions, which are in principle exogenous, all other categories relate either to the supply of endowments and resources, or to institutional and policy-related factors.

While 61% of firms in the INE sample reported facing obstacles to growth in 2010, this number decreased to 40% in 2014. Figure 13 shows that for construction firms, limited demand is the most relevant factor, followed by lack of credit, bureaucratic hurdles, and limited access to equipment or building materials. It is quite surprising that construction firms identify low demand as a barrier, as building sites are visible everywhere, at least in the main cities of the country. However, it is possible that the major beneficiaries of this boom have been foreign companies, a small group with massive market representation. Finally, it is noteworthy that from 2010 to 2014, institutional barriers have become increasingly important[13].

[12] The survey, called "Indicadores de confiança e de clima económico" is run on a sample of representative firms for the main sectors of the Mozambican economy. Notice however that the response rates of the firms vary by month, and they can vary in a wide range from 10% to 70%. As a consequence, the representativeness of the results has to be taken with caution.

[13] Although a totally unambiguous classification of the barriers is impossible, it stands to reason that 'slow bureaucracy' and 'low access to credit' are obstacles which can be considered fundamentally institutional in nature.

Figure 13: Main Groups of Limitations Faced by Firms in the Construction Industry



Source: INE

3.3. Evidence from Primary Data

The results from field interviews conducted in 2012 in Maputo, and in 2014 in Maputo, Nampula and Sofala are described below. A total of 70 domestic construction firms (mostly contractors and producers of construction materials) were interviewed. This process was complemented by discussions with government officials, responsible for the procurement of construction services, as well as with the construction industry association. Of the 30 firms interviewed in the Maputo area, 26 were contractors and the remaining four firms were producers of building materials[14]. In 2014, the sample was extended to about 40 firms in Maputo, Nampula and Sofala, from both the construction and building materials sectors. Throughout this second phase, interviews were based on a flexible interview script[15]. We included contractors of classes 1 to 7, and micro, small, medium and large building materials firms in the sample.

[14] The questionnaire used in phase one covered the main issues sketched in Box1, available in the Appendix.

[15] See Box 2, also available in the Appendix.

In Maputo province, interviews were mainly conducted with large contractors and industry associations. In Sofala, interviews were hosted by the Provincial Directorate of Public Works and Housing. Group interviews were undertaken, aggregating both small and medium-sized contractors, i.e. firms from class 1 to 5. Finally, in Nampula, some meetings were also hosted by the Provincial Directorate of Public Works and Housing, with the help of the Provincial Association of Contractors, whilst others were held at the headquarters of the limited number of companies that had both the time and space to accommodate the research team. Each individual company visit lasted on average one hour, while the group interviews lasted slightly longer.

3.3.1. Barriers to Entry and Expansion of Construction Firms

Table 1 summarises the main obstacles identified by the survey respondents. They range from excessive bureaucracy to the high cost of domestic raw materials, with most respondents identifying institutional and policy-related barriers - first column - as dominant or important. In addition, the distance from the technology and managerial excellence frontier, combined with the scarcity of a qualified workforce, also hamper firm performance in a significant way.

Table 1: Types of Barriers the Construction and Building Materials Firms Are Facing: Survey Evidence

POLICY AND INSTITUTIONAL BARRIERS	HUMAN CAPITAL AND TECHNOLOGY-RELATED BARRIERS	OTHER ECONOMIC BARRIERS
Excessive bureaucracy	Relative scarcity of qualified and motivated workforce	Unrealized potential in the housing market
Restrictive rules of procurement	Distance from the management excellence frontier	High costs of domestic raw materials
Cascading VAT and delays in its reimbursement		
Limited access to credit and insufficient depth of the financial sector		

Cumbersome procedures to import raw materials		
Scarce dialogue between the state bodies, donors, firms and civil society		

3.3.2. Policy and Institutional Barriers

Excessive bureaucracy

Firms identified as main barriers:

- Long delays in getting firms formally registered, i.e. to obtain the proof of definitive commercial registration (*Certidão de Registo Definitivo*) issued by the Commercial Registry (*Conservatória de Registo Commercial*). This certificate must indicate that the company is solely incorporated and registered for the purposes of undertaking construction works.
- Official clearance for having complied with all the due fiscal requirements (*Certidão de Quitação*) takes at least 15 days to be issued by the Ministry of Economics and Finance and Social Security Institute (INSS), and may only be obtained in provincial capitals. In the absence of registration and clearance certification, many other formal requests cannot be put forth.
- Since the majority of firms employ seasonal workers, the fact that the certificate of clearance takes so long to be issued constitutes a further reason discouraging/preventing registration in INSS.
- For public works, the company license (alvará) is released by the MOPHRH, and lasts for only 24 months, a period that, according to many firms, is too short[16]. Applications are addressed to the

[16] In Mozambique, contractors are broadly divided into two categories: those licensed to undertake public works and those licensed to undertake civil works. Civil construction contractors must be part of a company or commercial representation, incorporated and specifically licensed in Mozambique to undertake construction. There is no specific legal framework for the contracting of engineers, contractors or other technicians. However, when requesting a construction license for private works, a declaration of commitment to oversee the work is required, along with a copy of the license of the person responsible for the oversight. Works may be overseen by a contractor, a technician (in construction supervised by the owner himself) or the person undertaking the project (ACIS, 2008).

Minister of Public Works and Housing, and submitted through the relevant Provincial Directorate of Public Works in the province in which the applicant is based.

- Finally, since all of the above mentioned documents are needed in public tenders, at national, provincial and district levels, this creates a further constraint for small and medium-sized firms to participate in such tenders.

The Government of Mozambique, as well as the city of Maputo, initiated a series of reforms to streamline procedures and reduce bureaucratic obstacles. The Program for the Development of the Municipality of Maputo (PROMAPUTO) is geared towards the modernisation of the national registry. The goal has been to introduce single-window service delivery solutions for national, provincial and municipal services. Most important is the issuance of the *Regulamento do Solo Urbano,* which encompassed several key reforms in urban land development.

While SPEED (2012) reported that the process of obtaining a construction permit in 2011 could take between 350 and 460 days, the reforms brought the average number of days needed to obtain a construction permit for 'standard' construction works down to 144 days. In fact, the Doing Business Report (2014) states that Mozambique has made considerable progress in obtaining construction permits by improving internal processes at the Department of Construction and Urbanisation (although it also increased the fees for building permits and occupancy permits). Nevertheless, these time frames still seem excessively long.

Restrictive rules of procurement

There is a capital requirement for each class of firms to participate in public tenders. These are often viewed by firms as being too rigid, as they prevent subcontracting (this is particularly the case for firms of class 1 to 4). Moreover, the requirement for firms to own all of the equipment used, in order to enter public tenders, is a significant barrier, especially since the market for equipment rentals is already fairly well developed in Mozambique. Medium-sized firms convincingly argue that participation in tenders should be allowed based on the previous experience of the firm, and not on the equipment that it owns.

Decree number 15/2010 states that the public sector procurement rules must adhere to the principle of public tenders. However, for promoting local SMEs, the decree, under Articles 90, 106 and 113, divided public sector bids into three types:

- Limited tender, for construction projects estimated to cost between 1,750,000 and 3,500,000 MT (Mozambican Meticais)

- Small bids, for construction projects amounting to 15% of previous bids

- Direct adjustment, for construction projects costing between 87,500 MT and 175,000 MT, which do not require a formal public tender.

Under the government procurement legislation, open bid therefore covers construction projects above 3,500,000 MT. For qualification, four pre-requisites need to be satisfied. First, the company must be legally registered. Second, the company must be economically and financially sound, based on the size of its balance sheet. Third, it must demonstrate that it has the technical capacity for undertaking the project. Fourth, it is mandatory to be cleared by the fiscal authorities. All tenders are required to apply preference margins of 10% for local companies.

While the application of preference margins constitutes a relevant innovation, when compared to previous legislation, it is unlikely to lead to major changes in the extent to which domestic construction companies are able to respond to larger public sector tenders, when the costly nature of guarantees is taken into account. Indeed, to be awarded a project over 3,500,000 MT, a company in Mozambique must pay a premium of 1.5% of the total project cost as insurance.

Once awarded, the market practice is that the parts agree on an upfront payment of a certain percentage of the total project cost, as the first instalment: typically this percentage lies around 25-30%, but it can vary based on the parts' agreement. Under current legislation, a bank deposit of roughly the same amount must be made, as insurance. If unable to meet this requirement by means of its own funds, the company may resort to the banking system for finance, but this takes time and resources. The associated interest rate and commissions are added to the total insurance cost. After finishing the project, the final payment, and any other reimbursement, takes additional time, creating liquidity problems among the sector operators. Lopes (2006) estimated the final payment time lag to be between three and six months, or even a year, depending on the bargaining power of the companies involved.

While requirements for insurance seem appropriate in imperfect markets, the proof of a track record, as well as technical and financial capacity, introduces an additional distortion to the market. In fact, it compromises the very achievement of the legislation objectives. Compared to their counterparts in South Africa, Portugal

and China, local domestic companies are relatively young, and their assets are also relatively small (Lopes, 2006). This implies that banks will be reluctant to provide finance, and public institutions as a result will not consider them to be appropriate candidates for more costly construction projects. The ultimate effect is market concentration and segmentation, with domestic companies being relegated to the low-end of the market.

Cascading VAT and delays in its reimbursement

The VAT rate in Mozambique is currently 17%, compared to 14% in South Africa. In the context of the housing market, the final customer, who is responsible for the payment of VAT, is either a home buyer or the owner of the construction project. Depending on the number and value of the transactions involved, adding up all the VAT costs dramatically increases the total cost of a construction project. It also reduces the demand for housing - particularly from the middle class, already constrained by poor savings - while simultaneously holding back potential buyers from doing business with the formal construction industry operators (ANEMM, 2000, Lopes, 2006).

Secondly, the time taken to complete procedures, and receive government payment and VAT reimbursement, can be lengthy. According to most respondents, this often leads to liquidity constraints among construction industry operators[17]. The VAT code stipulates that the fiscal authorities are obliged to reimburse the value added tax paid when purchasing inputs. To be eligible for VAT reimbursement, the company should submit appropriate fiscal forms, invoices and a synthesis of the balance sheet. It must also prove that the required reimbursement is above 50,000 MT. Since most VAT expenditures in construction projects lie well above this amount, contractors are among the most affected parties. A delay in reimbursement implies reduced cashflow. If not reimbursed, it results in lost revenue and a reduced capacity to compete.

