



cutting through complexity

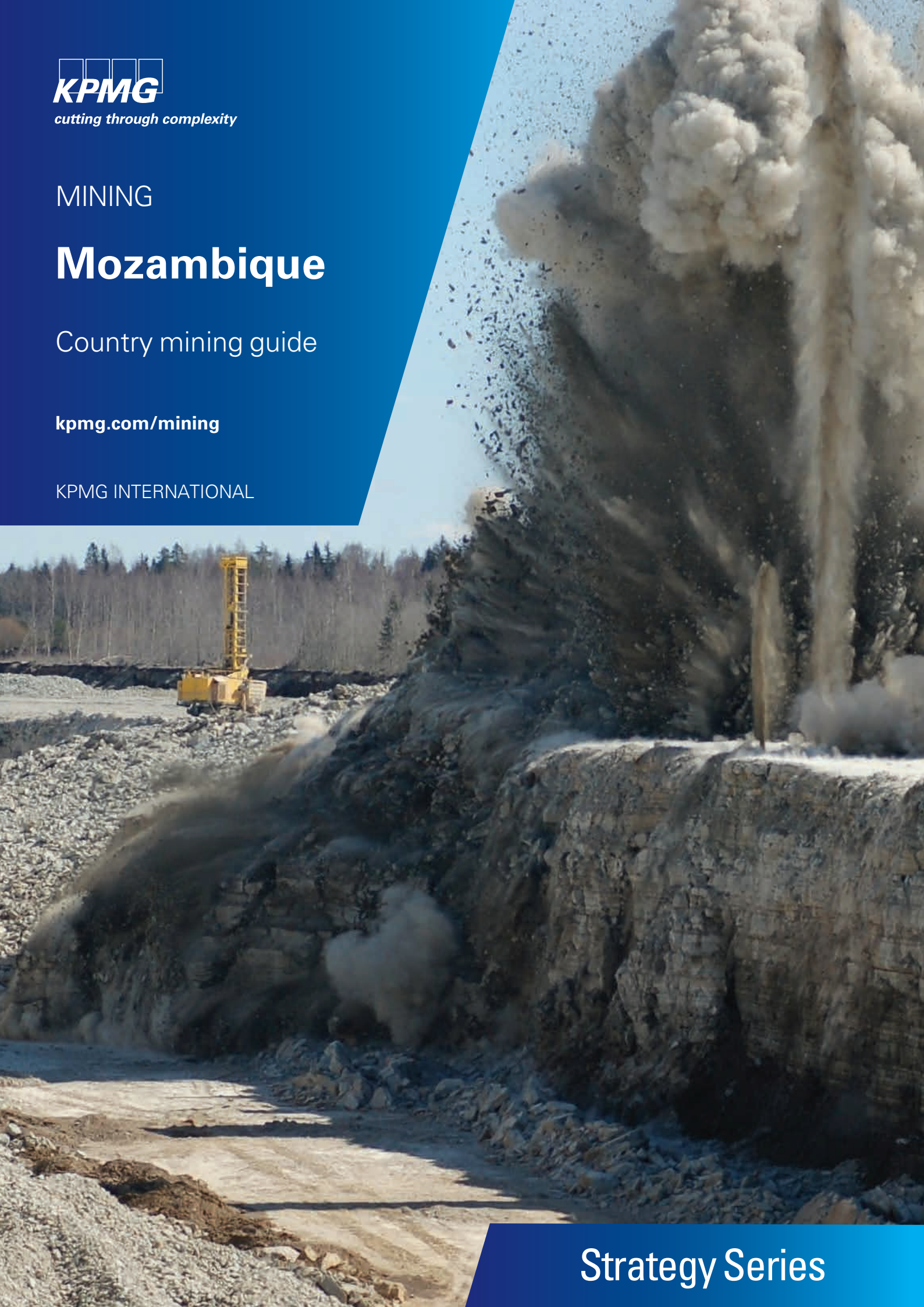
MINING

Mozambique

Country mining guide

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Strategy Series





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Executive summary

Vast coal reserves and significant potential for additional mineral deposits in Mozambique position the country as one of the most important growth stories in the global mining sector going forward. Mozambique is set to benefit from large coal demand from China and India and could well become one of the 10 largest coal exporters globally by 2017. Coal output is forecast to reach 41.8 million tons by 2017, driven mainly by Vale and Rio Tinto. Vale production is set for China, whilst Indian companies have shown great interest in developing mines in Mozambique, which is expected to be driven by three coal licences that the Mozambican government is expected to award towards the end of 2013.

There are some downside risks to the mining sector in Mozambique. Most notably the lack of proper infrastructure, which results in inability to meet the demands of the mining sector. As a result, Vale is investing in the development of the Nacala corridor project for transporting coal from the mine to the sea port of Nacala. The 912-kilometre transport corridor will have a transport capacity of 18 million tons of coal per year. Furthermore, Mozambique is almost entirely focused on coal, which makes the country highly susceptible to fluctuations in the price of coal.