Lack of Standardisation and quality certification

In order to create standards in the sector, detailed information on management processes; labour force quality;, and the characteristics of inputs and materials used, is required in order to prevent health and safety problems, and ensure the quality of the sector's output. Despite increased awareness of the importance of standards, the number of construction companies certified in Mozambique is small. Among the 12 contractors surveyed by Lopes (2006), only two firms reported having certification on total quality control. This lack of

[17] Evidence reported in Lopes (2006) suggests that public works in Mozambique are often paid with delay, especially when the client is one of the Ministries. This creates liquidity problems for the contracted firms (mostly of class 6 and 7) that in turn encounter difficulties in paying subcontractors or suppliers of building materials.

awareness as to standards was confirmed in our fieldwork. Moreover, in 2010, the number of industrial companies (including firms within the building materials category) willing to go through a certification program, for management practices under a donor-supported government program, was particularly small (in fact, less than 10% of the firms in the industry) (AIMO, 2010). The reasons for a relatively weak demand for certification services include:

- Funding constraints for assisting the development of standards among SMEs
- Lack of certification laboratories
- A business environment, which does not induce certification; and
- Lack of active construction industry business associations[18].

The natural resources boom, and the possibility for firms to eventually participate in the hydrocarbons value-chain, holds the potential to increase awareness of the importance of standards and certification. During the second phase of our fieldwork in 2014, we already identified instances in which firms reported the lack of certification procedures as an important barrier to growth. Firms of all sizes and classes in our sample considered that it is impossible to trust subcontractors if they have not been certified on the adoption of established standards of quality. An authority is therefore needed to monitor, certify and control the quality of services rendered and importantly, of the materials used[19].

Poor access to credit

All firms, especially those in class 7, stated that having access to credit is crucial for their development. From a historical perspective, Mozambique's financial system has seen remarkable improvements since the introduction of the economic rehabilitation program in 1987. The number of banks increased from three to 18 during this period; the number of insurance and micro-finance institutions also expanded; and the country opened its first stock exchange in 1999. As a result, financial savings, captured by the volume of term deposits, tripled as a percentage of broad Money (M3) from 9.1% to 31% from 1993 to 2008 (Navalha, 2009).

[18]The first construction association, EMPREMO, was established at the end of the 1990s. It is understaffed and, like many other business associations in Mozambique, it lacks the resources for leading a transformative agenda in the construction industry. The sector remains fragmented, economically isolated, and inadequately integrated into a value chain network.

[19] In principle, the existing 'laboratories for civil construction' should certify the quality of produced materials, like iron-concrete, but their resources are quite limited, and they often complain of a lack of administrative/financial autonomy.

These positive developments, however, fell short of providing long-term investment funding for the construction industry, and several concerns remain (ANEMM, 2000, Lopes, 2006, AIMO, 2010). For one thing, there remains excessive market concentration in the banking sector: 85% of total financial sector assets are held by the three largest banks. Mozambique is also characterised by low aggregate levels of savings - the deposit to credit ratio is below the Sub-Saharan average (FMI, 2010). Out of 183 economies, Mozambique is ranked 127th on access to finance, behind Angola, Mauritius, Tanzania, and South Africa, which is placed 2nd in Sub-Saharan Africa (World Bank, 2011).

Recently, Bank of Mozambique interventions have attempted to correct these shortcomings. In the last seven years, a reduction in the capital requirement ratio led to the emergence of new financial institutions, with the potential to increase financial inclusion. It also led to financial innovations, particularly within the micro-finance segment, with indirect effects on interest rates and the degree of competition. The government's strategy for the future is to establish private credit registry bureaus; promote the expansion of mobile banking; strengthen the insolvency framework; and set up a moveable collateral registry. A Financial Sector Contingency Plan was adopted in April 2013, and a Deposit Insurance Fund (DIF) is to begin operations in late 2015.

These reforms do not, however, appear to have benefitted the construction industry. The majority of construction companies interviewed in our survey stated that they were yet to experience improvements in access to finance. Collateral and guarantee requirements continue to be deemed stringent, and therefore unattainable, and interest rates charged are still considered too high. This is of particular relevance for the civil and heavy construction sectors, since private and public procurement procedures involve a number of financial requirements for contracting. In fact, the local firms are hit twice: they cannot engage in long-term projects because they lack the financial capacity to pay for project insurance, and long-term credit is the scarcest input in the market. Moreover, risk insurance systems are costly and not well developed. Finally, firms also note that the judiciary system remains weak, especially with regards to the enforcement of financial contracts.

The challenge of devising a more targeted intervention, to support sustained growth in the construction industry, still remains, but there are some signs of improvement. In August 2014, the Mozambican private bank BCI and the Mozambican Federation of Contractors (FME) signed a protocol for financial cooperation. According to the agreement, the bank will provide federation-affiliated contractors with access to finance on the basis of specially devised conditions. These will apply especially to projects aimed at the housing sector, as mortgage rates of around 22% currently prevent the housing market from developing fully. In order to increase access to investment finance for local enterprises, SPEED (2007) further suggests the application of asset-based

lending, through lease contracts based on the value of the asset being financed. It should be noted that Mozambican law does not permit leasing companies to take deposits, but any company with sufficient capital can apply for a banking license along with authorisation for leasing.

Cumbersome procedures to import raw materials

Whilst trading across borders has been made easier in Mozambique, through the implementation of an electronic single-window system for customs clearance (Doing Business 2014), many of the firms in our sample still stressed the need for a further reduction in import bureaucracy, and an improvement in the efficiency of the clearance process. The procedure for a typical Mozambican company to import raw materials involves three main steps: hiring a clearing agent to manage the import process; paying the import duties; and delivering the goods to the factory. Firms note that there are significant delays and hidden costs associated with all three stages, which compromise an already limited capacity to import. Moreover, domestic firms are competing with regional and global companies that are fully integrated into more efficient logistics chains.

According to AIMO (2010), a typical industrial importer has to spend on average 55,473MT for each import transaction made through the Maputo cargo terminal, in addition to the official clearance costs. This amount reflects the additional cost of renting a container and using terminal space, as well as paying the fines, which result from delays associated with obtaining authorisation for leaving the port after the payment of import duties. This adds to the average cost of inputs, reducing the profit margin, as well as the competitiveness, of the industry. It is not surprising then, that in 2014, one of the most cited barriers to the development of the construction industry, is the high level of custom taxes, and cumbersome import procedures. This is particularly taxing for firms, given the low substitutability between imports and domestic inputs of adequate quality.

Scarce dialogue between the state bodies, donors, firms and civil society

Surveyed firms also highlighted the lack of coordination between public/institutional stakeholders and the private sector. First, the Mozambican public sector lacks effective inter-institutional coordination and communication. The strategic plans elaborated by each ministry are often too broad in their approach, and too limited to benefit specific sectors. Each Ministry has its own agenda, without necessarily paying attention to the issues in closely related sectors, even in the face of natural synergies. This results in wasted resources and missed opportunities to jumpstart growth. Solving these coordination problems requires the breaking of compartments, and redesigning of government institutions, to follow a value chain organisational structure.

The firms interviewed often lament the lack of intra-industry coordination, and the subsequent low bargaining power that the few existing associations have. Construction industry associations remain weak at the local

level, and distant from decision-making centres. This implies a limited two-way flow of information with government officials, and reduces the chances for effective intervention.

3.3.3. Human Capital and Technology-Related Barriers

According to Warren-Rodriguez (2010), Mozambique has been experiencing a weakening of its technological capacity and skills base. Others argue that the growth in productivity that has been achieved in the country, is primarily attributable to higher capacity utilisation (Bila and Rand, 2011). From the perspective of individual firms, the construction industry survey seems to partly substantiate this view.

Relative scarcity of qualified manpower

Fifty percent of the Mozambican population is illiterate. Of this percentage, close to 80% have no professional qualifications. According to the National Institute of Professional Training and Employment (INEFP, 2007), 90% of those applying for their first job have not finished basic education. Among them, the majority (62%) have no work experience or qualifications.

The situation is the same in the construction industry (ANEMM, 2000, Lopes, 2006 and AIMO, 2010). In the building materials sector, over 60% of employees hold only a primary school certificate (ANEMM, 2000, AIMO, 2010). According to Lopes (2006), the same applies to employees among contractors, where only 9% had finished secondary school. The fragmented nature of the education sector results in a relative abundance of unskilled labour force, and a scarcity of skilled professionals.

Firms in our sample – particularly the larger ones - report that there are not enough apprentices, servants, masons, carpenters and low-level supervisors. At the same time, they report a shortage of experienced senior managers, project managers, master-builders, skilled masons and carpenters, locksmiths, electricians, and plumbers. Yet, firms in the building materials sector did not regard the lack of qualified manpower as a very significant barrier, rather the lack of certification standards. This is likely due to the fact that they tend to rely on a low-skilled workforce.

The lack of a prepared workforce translates into reduced investments in the industry value chain, given the increasing dependence on skill-intensive techniques. It also signifies an inability to explore more complex projects, leading construction firms to specialise in the low end of the market. This provides increased market power to (foreign-owned) companies that can mobilise large amounts of capital and hire employees worldwide.

The government has responded by attempting to involve the private sector in the process of building a qualified labour force. A potentially important measure was prescription, in the new investment code, for fiscal incentives to be paid to companies investing in training. Yet, so far, results have been limited, with companies reluctant to train their own manpower (AIMO, 2010). This is partly due to constraints on the flow of information, regarding training opportunities, to domestic businesses. The recent FDI inflow, driven by the boom in natural resource extraction, holds the potential to help enlarge the skills base of the construction sector, with domestic companies integrating the local supply chains established by major projects.

Finally, the problem of limited dialogue, within and between institutions and the private sector, also has implications for the training of the workforce. This is crucial to the development of the construction and building materials sectors in Mozambique. As reported by Lopes (2007), there is often confusion - on behalf of the Ministry of Education, the Ministry of Labour, and the National Institute for Employment and Technical training (INEFP), as well as PIREP (integrated plan for the reform of professional training) - about the respective roles to be played in the promotion of vocational training. In principle, the Ministry of Education should be responsible for long-term secondary and tertiary education, while the Ministry of Labour and INEFP would oversee shorter, specialised vocational training programs, and PIREP would be responsible for specialised/targeted on-the-job training programs.[20]

Yet, there is little evidence of any systemic interaction, or coordination between these actors and the private sector, so as to ensure the alignment of skills supply and demand. Linkages between education subsystems - secondary and technical education - remain problematic, and the private sector is failing to help on account of information and coordination failures. Solving this problem involves creating arenas where the main actors in Mozambique - the state, donors, businesses and civil society organisations – can meet, establish fruitful interchanges, and agree on actionable measures and initiatives to develop the industry.

A successful example in this area is the MOZLINK (MOZAL's linkages program), which was developed for the aluminium value-chain. This has played a critical role in upgrading the skills and technological capabilities of a number of firms. Under this program, companies have been able to establish reasonably stable sub-contractual

[20] PIREP in particular has already established a specialized training course in civil construction in Xai-Xai (Gaza Province).

relations with MOZAL, providing repair, maintenance and reconstruction services; and have benefitted from transfers of technology and know-how (Castel-Branco and Goldin, 2003; Warren-Rodriguez, 2007)[21].

Fragility in Technology Absorption and Diffusion

Due to environmental concerns, and the need to reduce costs, the construction industry worldwide has undergone a process of innovation and modernisation. However, our fieldwork suggests that local contractors on average have not mastered the new technologies available, especially when dealing with iron and steel structures. This is true both for small/medium-sized enterprises, and for larger firms that manage to get access to public tenders.

- In our survey, around 42% of companies complained about a lack of finance, and the cost of acquiring new technology; and 17% reported their inability to access skilled labour as the main constraint. An inability to compete in the market (14%); lack of support services (11%); market information gaps, as regards new technologies (9%); and cumbersome import procedures (6%) were also highlighted as being of relevance. Only one company involved in the construction industry reported having access to new technologies; and this was due to its ties with foreign investors. As reported by one of the firms surveyed, current market practices in the construction sector involve an increased reliance on iron and steel structures, coupled with a reduction in the volume of cement applied. Local contractors have, however, not yet mastered the technologies available. When faced with the challenge of engaging in a construction project involving iron and steel structure requirements, firms either refuse the contract, or are forced to subcontract to foreign professionals, mainly from South Africa and China.

[21] MOZAL produces 580,000 tonnes of aluminium annually, and accounts for 60% of the country's commodity exports. The MOZAL investment was implemented in two phases: MOZAL I was initiated in 1998, and took place over the course of two and a half years; while the MOZAL II expansion was initiated in 2001, and took only one and a half years to complete, as the foundations for the enlargement had been laid during the first phase. The linkage programme culminated in 2005 with the opening of the Beluluane Industrial Park next to MOZAL, which enjoys "Industrial Free Zone" status. Until recently, MOZAL has been the single largest FDI investment in Mozambique; its presence has led to the creation of over 200 input-supply companies, feeding its operations, in in metallurgical services, transportation, auto-mechanical and electrical products and services, construction, security, cleaning, catering and laundry. The model produced consistent spillover effects for the Mozambican economy, in the form of technological capabilities acquisition and learning, carried over to other projects. The expertise acquired marked firms out as first choice lead local subcontractors (See Buur, 2014 and Sutton, 2013).

- Since 1997, the government's industrial strategy has identified the technology gap in Mozambique as one of the main factors behind domestic companies' inability to compete. The strategy has called for urgent measures, but the situation has not changed. Among the companies surveyed by AIMO (2010) - including producers of building materials and heavy construction firms -, over 62% of them had made no major new technology acquisitions since the 1990s, with firms finding it increasingly difficult to maintain and replace spare parts (ANEMM, 2000 and AIMO, 2010).

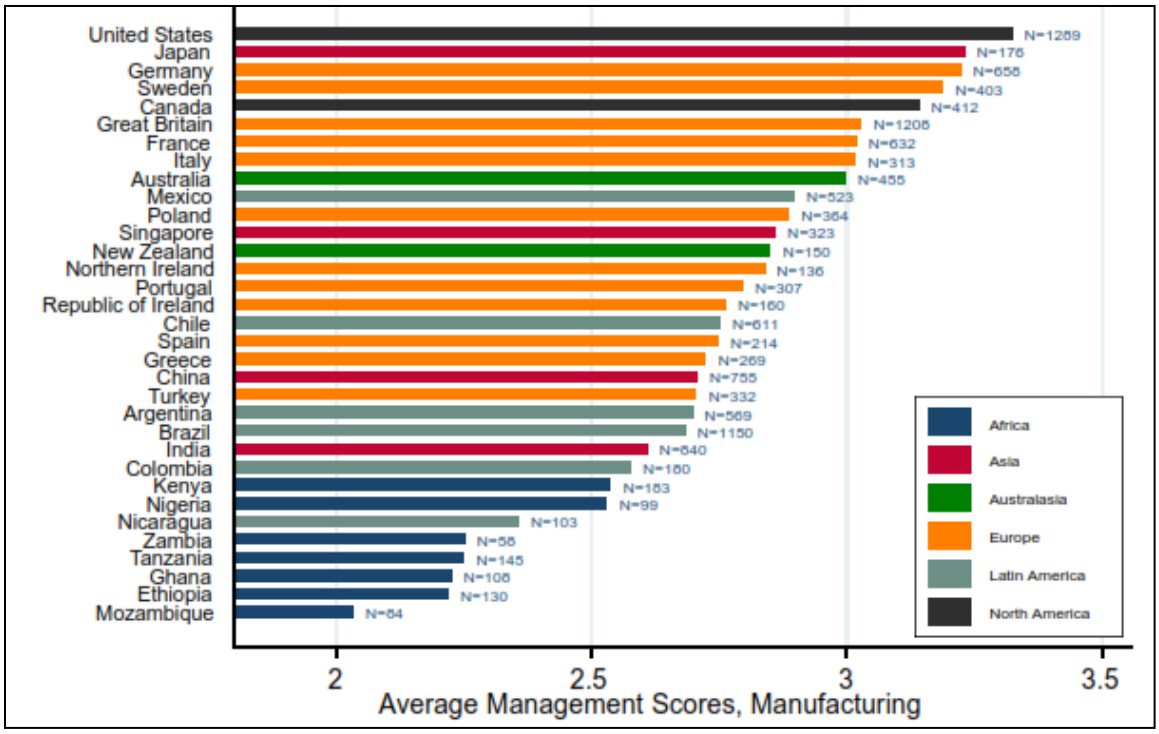
Distance from the Management Excellence Frontier

Construction industry firms in Mozambique are characterised by weak management practices. This is a disadvantage, as a growing body of evidence has found strong management practices to be correlated with higher productivity and better overall firm performance (Bloom et al 2013). Firms in developing countries have significantly worse management practices, largely due to a fat tail of badly managed firms (Bloom, Nicholas, et al 2014).

If this is a problem in manufacturing, which includes the building materials sector, it is also pronounced in the construction sector, where competition with international, well-managed contractors is particularly strong. Certainly, historical factors play a role, as the overall effect of the colonial legacy, and socialism, led to – as already argued - the underdevelopment of domestic capabilities, fractured logistics, and limited market intelligence. With the shift to a market-based economy, the scarcity of business management skills became a salient factor.

Lopes (2006) reports that financial management, accounting and corporate governance practices are generally of poor quality in the construction industry. This is one of the factors increasing the level of risk perceived by the banking sector, thereby reducing the amount of credit provided to construction firms. The results from Bloom et al (2014) further confirm this finding: figure 14 shows that in the World Management Survey conducted by the authors, Mozambique is ranked last in terms of average management scores. While these results are restricted to the manufacturing sector, they certainly highlight a major constraint that businesses in Mozambique still face. While the government has supported the emergence of mid-level and higher education institutions geared towards the study of business and management, firms still complain that the available institutions are not sufficient to train high level professionals. They propose that the government should promote more 'on the job training' schemes integrating local and international companies.

Figure 14: Average Management Scores by Country



Source: Bloom, Nicholas, et al 2014

3.3.4. Other Economic Barriers

Unrealised potential of the housing market

Housing quality varies widely across Mozambique. Un-Habitat (2013) reports that in 2008/9, in the capital - Maputo - , 79% of households lived in dwellings with durable walls, and almost all (99%) lived under durable roofs. Housing quality is considerably lower outside of Maputo. In other urban areas, durable walls are found in 20% to 40% of all homes, and durable roofs among 60% to 70%. The national average suggests that in 2008/09, only 17.9% of households lived in homes with durable walls and 30.2% lived in homes with durable roofing. Furthermore, electricity is not widespread. In Maputo, only 57% of households had electric lighting in 2008/09; whilst 60.9% of households had a toilet or latrine. Nationally, 65% of households live in housing that is neither durable nor has electricity or sanitation.

The housing market plays a fundamental role in fostering economic development. It is the backbone of sustained growth for local entrepreneurs, as it is less demanding in terms of construction resources, costs and finance. Yet, after the nationalisation of the 1970s, the market has experienced relatively slow growth. This

seems paradoxical, because Mozambique has gone through a rapid process of economic expansion, increased government expenditures, and urbanisation.

The housing market's failure to take off is rooted, first, in the fact that economic growth took off from a very low base. In urban areas, income equality either failed to improve or actually deteriorated. In such conditions, it is hard to find low to middle class families with sufficient income, and willingness, to purchase houses at their current prices in the formal housing market.

Second, land in Mozambique belongs to the state. Acquiring a plot for construction takes time and involves a long bureaucratic process, featuring institutions ranging from the most local of authorities to municipalities. The World Bank Doing Business report for 2011 estimated that there are 17 necessary steps in obtaining permission for construction in Mozambique. In the context of a non-existent formal land title market, state ownership of land, and associated bureaucracy, allows for both opportunistic and rent-seeking behaviour. Because demand is increasing due to urbanisation, this phenomenon also raises government officials' monopoly on power, heightening the real costs of building in urban areas.

In addition, the savings and earnings of the emerging middle class (the most important source of demand in the housing market) remain low. Furthermore, Mozambique´s middle class is devoid of assets that could be used as collateral (including the land on which the house will sit), making them ineligible for bank credit. The ultimate implication for the construction market is straightforward: without an effective source of finance, and more generally, the development of a mortgage market, it is hard to use formal project developers and contractors, leading to increasing informality in the housing market in Mozambique.