To curb its looming infrastructure woes in light of the expected growth in the mining sector, Mozambique will have to invest substantially in electricity supplies, export infrastructure and transport routes. Plans are currently in place to increase capacity at the port of Beira to 18 million tons per annum by 2014, and the railway line linking Vale's Moatize mine to the port of Beira is in the process of being expanded and rehabilitated to meet increased capacity demand.

Despite its infrastructure constraints, Mozambique's sound business environment has been favourable to investment for two decades. This fact, in conjunction with low taxes and a general lack of political interference, places the country and Southern Africa at the forefront of attractive mining destinations.



US\$735 million
Value of Mozambican
mining sector by 2017



41.8 million tons
Forecast coal output by 2017



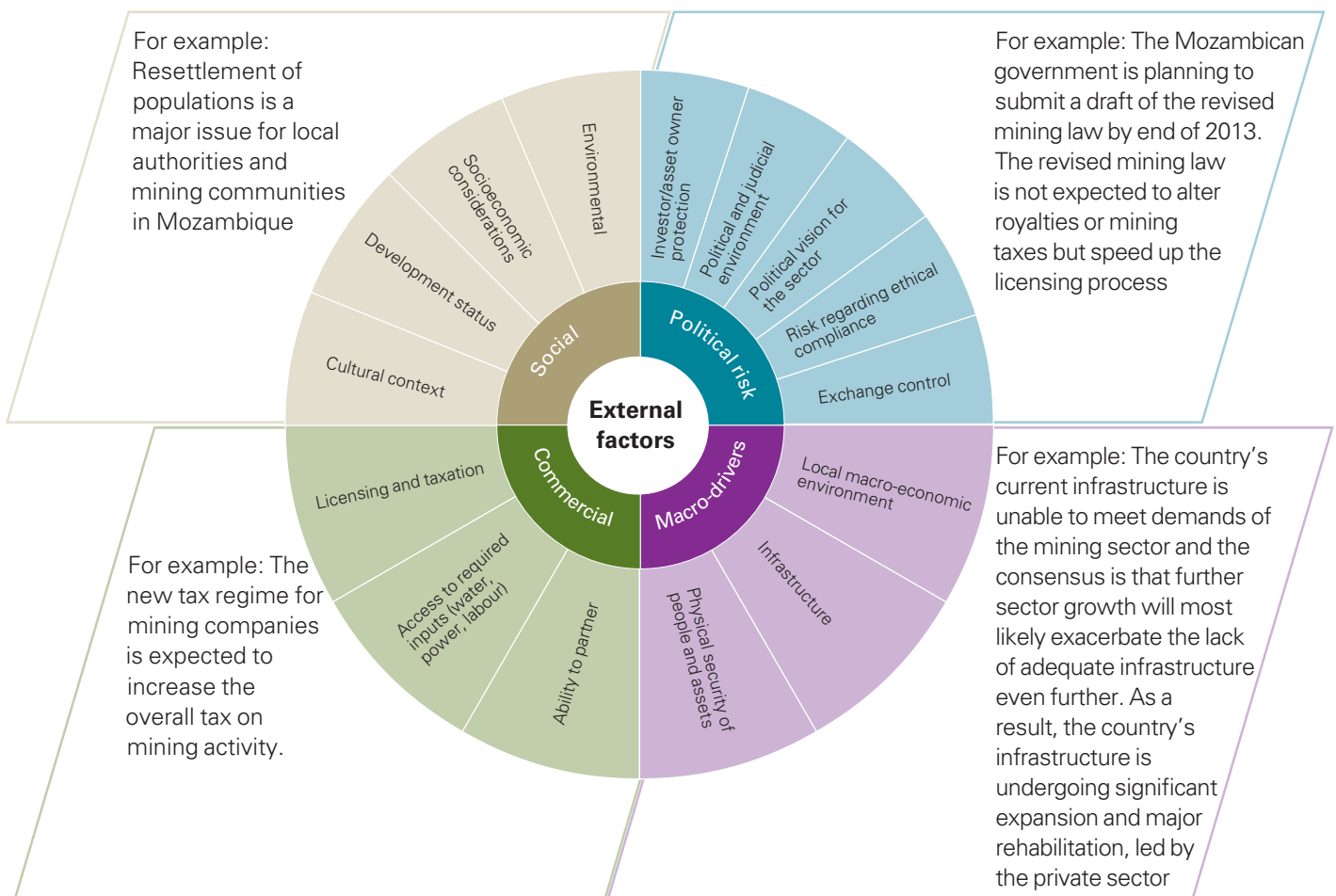
Largest coal
exporters by 2017

Source: BMI country mining report Q2, 2013 for Mozambique

New geographic expansion risk framework


Risk framework to assess new geographic expansion

KPMG's Mozambique risk framework



Source: KPMG International 2012

Country snapshot

Mozambique ¹	
Geography 	<p>The Republic of Mozambique, commonly known as Mozambique, is located on the east coast of the southern part of Africa (18°15'S 35°00'E). It shares its borders with the Indian Ocean and countries such as Tanzania, Malawi, Zambia, Zimbabwe, Swaziland and South Africa.² The country spreads over 799,380 square kilometres, with a 2,470-kilometres-long coastline. The capital and largest city is Maputo.</p>
Climate	<p>Mozambique's climate is warm and tropical, with 28° Celsius average temperature. The country's coast is usually sunny and warm, even during rough mid-winter when it is cold in the rest of the country. While summer (October–April) is rainy, humid and very hot, winter (April–September) is cooler and drier.³</p>
Population	<p>The population of Mozambique, which is young, with a median age of 16.8 years and a life expectancy of 52.8 years, is estimated at 24.1 million (July 2013).⁴</p>
Currency	<p>The official currency of Mozambique is the Mozambican New Metical (MZN). In July 2006, the new Metical term and usage replaced the old Mozambican Metical (MZM), with the value of MZN1 being equivalent to MZM1,000.⁵</p> <p>The following was the average exchange rate in 2012:</p> <ul style="list-style-type: none"> • MZN28.23: US\$1⁶ • MZN36.29: EUR1⁶
Main industries	<p>Coal, gold aluminium, petroleum products, gas, chemicals (fertilizer, soap, paint), hydro-power, textiles, cement, glass, asbestos, agriculture, food and beverages.</p>

Source: CIA Factbook

¹CIA: The World Factbook, accessed on 21 July 2012

²Mozambique, CASA Mining, accessed on 1 June 2012

³Mozambique Climate, Maps of World, accessed on 30 May 2012

⁴Mozambique Profile, World Bank, accessed on 23 July 2013

⁵Mozambique Currency, Maps of World, accessed on 21 July 2012

⁶Mozambique Central Bank (Banco de Moçambique), <http://www.bancomoc.mz/>

World Bank ranking: Ease of doing business⁷