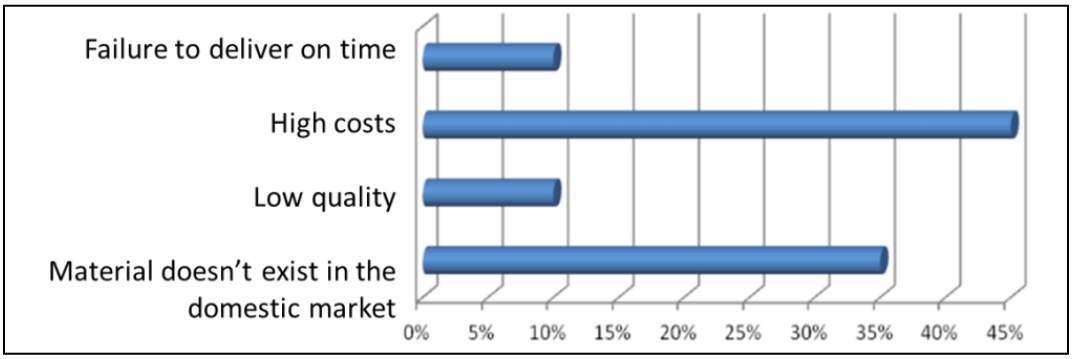
High costs and unavailability of domestic raw materials

Close to 60% of the inputs used by building materials producers and heavy construction companies are imported (ANEMM, 2000). Among the firms interviewed in 2012, almost half of them stated that they obtain their inputs from abroad, due to the high cost of domestic materials, while 35% stated that the required inputs do not even exist in Mozambique. Moreover, despite Mozambique possessing abundant deposits of limestone and other raw materials, which serve as inputs to the construction materials sector, logistic/transportation problems associated with the location of mining deposits, and of moving around bulk output, have limited the supply - for example, of clinker to domestic cement makers. Thus, over 3 million tons of clinker were imported during the period 2005–12. As a consequence, companies tend to diversify the purchase of domestic and imported raw materials based on costs and availability (Sutton, 2014). By the same token, the Beira contractors

association said that it imports construction stones from Portugal, although the Beira area is one of the richest for this type of raw material.

Figure 15 shows the most important reasons for firms' failure to buy domestic raw materials. High costs and a lack of availability in the domestic market appear to be the dominant causes. Poor quality and delivery delays are also relevant, but to a lesser extent. At the same time, the local building materials firms interviewed stated that they themselves encounter difficulties in the production and distribution of their materials. From the demand side, construction firms complain that the lack of standards, and of a certification authority, imply that the domestically available materials are often of low quality or unreliable, especially when large public works are involved.

Figure 15: Main Reasons for not Using Domestic Building Materials



Source: NMU, 2012

According to our survey, building materials are mainly imported from South Africa, China, India, Pakistan, Portugal and other European countries. Often, firms state that they accommodate the clients' request in choosing where to buy materials. Among the most common domestically-sourced construction inputs are cement, rock and sand based materials. At the same time, if domestic firms could respond with high quality supply – as some have in the past – domestic demand would flow towards such firms. Thus, for example, the Beira association of contractors also said that the quality of imported materials, like electrical wires and plywood, is currently low, while the Mozambican EMPACOL used to produce them at a higher quality level. Moreover, many firms in our sample shared the view that the state should take a more active role in helping to reactivate the domestic production of building materials, especially in those sectors where there is a comparative advantage (such as cement, and red ceramics). The final following chapter provides a framework and a specific set of initiatives to promote the growth of the construction industry – including, in particular, the building materials sector - on a sustained and competitive basis.

4. Policy and Strategies for the Construction Industry

4.1. Context

The future of the Mozambican construction industry depends on the government's establishment of a favourable policy environment, and a set of strategies, which would allow Mozambican firms in both the construction and building materials sectors, to progressively overcome their competitive disadvantages.

The proposals presented in this document lie within the scope of the general industrialisation strategy, as stipulated by the Ministry of Industry and Trade, in the Industrial Strategy of 2007, the preliminary version of the "Policy and Industrial Development Strategy 2015-2024", and finally in the "National Development Strategy (2015-2035)". In particular, the National Development Strategy identifies the construction sector as a priority sector for economic development, whilst the Industrial Strategy explicitly refers to the sustainable promotion of the building materials industry[22]. These documents also mention the challenge of ensuring that the domestic production of building materials is of a high quality, so as to reduce the need to import building materials. This will enable productivity gains for the construction sector as a whole. In this sense, the document's priorities are well aligned with those of the document produced by the Ministry of Industry and Trade in 2003 "Policy and Strategy Framework for Quality".

Finally, this report seeks to complement existing policies for the construction sector, namely:

- "Housing Policy and Strategy", approved by the Council of Ministers per Resolution 19/2011
- "Strategy and Action Plan for the Dissemination of Alternative Building Materials and Systems", November 2009

[22] During the final stages of elaborating this document, the Ministry of Industry and Trade was also finalising its "Policy and Industrial Strategy 2015-2024". The draft document identifies as priority sub-sectors, those of production of non-metallic and metallic minerals (hence, including building materials), along with the wood processing sector. According to the document, the reason for this choice is that these sub-sectors "can develop relatively quickly and help the industrial sector to respond to the challenges that it is currently facing".

4.2. Vision and Strategic Objectives of the Policy Framework

The vision of the Policy Framework for the Development of the Construction and Buildings Materials Industries (following the industrialisation vision formulated in the National Development Strategy) is that of **a dynamic construction sector - with strong links to local economic agents, simplifying access to dignified housing for the Mozambican population, whilst creating employment and business opportunities for local subcontractors and suppliers of building materials - acting as a catalyst for the industrial transformation of the Mozambican economy.**

The **Mission of the policy is to realize the systemic competitiveness of the Mozambican construction industry, by addressing the barriers currently impeding its development.**

4.3. Pillars and Policy Objectives

This report proposes four policy pillars and nine broad strategic objectives:

Pillar A – Governance

The construction sector in Mozambique is characterised by weak links and coordination mechanisms between the various actors. This is true for relations between Government and the private sector, as well as for relations between different firms and consortiums within the private sector. To ensure the development of a sector with effective governance - identifying and addressing emerging constraints in a timely manner - the strategy defines the following objectives:

1. Improve the governance of the Construction Industry by strengthening the level of coordination, and the flow of information, within government; and between the government and the private sector.
2. Enhance the level of intra-industry trust, while reducing search and screening costs, by supporting greater horizontal and vertical cooperation within the construction and building materials sectors. Encourage the development of construction company consortia (especially for larger/more complex works) in order to create an environment of greater mutual trust, while promoting knowledge-sharing, and the improvement of methods and results.
3. Promote the structural transformation of the construction industry – in both services and materials - by strengthening the formal presence of Mozambican firms in the market.

Pillar B – Quality

The low quality, on average, of services and products supplied by firms in the construction sector, combined with the lack of a comprehensive system of certifications, results in a lack of confidence between various sector actors. This impedes the development of an efficient and integrated construction sector with strong inter-firm linkages. Furthermore, the shortage of skilled labour is mentioned by many firms as a significant constraint, on account of its impact on both product quality and productivity. This pillar has the following objectives:

4. Increase the overall level of product quality and industry productivity by fostering better management practices and technological improvements.
5. Enhance the quality of the construction industry workforce.
6. Progressively bring Mozambican firms up to international standards.

Pillar C – National Synergies

Mozambique has access to natural resources for the production of building materials, but this potential is not being fully utilised, since a large proportion of building materials are imported. Promotion of the domestic production of building materials will strengthen inter-sectoral linkages.

7. Design a **National Plan for the Utilisation of Natural Resources for the Production of Construction Materials.** The plan should focus first on Natural Gas, given the high value-added of the materials which would benefit, in terms of cost and quality, from its stable and cost efficient supply (for example cement and ceramics, among others). In addition, the plan should assess the possibility of using other natural resources, such as wood and hard-burnt coal, in the production of traditional building materials, so as to integrate local producers into a wider value-chain.

   In relation to natural gas, over the coming 1-2 years, Mozambique will need to define how best to make use of its reserves: in particular, the proportions that will be allocated to direct and indirect consumption. Natural gas has many alternative uses, both as a fuel and as an input into productive processes. An elastic supply of gas could promote entry into the building materials sector for both domestic and international firms on a competitive basis. Mozambique could in fact become a regional hub for certain building materials. The National Plan would define the geographic location of two or

three main production clusters of construction materials, taking into account the source of raw materials, transportation logistics, market, and the point of access to natural gas[23].

Pillar D – Financing

Access to credit is important for the construction sector, for actors on the demand, as well as on the supply side. Without mortgages, the majority of the population are unable to buy a house or apartment. This limitation can have implications for the viability of large scale housing projects. On the other hand, as construction projects are often large scale and long term, the construction firms themselves need flexible access to finance, in order to operate effectively. As such, the objectives of this pillar are as follows:

8. Supply affordable housing to the population, protecting the most vulnerable urban and rural segments from land-grabbing.
9. Enhance access to credit for firms in the construction and building materials industry.

After indicating several strategies for each objective, we specify the time frame and level of complexity of their implementation.

In order to value, promote, modernise and foster the organic growth of Mozambique's Construction Industry, it will be essential to build social capital, by mobilising the efforts of government and the private sector; promoting the exchange of information; enhancing coordination levels; and attempting an important leap in human resources and technical capabilities.

One critical decision will, however, have to be made upfront: the industry is fundamentally composed of two sectors: construction services and building materials. Both need to be strengthened. However, the priorities and areas of emphasis should potentially be different for each.

In the case of the construction sector, the key issue seems to be the dearth of indigenous Mozambican firms able to tackle more complex jobs, both in the civil and heavy construction segments. A significant number of

[23] At the same time, particular attention should be given to avoiding excess pollution, deforestation and the unsustainable use of natural resources in general. In particular, it should be noted that natural gas has been used widely to replace coal and other "dirty" fuels, in order to minimize the production of CO2, as clinker production accounts for 5% of the overall CO2 emitted by all industries at the world level.

international firms are present – both large and medium-sized -, but the challenge is to build managerial and technical capacity among Mozambican firms; to foster their linkages with foreign counterparts; and to provide them with opportunities to demonstrate their newly acquired skills.

For building materials, the agenda is of a more daunting magnitude and order, in view of the structural weaknesses of this sector: there are relatively few firms, the majority of which are small and micro. Thus, an effective policy will need to resolve the key sectoral question, namely, how to attract new firms to the value chain, and ensure that their output conforms to standards of quality and cost-effectiveness, without constituting a burden on construction services.

4.4. Policy Objectives, Strategies and Actions

In this section, the report describes each strategy in greater detail, specifying the main actors involved, and the estimated timeframe and level of complexity.

Pillar A – Governance

Objective 1. Improve the Governance of the Construction Industry by strengthening the level of coordination, and the flow of information, within government, and between the government and the private sector.

Strategy 1.1 – Establish an Inter-ministerial Forum for the Construction Industry. The main goal would be to create a high-level platform to discuss Construction Industry Policy, key Strategic Directives, and Implementation Action Plans.

Action 1.1.1 – Identify and confirm key government entities that would participate in the Inter Ministerial Forum (such as MOPHRH and other relevant Ministries and government agencies) at the central, provincial and district levels[24]; suggest and confirm its scope of activities and reporting structure; and propose and confirm the initial agenda and timelines. To ensure the effective participation of the relevant actors, at provincial and district levels, the Forum's location could rotate on a regular basis. Finally, SADC

[24] In principle, the Forum would require participation at Directorial level, although the level of participation should also be allowed to vary depending on the topic being addressed, whether more policy oriented or more operational.

representatives should also participate in the discussions to make sure that the policy proposals are harmonised[25].

Level of complexity: medium, Level of impact: high
Impact time: short, medium and long -term, Main Actor: MOPHRH.

Strategy 1.2 – The Inter-Ministerial Forum could be tasked with establishing a Council for the Promotion of the Construction Industry - the potential embryo of a future joint public-private National Institute for the Promotion of the Construction Industry. This Council could host regular monthly meetings with associations and other strategic partners from the private sector, such as the Mozambican Confederation of Economic Associations (CTA); the Mozambican Federation of Contractors (FME); the Association of Mozambican Consultancy Companies (AEMC); the Association of Engineers and Architects (Ordem dos Engenheiros e Ordem dos Arquitectos); the Mozambique Engineering Laboratory (LEM); the Mozambican Industrial Association (AIMO); and the technical staff of the Ministry of Public Works (MOPHRH), universities and other partners and ministries. In particular, it will be important to guarantee collaboration with the Coordination Unit of the National Development Strategy, in order to take advantage of growth opportunities for the sector stemming from the Integrated Investments Program[26].

The Council would be an arena for the discussion of Construction Industry Policy and related initiatives, as well as industry issues and demands. It could enable a structured exchange of ideas, information, and knowledge, among firms, industry associations, Universities and related institutions, as well as with government entities[27].

[25] In April 2015 in Harare, the Heads of State and the Government of the SADC adopted a strategy and roadmap for industrialisation of the region, over the course of the next 48 years. The map will guide the implementation of policies at the SADC level over the next five years, with major priority areas being industrial development and market integration. Parallel to this, in Mozambique the Ministry of Industry and Trade is developing a new industrial policy and strategy that will take account of the SADC integrated development plan.

[26] The Council should be internally organised into Technical Committees or Working Groups, which would in turn meet during the interval between the Council's meetings. The Council's meetings should also be carefully prepared: it is suggested that in the initial period the Council meets every two or three months in order to kick-start the process. The period of 60 or 90 days between meetings should be used by the Committees appointed by the Board to come together and make concrete proposals to be approved by the Council. Finally, the Council could have permanent members and guest members, in order to streamline the process and ensure maximum representativity.

[27] It should be noted that in 2010, the Mozambican Federation of Contractors (FME) submitted for consideration to the Advisory Board of the MOPHRH, a statute draft for a "National Council of Construction", a body that should aim to "promote dialogue and exchange of information between the government and the private sector on topics related to economic policy, financial developments, social, labour and fiscal issues in connection with the construction sector ".

Action 1.2.1 – Identify and confirm which firms and entities would be willing to actively participate in a future Council. Call for the formation of the Council and use the opportunity to announce the New Construction Industry Policy

Level of complexity: low, Level of impact: high
Impact time: medium to long-term, Main Actor: MOPHRH.

Action 1.2.2 - Conduct specific viability studies for the creation of a future Institute for the Promotion of Civil Construction. This institute would be a public-private partnership, with legal administrative and financial autonomy, with the mission to promote a better coordination of the relevant actors in the implementation of sectoral policies. The key step in the implementation of this action is to identify and mobilise political and corporate partnerships committed to the Institute.

Level of complexity: high, Level of impact: high
Impact time: medium to long-term, Main Actor: MOPHRH.

Objective 2. Enhance the level of intra-industry trust while reducing search and screening costs, by supporting greater horizontal and vertical cooperation within the construction and building materials sectors.

From the vertical perspective, this will imply the encouragement of subcontracting Mozambican firms, especially for larger/more complex works, while from the horizontal perspective it would entail the encouragement of construction firm consortia, especially for high complexity works. These consortia would contribute to an environment of greater mutual trust, while promoting knowledge-sharing, and the improvement of methods and results.

Strategy 2.1 – Such consortia could be formed under joint-venture agreements, or as a result of EPC (engineering, procurement and construction) contractual arrangements featuring domestic participation requirements[28]. In this context, large domestic and international firms should be encouraged to design programs for local suppliers´ development - with a special focus on the local provision of construction services and materials -, ensuring effective knowledge transfer and adherence to process and product quality standards.

[28] Under an EPC contract, the contractor designs the installation, procures the necessary materials and builds the project. In some cases, the contractor incurs the project risk for time and materials in return for a fixed price, called lump sum turnkey route. By means of this agreement, funders and owners expect to get a greater degree of certainty as to the time and costs required (Loots and Henchie, 2007).

Action 2.1.1 – The proposed Council could assess what steps would be necessary and sufficient to create an environment of greater trust and cooperation between international firms and their Mozambican counterparts, both in the construction and building materials sectors. Moreover, insofar as search and screening costs are high (typical of thin, under-informed markets), assisting with matching may be important: building business-to-business platforms could be part of the solution. The initial focus could be on defining a realistic, time-bound agenda for a progressively greater use of local materials.

Level of complexity: medium, Impact level: medium
Impact time: medium term, Main Actor: MOPHRH.

Strategy 2.2 – Create preferential conditions in public tenders to encourage the development of construction company consortia of different categories, particularly between companies belonging to the 6th and 7th classes (with higher economic power and possibly higher technological capability) and to the 3rd class (the most densely populated).

Action 2.2.1 The Council would look to the international experience of instruments aimed at promoting hybrid-consortia - fostering technology and knowledge transfer between companies - and suggest specific actions to the Forum.

Level of complexity: medium, Impact level: medium
Impact time: medium term, Main Actor: MOPHRH.

Objective 3. Promote the structural transformation of the construction industry – in both services and materials - by strengthening the formal presence of Mozambican firms in the market.

The first step is to reduce the level of informality in the industry, ensuring that local firms already in business – albeit on an informal basis – are able to participate directly and indirectly in formal processes. The most important consideration is the barrier to the growth of indigenous firms, which informality presents. It should therefore be reduced to a minimum. The Council could be tasked with identifying concrete steps to eliminate informality in the construction industry.

If approved, the Council could set up a **Working Group to reform the current regime of direct and indirect taxation and benefits**. This Working Group could also review the procedures regulating firm registration and public procurement, as they relate to the construction and building materials industries.

The Working Group could specifically try to address the following strategies:

Strategy 3.1– Reform the system of taxation and benefits as a means to reduce informality in the industry.

Action 3.1.1 – Commission a study, in partnership with the Ministry of Labour, Employment and Social Security (MITESS), on the possibility of increasing the flexibility of charges levied on companies and workers within the construction industry, so as to enhance formalisation and competitiveness.

Level of complexity: high, level of impact: high Impact time: short-term,
Main Actors: MOPHRH and MITESS+MEF.

Action 3.1.2 – Request a study on potential changes to the VAT regime for small and medium enterprises of the industry.

Level of complexity: high, level of impact: high
Impact time: short/medium-term, Main Actor: MOPHRH, MEF.

Strategy 3.2 – A reduction in bureaucracy, and a material simplification of procedures related to obtaining and maintaining a license for offering construction services and participating in government bids.

Action 3.2.1 – Extend the validity of construction company licenses ("alvarás")to an interval that could span between one to five years. Specific studies should assess the optimum duration of the license. Alternatively, the law could allow a license renewal for another three years, provided that the start of work and its development are within this legal period.

Level of complexity: low, level of impact: medium
Impact time: short- term, Main Actor: MOPHRH.

Action 3.2.2 – Create an electronic system for firms to request licenses. This would eliminate the requirement for the physical presence of the interested parties at the relevant government offices, and replace paper records with electronic ones.

Level of complexity: low, level of impact: medium
Impact time: short- term, Main Actor: MOPHRH.

Action 3.2.3 – Extend the single registry (Cadastro Único) to the provincial capitals or alternatively create an electronic system for that purpose.

Level of complexity: medium, level of impact: medium
Impact time: short- term, Main Actor: MOPHRH, MEF/ DNPE

Action 3.2.4 – Eliminate the requirement of equipment ownership from public tender rules; equipment is widely available for lease in the Mozambican market. Under this system, it will be necessary for each tender, to specifically articulate the minimum requisites in terms of equipment, allowing competitors to present proof of having rented or leased it.

Level of complexity: low, level of impact: medium; Impact time: short- term, Main Actor: MOPHRH, MEF/DNPE

Action 3.2.5 - Develop a catalogue of technical requirements to guide the establishment of tender rules for each specific type of work, including basic prototypes of construction 'terms of references' (in Portuguese, 'cadernos de encargos'). This initiative would increase predictability and transparency in public procurement, standardising basic technical requirements for public works tenders.

Level of Complexity: Low, Level of Impact: medium
Impact time: short-term, Main Actor: MOPHRH

Pillar B – Quality

Objective 4. Increase the overall level of product quality and industry productivity, by fostering better management practices and technological improvements.

Strategy 4.1– Introduce a set of instruments allowing managers to regularly assess their management practices, identifying strengths and possible areas for improvements[29].

Action 4.1.1 – Design a large scale study to assess the impact of material and reputation incentives (such as prizes, public recognition, etc.) for the adoption of improved management practices in the industry.

Level of complexity: low, level of impact: high
Impact time: short- term, Main Actor: MOPHRH +MIC

Strategy 4.2 – Establish a National Program for the Quality of Public Works, by introducing a gradual score system. This would reward certification, and the conformity of construction processes to international standards, in all tenders for public works. This approach could also be extended to the building materials sector[30].

[29] An example of best practice in this field is the Brazilian Management Excellence Model (MEG) which in 2013 inspired a twin project in South Africa, the South African Excellence Model (SAEMXIII). In Brazil, Management excellence models are standardised methodologies, which help companies achieve excellence in management. They are modelled on a proven set of more than three decades of tools and best practices. They are disseminated in Brazil by the National Quality Foundation and by the Support Service for Micro and Small Enterprises (SEBRAE). For more details see Feitosa and Pimentel (2013), available at http://www.fucape.br/ _public / producao_cientifica / 2 / ESO267- 20Gabriel%%% 20Martins 20Feitosa.pdf.

[30] A similar system is the "Quality Management Program for The Supply Chain of Public Works of the Government of the Federal State of Bahia" (QUALIOP), created in 2000 in Brazil. Cherry (2003) explains that QUALIOP requirements are based on international standards ISO-9000. It establishes progressive skill levels, according to which the companies' quality management systems are evaluated and classified. This stimulates companies to evolve in the implementation of their quality system, while at the same time giving them the necessary time to do so. It is up to contractors (individually or preferably through sectoral agreements between contractors and representative organisations) to set deadlines for

Action 4.2.1 – The Council for the Promotion of the Construction Industry should commission a study to (i) examine similar cross-country experience and good practices that could be adapted to the Mozambican context and (ii) deliver technical proposals for the standardisation of building materials with a particular focus on low-cost systems. The key step in the implementation of this action is the establishment of a partnership with the Ministry of Industry and Commerce (MIC).

Level of complexity: high, level of impact: medium
Impact time: short- term, Main Actor: MOPHRH and MIC

Action 4.2.2 – Once the study and its recommendations are approved, a new set of norms with respect to public tenders could be issued, since the norms produced by the National Institute of Standardization and Quality (INNOQ) are not obligatory but merely indicative. The key step in the implementation of this action is the establishment of a partnership with MIC and the INNOQ.

Level of complexity: high, level of impact: high
Impact time: medium- term, Main Actor: MOPHRH +MIC+ INNOQ, MEF/DNPE

Action 4.2.3 - The Council shall assess viable alternatives to strengthen the Mozambican Laboratory of Engineering (LEM). This institution is legally responsible for the quality certification of building materials across the country, although it has only one office located in Maputo. To ensure that building materials are certified in all regions of the country, a possible solution would be to develop a basic kit of tests, which can be widely distributed and require only minimal training for use.

Level of complexity: low, level of impact: Medium, Impact time: short-term, Main Actor: MOPHRH + LEM

Strategy 4.3 - In cooperation with both domestic and foreign firms engaged in the procurement of construction services for sizable projects, incubate small and medium-sized firms as testing grounds for new construction technologies and materials. This would also facilitate cooperative ventures among Mozambican firms, which due to their small size cannot individually muster the resources to present competitive bids.

Action 4.3.1 – The Council could assess the viability and timeliness of this proposal, in cooperation with MOPHRH, MIC and MCTESTP. If carried out, this should be tested on one particular site, preferably in the Province of Maputo, in order to minimise costs and maximise chances of success.

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commencing enforcement of the requirements for each level. The system is based on requirements that enable adaptation to the quality system of enterprises from different regions, using different technologies and acting in the construction of buildings or different types of works (e.g. contractors or subcontractors specialised in a certain technique, or conducting EPCs). Every qualification awarded by the QUALIOP system emanates from a special body accredited by the National Institute of Metrology, Quality and Technology. The gradual process aims to increase the number of businesses which comply with the quality certification system based on the ISO 9000 (Pitanga, 2003).

Level of complexity: medium, level of impact: medium
Impact time: medium- term, Main Actor: MOPHRH +MIC+ MCTESTP

Objective 5. Enhance the quality of the construction industry workforce.

Strategy 5.1– In light of the great shortage of specialists in the industrial production of building materials, as well as in construction activities themselves, a comprehensive program for technical training and skill acquisition is required, with a focus on the mid-ranks of the workforce[31]. The Council for the Promotion of the Construction Industry should take the lead in the design, roll out and advertisement of the program, with the active involvement of the public and private sectors, and, most importantly, of education and training institutions. This process should be rolled out in cooperation with the Coordination Unit of the National Development Strategy, which also considers investment in human capital as an area of priority.

Action 5.1.1 – Assess: the magnitude of the need for creating, expanding and certifying technical schools and training courses for the construction industry workforce; the balance between institutional and on-site training; and the most efficient way to go about it, while bearing existing resource constraints in mind. This includes modernising training course contents and identifying best practices for certification and the transmission of skills.

The key step in the implementation of this action is the establishment of cooperative arrangements with the Ministries of Education (MINEDH) and Labour (MITESS), and the National Institute for Employment and Professional Training (INEFP), in order to assess existing courses and training programs, and the industry demand curve.

[31] In Mozambique there are currently three main types of institutions licensed to provide training for purposes related to the construction industry: (1) industrial institutes or mid-level polytechnic institutes, (2) Schools of arts and crafts and other technical schools and (3) universities providing higher-level engineering courses. According to a recent study by PIREP, the main weaknesses of the training system in this area are:
• Scarcity of mid-level training opportunities for skills needed in the construction industry
• Difficulties faced by the private sector in building human resources at the level needed
• Low value placed on education by students. Technical and vocational education suffers particularly in this respect.
• Insufficient quantity and quality of high and mid-level professionals trained in-country/low qualification level of human resources generally
• Poor qualification of teachers at high school level
• Static and outdated curricula
• Lack of discipline within the education system
• Lack of resources and school equipment
• Lack of opportunities
• Scarcity of on-the-job learning opportunities (internships) for students
(Source: PIREP, 2010)

Level of complexity: medium, level of impact: high; Impact time: medium/long term, Main Actor: MOPHRH+MINEDH+MITESS+INEFP

Objective 6. Progressively bring Mozambican firms up to international standards. This would require a multi-pronged approach.

First, encourage Mozambican firms to bid for and engage in public works of increasing complexity, starting with simpler projects (such as building secondary roads), and progressing primarily through multi-year maintenance contracts of public assets (such as highways), sanitation and irrigation works.

Second, provide incentives for the emergence of cooperative ventures among Mozambican firms and primary contractors of major public works, so that they can provide technical assistance to their less experienced partners. These smaller companies can serve as suppliers, as subcontractors or as parts of a cooperative, working to execute public projects of greater complexity.

Strategy 6.1 - Introduce a score system that rewards local content in public tenders, by allocating an increasing number of points over an initial 5-year period. In particular, the score system for tenders related to multi-year contracts for the maintenance of public goods (such as roads and small works of sanitation and irrigation) should be favourable to small and medium-sized local companies.

Action 6.1.1 – Detail the design of the score system and conduct impact assessment studies and simulations on the effects of this strategy.

Level of complexity: medium, level of impact: high
Impact time: short/medium term, Main Actor: MOPHRH+MEF

Strategy 6.2 - Introduce a scoring system which rewards consortia with a significant presence of local firms of different categories in public tenders. In particular, it might be advisable to revise the norm that allows cooperative agreements among Mozambican and international firms on the occasion of an international tender only.

Action 6.2.1 – The council should elaborate the design of the scoring system and conduct impact assessment studies and simulations on the effects of this strategy.

Level of complexity: medium, level of impact: high
Impact time: medium term, Main Actor: MOPHRH+MEF

Strategy 6.3 - Since the MOPHRH has been appointed as the delegated organ of the National Statistics Institute (INE), the "Statistics Master-plan" that the Ministry is currently elaborating should include

measures to increase the level of transparency of the sector, and to facilitate access to information for all relevant stakeholders[32].

Action 6.3.1 - Assess the need within the construction sector for statistics, which are currently lacking, and coordinate with INE a strategy for the dissemination of data.

Complexity level: medium impact level: high
Term impact: medium term, Lead Actor: MOPHRH + INE

Pillar C – National Synergies

Objective 7. Design a National Plan for the Utilisation of Natural Resources for the Production of Construction Materials. The plan should focus first on Natural Gas, given the high value-added of the materials which would benefit, in terms of cost and quality, from its stable and cost efficient supply (for example cement and ceramics, among others). In addition, the plan should assess the possibility of using other natural resources, such as wood and hard-burnt coal, in the production of traditional building materials, so as to integrate local producers into a wider value-chain.

Strategy 7.1 - In relation to natural gas, over the coming 1-2 years, Mozambique will need to define how best to make use of its reserves: in particular, the proportions that will be allocated to direct and indirect consumption. Natural gas has many alternative uses, both as a fuel and as an input into productive processes. An elastic supply of gas could promote entry into the building materials sector for both domestic and international firms on a competitive basis. Mozambique could in fact become a regional hub for certain building materials. The National Plan would define the geographic location of two or three main production clusters of construction materials, taking into account the source of raw materials, transportation logistics, the market, and the point of access to natural gas[33].

Action 7.1.1 – The Council – in close cooperation with the government – could conduct studies on the economic and environmental feasibility for these production clusters. Particular attention should be devoted to the localisation and implementation steps of production clusters like white/red ceramics and cement. This action should necessarily involve MIC and the Ministry of Natural Resources and Energy (MIREME).

[32] As a delegate of the National Statistics Institute (ODINE), the MOPHRH should (i) produce the official statistical information for the sector in response to the users' needs, (ii) coordinate the production of sector-level statistics, (iii) develop related institutional capacity, (iv) ensure compliance with the rules of the Mozambican National Statistical System (Quidgest-Engidro, 2015).

[33] Typically, the building materials sectors, which could benefit more from the presence of cheap/close natural gas sources are red and white ceramics, cement and its derivatives, and pre-fabricated materials.

Level of complexity: high, level of impact: high
Impact time: long term, Main Actor: MOPHRH+MIC+MIREME

Action 7.1.2 - The Council - in close cooperation with the government – could conduct studies on the economic and environmental feasibility of using other natural resources (such as coal, limestone and wood, among others) in the production of traditional materials. This would foster the inclusion of local suppliers into a wider value chain. This action should necessarily involve the MIC, the Ministry of Energy and Mineral Resources (MIREME), and the Ministry of Transport and Communications (MTC), as efficient access to raw materials strongly depends on good and competitive transportation logistics.

Level of complexity: high, level of impact: high
Impact time: long-term, Main Actor: MOPHRH+ MIC + MIREME+ MTC

Action 7.1.3 - Throughout the development of the studies mentioned in actions 7.1.1 and 7.1.2 special attention should be focused on access to raw materials. In cases where these are located in areas already populated by local communities, adequate compensation mechanisms should be established.

Level of complexity: high, level of impact: high
Impact time: long-term, Main Actor: MOPHRH + MIC + MIREME

Pillar D – Financing

Objective 8. Supply affordable housing to the population, protecting the poorer urban segments (and those in rural areas) from land-grabbing. The double objective of improving living standards for the population, and creating what may be the largest relatively stable market for the building materials sector, would thereby be achieved[34].

Strategy 8.1 – Design a **National Plan for Social Housing** focusing on medium and low income earners, and contemplating *First*, how to develop the local mortgage Industry with the active involvement of private banks; *Second,* the introduction of cost-efficient construction processes, and related tools and components, directed to large-scale housing projects; *Third*, ensure that those processes respect regional and urban-rural variations, including the use of local designs, raw materials and methods.

[34] In urban areas, the critical issue is land availability and infrastructure provision. In such cases, a large scale project is essential to make social housing possible, as well as to integrate housing and employment services. In rural areas, more flexible and economically/environmentally sustainable solutions should be offered, such as using local building materials, and offering technical support and micro-credit schemes to facilitate the purchase of building materials.

Action 8.1.1 – Conduct studies to support the objectives of the Plan, with a view to responding initially to the housing demands of the middle classes. In particular, it will be critical to support the Plan with two sets of studies.

a) The first study should examine strategies to finance housing for the middle and lower middle classes as first time buyers. In this regard, it will be important to assess the effectiveness of the Housing Promotion Fund (Fundo de Fomento de Habitação, or FFH) in the context of developing effective long-term finance for first-time home buyers[35].

b) The second study would establish the technical and economic feasibility of the use of local construction materials. This would take into account the importance of defining a stable and predictable medium to long-term demand for construction materials as a means of promoting firm entry and growth. This action would require strategic partnerships and coordinated actions with several ministries (MIC, MIREME, MINEDH, MCTESTP, and MINT) and clearly with the FFH itself.

Level of complexity: high, level of impact: high
Impact time: medium/long term, Main Actor: MOPHRH +MIC+MCT+ MIREME+ MINEDH + MCTESTP +MINT+FFH

Action 8.1.2 - In order to involve civil society organisations in the design and implementation of the National Plan for Social Housing, the Council should try to identify which participatory democracy instruments best suit the Mozambican context[36].

Level of complexity: medium, level of impact: high
Impact time: medium/long term, Main Actor: MOPHRH + MIREME + MINEDH + MCTESTP + MINT +FFH

[35]Mozambique already possesses a state-sponsored parastatal institution - the Housing Promotion Fund (Fundo de Fomento de Habitação, or FFH) - , which was initially founded to direct proceeds from the sale of nationalised housing units into affordable housing programs. Working in 35 districts and 14 municipalities, it develops serviced sites for sale to low/middle income households. Demand for these plots has been much higher than supply. The Fund also provided low interest loans for modest amounts, repayable over periods of five to 20 years. However, it experienced a high default rate, reported at 30% in 2011. The Housing Promotion Fund built a limited number of houses. From 1996 to 2004, the Fund laid out 7488 plots and funded 1021 new houses across the country. Moreover, the resources available for the FFH are becoming increasingly scarce, since there are limited public listings to alienate.

[36] One of these could be, for example, the establishment of Municipal Councils for Social Housing, with advisory, supervisory and decision-making powers as in the Brazilian model. These would be bodies implementing the housing policy for each municipality, based on the idea of parity of representation of public authorities and civil society movements. Ideally, trade unions, employers, educators, policy makers and social movements' leaders would regularly participate to these councils.

Objective 9. Enhance access to credit for firms in the construction and building materials industry.

International experience underlines the importance of two main elements in creating a dynamic industry with active participation of small and medium-sized contractors**: first,** progressively involve commercial banks, insurance companies and capital markets - fostering the development of a securities market (such as infrastructure bonds and other types of bonds[37]); and second, create an efficient market for equipment leasing.

Strategy 9.1- The Inter-Ministerial Forum – once created - should convene a Working Group on Financing Instruments for Construction Firms, tasked with suggesting specific recommendations by mid-2016.

Action 9.1.1 – Create a Working Group with experts from the public and private sectors to assess state of the art financing instruments for construction firms and providing specific recommendations on the topic.

Level of complexity: low, level of impact: high
Impact time: medium term, Main Actor: MEF

Action 9.1.2 - Create a working group with public and private sector experts to assess the current state of development of the market for insurance guarantees as applied to construction companies; provide specific recommendations thereon. The development of systems for bank guarantees or bank sureties, to protect actors in the case of works left incomplete, will be crucial.

Level of complexity: low, level of impact: high
Impact time: medium term, Main Actor: MEF

[37] In this context, it is worth mentioning Securitisation: the financial practice of pooling various types of contractual debt (such as residential mortgages, commercial mortgages, auto loans or credit card debt obligations) and selling said consolidated debt as bonds, pass-through securities, or collateralised mortgage obligation, to various investors. The principal and interest on the debt, underlying the security, is paid back to the various investors regularly. Securities backed by mortgage receivables are called mortgage-backed securities, while those backed by other types of receivables are asset-backed securities. Programs of securitisation have been successfully implemented over the last decade in other developing countries such as Brazil and South Africa. Their main benefits are higher overall levels of liquidity, lower interest rates and lower risk premiums for real estate bonds.

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Appendix

The Structure of the Construction and Building Materials Sectors

The construction sector may be subdivided into three segments, namely: building materials, civil construction and heavy construction (Table 2). In this document we primarily devote our attention to the first two segments; studying heavy construction only insofar as it affects the construction materials industry.

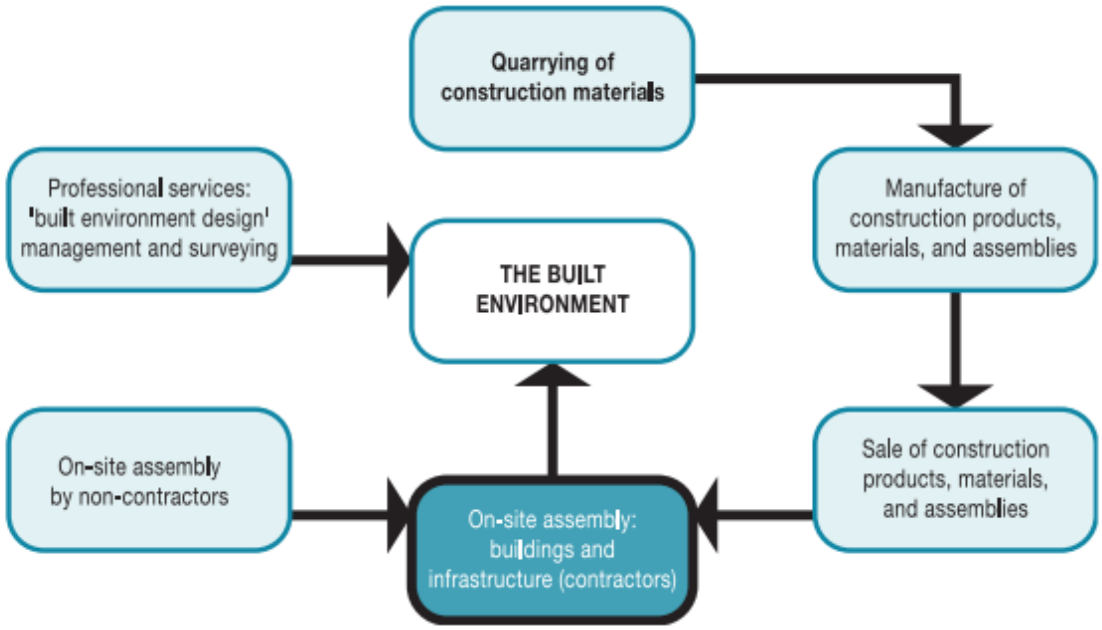
Table 2: The Classification of the Construction Industry

Building Materials	• Processing of minerals and other types of stones • Transformation of non-metallic mineral products used in construction • Hardware • Wood industry • Manufacture of coatings • Electrical, hydraulic and communications equipment • Other
Civil Construction	• Residential buildings • Commercial buildings • Industrial buildings • Renovation of buildings • Special services and auxiliary
Heavy Construction* (*Considered here only as regards its indirect effect on the construction materials industry)	• Roads and railways • Works of art • Dams • Sanitation works • Other

Source: Quintella, 2013

For reference, Figure 16 provides a visual representation of the construction industry value chain, using a holistic approach, which encompasses the industrial supply chain and its inter-sectoral linkages. The supply chain encompasses a very wide variety of products and services, ranging from the production of raw materials for construction, consulting and engineering, to special services and auxiliary activities, including the manufacture of machinery and equipment for construction. While those inter-sectoral linkages should be taken into consideration when designing an overall strategy for the sector, the focus of our analysis is on the three segments delineated in Table 2[38].

Figure 16: The Supply-chain of the Construction Industry



Source: Obe and Williams 2003

[38] Obe and Williams (2003) proposed the above schematic. The 'broad definition' of the sector includes the supply chain for construction materials, products and assemblies, and professional services such as management, architecture, engineering design, surveying and land and facilities management. Figure 21 is also reminiscent of the so called "macro complex" vision put forth by Prochnik (1987). Since then, the concept has evolved to include the tertiary sectors, resulting in a fully ramified supply chain for the Construction industry. Others referred to this complex structure as 'the Construbusiness', (FIESP, 2005 and SEBRAE-MG, 2005).

Box 1: Interview Script in Phase 1

(1) What restrictions prevent Mozambican firms from entering the market for civil and heavy construction, as well as that of building materials?

(2) What are the determinants of these restrictions?

(3) How best to integrate Mozambican construction firms into the construction sector value chain?

(4) What can be done in terms of government policies to promote a greater participation of Mozambican firms in the market for civil and heavy construction and associated building materials and related inputs?

Box 2: Interview Script in Phase 2

(1) A description of the company

(2) Incentives and measures ALREADY IN FORCE: will they be sufficient to bring a large number of midsize construction companies to respond to the demands of the off-shore gas industry? **(3)** What can be learned from both midsized firms which act as suppliers and large companies that use them as subcontractors?

Demand side Constraints

a1. What are the incentives for large companies (foreign) to use local midsize firms as service suppliers and subcontractors?

a2. What are the minimum requirements and standards that must be met by mid-sized firm to be able to perform on an effective basis, and how firms can be helped to climb the competency ladder?

Supply side Constraints

b1. What are the characteristics of potential subcontractors, and what are the major remediable deficiencies?

b2. What are the most binding constraints that prevent local firms to respond?

b3. Is lack of training and managerial ability the main barrier? If yes, what can be done in concrete terms?

b4. Is access to credit equally important or not?

b5. What is the degree of difficulty to access the equipment? Is 'Leasing' a viable alternative?

b6. Are there significant regulatory barriers that need to be removed, or are they at the end of the day a nuisance but not a real obstacle?

(4) What can be done to put in place a better institutional support for the formation of medium-sized local companies?

a. Can anything be learned from the Mozlink program and extended to the construction sector?

b. There are other successful "experiments" that can be emulated?

Glossary of Technical Terms

Alvará **(Company License)**	License for a business to operate. In the construction sector, the license also indicates the category and classification of the type of construction work a company is allowed to carry out.
Bon Curve	Graphic representation of the proposed inverted U-relationship between GDP growth and the percentage of GDP accounted for by the construction sector. During the initial phases of economic development the percentage of GDP accounted for by the construction increases, while it decreases in developed countries. The proposition was first introduced in Bon (1992) "The future of international construction: secular patterns of growth and decline"
Business incubator	Incubators are organizations that support young, recently created companies, offering all the physical, technical and administrative infrastructure they need for their development. In the incubator environment, young firms can perfect their products and explore their first business opportunities. As these opportunities mature and increase, they can leave the incubator and fully stand on their own feet.
Certidão de Quitação	Certificate of fiscal clearance issued by the Ministry of Economics and Finance confirming that the company has complied with all fiscal requirements.
Certidão de Registo Comercial	Certificate that proves the commercial registration of a company.
Certified Signature	Signature recognised by a notary.

Consortium	Cooperation between different companies in achieving a common goal, without any implications in terms of their legal personalities. Generally, consortia are created to implement large projects that are particularly onerous, or that require a large range of technical knowledge and distinct specialisations. Under Mozambican law, the class of the consortium leader must be superior to the class of the overall construction work; the classes of the other members must be superior to the classes required for the specific work areas that they are to implement. Agreements made on the establishment of a consortium must be executed in writing. Various other rules apply: for instance, a consortium involving local and foreign firms is only permitted in the context of an international tender (ACIS 2008)
Construction Industry	In this report the term is taken to include civil construction as well as the building materials sector. A more comprehensive definition would also conclude heavy construction, but this report focuses primarily on civil construction and building materials, considering heavy construction only to the extent that it affects the building materials industry.
Council for the Promotion of the Construction Industry	*(Institute that does not exist yet, but whose creation is suggested by this report)* Possible embryo of a future public-private institute for the promotion of the Construction Industry. The Council would hold monthly meetings with associations and other strategic partners, including the Mozambican Federation of Contractors (FME), the Association of Mozambican Consultancy Companies (AEMC), the Association of Engineers (OE) and the Mozambican Industrial Association (AIMO) as well as technical staff of the Ministry of Public Works (MOPHRH), among other partners and Ministries. This Council should also maintain a close working relationship with the Coordination Unit of the National Development Strategy.

EPC (Engineering, Procurement and Construction)	Contractual arrangement that covers not only the supply of equipment, necessary materials and actual building services, but also the basic and executive project, defining the responsibilities of the contracted firm more fully. The contractor is thus responsible in not only quantitative terms (quantity of materials such as tubes, concrete, metallic structures, cables, etc.), but also for the performance of equipment and systems that it provides, installs and commissions. As the starting point, engineering can have a decisive influence on the success of the project in terms of costs, timeline and quality. It also forms the basis of the day-to-day relationship with the client (http://www.brasilengenharia.com/portal/images/stories/revistas/edicao591/Eng_Gerenciamento.pdf).
Firm size	According to World Bank classification, firms can be distinguished by size in the following way: Large Firms = at least 300 full-time employees Medium Sized Firms = 50 – 299 full-time employees Small Firms = 10 – 49 full-time employees Micro Firms = 1 – 9 full-time employees
Foreign Direct Investment (FDI)	Investment made by companies originally from another country. The FDI relationship usually involves a parent firm and a foreign subsidiary, which together constitute a multinational enterprise. In order to classify as FDI, the parent firm must hold a controlling stake in the subsidiary of at least 10%, according to the United Nations.
Growth Pole	Growth poles can be defined as ´points of economic growth or centers of economic activity that benefit from agglomeration economies and, through interaction with circumfering areas, also spread prosperity from the centre to the periphery.´ (WB 2010)

Horizontal and Vertical Cooperation	Firms have various motives for cooperating with other firms. On the one hand, they seek to increase their flexibility, while on the other, they may aim for higher efficiency in the implementation of a particular contract. This has been a trend particularly for SMEs with more limited (financial, technological, productive and human) resources. Cooperation between firms can be further differentiated into two variants: - Horizontal Cooperation: Generally involves long-term agreements between firms of the same sector, also known as ´strategic alliances´. - Vertical Cooperation: Involves economic agents from different parts of the value chain, including suppliers, producers, distributors and customers.
Informality	The informal economy includes all economic activities that are outside the bounds of formality, usually carried out by non-registered firms, without tax invoices or officially registered employees, and without paying any taxes. As such, the government does not collect any taxes from this sector.
Inter-Ministerial Forum of the Construction Industry	*(Institute that does not exist yet, but whose creation is suggested by this report)* Forum whose principal objective would be to establish a high-level platform for the discussion of policies for the construction industry, directives and the implementation of Action Plans.

MozLink Program	MozLink, launched in 2003 by aluminium company Mozal, in conjunction with the International Finance Corporation (IFC), was one of the first initiatives aimed at creating commercial links between the so-called ´mega-projects´ and Mozambican SMEs. The main objective was to raise the competitive capacity of local firms, and facilitate the transfer of know-how and best entrepreneurial practices. In its first 5 years, MozLink developed the productive capacity of 45 local SMEs, while Mozal increased the number of local suppliers from 40 to 250. The initial success of MozLink led to the design of a new extended program, MozLink II, where Sasol, Cervejas de Moçambique (CDM) and Coca-Cola joined Mozal and IFC to create opportunities for local SMEs. Today, the African Project Development Facility (APDF) is also among the MozLink partners (Sutton 2014).
National Program for the Quality of Public Works	*(Program that does not exist yet, but whose creation is suggested by this report)* This system would incentivise the certification of construction processes, in conformity with international standards, by rewarding certification in all public tenders. The approach could also be extended to the building materials sector.
Program for the Development of the Municipality of Maputo (PROMAPUTO)	PROMAPUTO is a development program aimed at land regularisation and the reduction of infrastructure and service delivery deficits in 9 informal neighbourhoods of Maputo City. It is implemented in partnership with NGOs and local firms. The main objective is to increase the scope and quality of services delivered by the Municipal Council through: (1) increased institutional capacity, financial capacity and good governance during the first phase (2007-09), and (2) increased coverage and quality of services delivered to citizens during the second phase (2010-16).

Real Estate Market	Market for land and structures built on it, including buildings. Prime actors in this market include (i) Real estate agents, who act as intermediaries in the selling or renting out of real estate like apartments or offices; (ii) banks, which offer mortgage loans; (iii) lawyers specialised in real estate law; (iv) public institutions responsible for the registering of real estate properties; and (v) notaries who legally formalise any transactions made in the real estate market.
Rent-Seeking Behaviour	In economics, the simplest definition of rent-seeking behaviour is spending resources on gaining a share of wealth, at the cost of investing in further wealth creation. Since resources are spent without any new wealth being created, the net effect is a reduction in the total wealth of a society. Rent-seeking generally implies the extraction of wealth from others without making any contribution to increased productivity. The term originally referred to the gaining of control over land or other pre-existing natural resources. Rent-seeking was first formally identified in 1967 by Gordon Tullock, in conjunction with monopolies. The term rent-seeking was coined in 1974 by Anne Krueger. The word `rent´ does not refer to the payment of a rental contract, but derives from the division of income into profit, wages and rent. In economic theory, rent-seeking behaviour is contrasted with profit-seeking behaviour, whereby agents seek to extract value from mutually beneficial transactions.

Securitization	Financial practice of pooling various types of debt, such as mortgages, car loans and credit card debt obligations, and selling this consolidated debt, as a debt obligation, to various investors. The principal and interest rates linked to this financial asset are then paid to those investors. Assets guaranteed by mortgages are called mortgage-backed securities, while others are generally called ´asset-backed securities´. Securitisation programs have been implemented with success in developing countries such as Brazil and South Africa over the past decade. The main benefits are increased liquidity, lower interest rates and lower risk premiums.
Single Window Service Delivery	One-stop-shops for setting up businesses, which were installed in all provincial capitals. Up until now, these one-stop windows have been able to issue several commercial and industrial licenses as well as import and export permits. Their mandate should foreseeably broaden to include other procedures in the setting up of a company, and possibly include documents related to the migration of foreign workers.
SPEED Program	The SPEED Program is financed by USAID and seeks to improve the business environment through better commercial and investment policies. The objective is to improve the business environment, which would result in increased trade and investment and a better competitive position for Mozambican firms, thus creating employment and income opportunities.
Standardisation	Creation of standards in the construction sector in order to prevent health- and security-related problems, and to guarantee the quality of the products and services delivered by the sector. Standardisation requires detailed information about management processes, workforce qualifications and the construction materials used by firms in the construction industry.

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