Mozambique ranked 146th among the 185 countries covered under the World Bank Ease of Doing Business 2013 index.

While the country scored well on two parameters — protecting investors (49th) and starting a business (96th) — its ranking on other factors such as getting electricity (174th) and registering property (155th) was relatively poor. Table 1 shows the ranking of Mozambique according to different parameters in the World Bank Ease of Doing Business 2013 index.

Table 1: Mozambique's ranking on various parameters in the World Bank Ease of Doing Business 2013 index

Parameter	Ease of Doing Business 2012 rank
Starting a business	96
Dealing with construction permits	135
Getting electricity	174
Registering property	155
Getting credit	129
Protecting investors	49
Paying taxes	105
Trading across borders	134
Enforcing contracts	132
Resolving insolvency	147

Source: Ease of Doing Business in Mozambique 2013, Doing Business, accessed on 21 June 2013

Type of government^{8,9}

Mozambique is a presidential democracy where the President is the head of both the state and the government. A total of 250 members of parliament are elected for a five-year term by universal adult suffrage. The 2004 Mozambican constitution separates legislative, executive and judicial powers.

Mozambique has a unitary state, in which provincial governors are appointed by the President. Provincial governments, led by their governors, are comprised of directors who exercise local powers and perform various duties of their respective ministries. These provincial directors report to both their governors and the ministers responsible for their activities. Mozambique also has 43 municipalities whose government officials are elected by universal adult suffrage of local residents. Municipal governments exercise their limited powers under the primary tutelage of the Ministry of State Administration.

⁷Ease of Doing Business in Mozambique 2013, Doing Business, accessed on 21 June 2013

⁸CIA: The World Factbook, accessed on 1 June 2012

⁹Introduction to the Legal Framework for Mining in Mozambique, Sal & Caldeira, April 2010

Economy and fiscal policy^{10,11,12,13}

Mozambique's economy is based primarily on agriculture, which employs 83 percent of the country's population and accounts for nearly 80 percent of its exports. Although the country has significant mineral resources, they remain largely untapped, resulting in their low contribution to the economy.

At the end of the civil war in 1992, Mozambique ranked amongst the poorest countries in the world. Currently, with very low socioeconomic indicators, it continues to remain one of the least developed nations. Nevertheless, over 2001–10, the country experienced a notable economic recovery. During that period, the country's gross domestic product (GDP) grew at a compound annual growth rate of 6.8 percent, according to World Economic Outlook, April 2012.

During 2013, the real GDP growth rate is expected to reach 8.4 percent — owing to the increase in coal production, large infrastructure projects and credit expansion to the private sector. The country's nominal GDP is expected to reach US\$15.8 billion, whereas its GDP based on purchasing power parity (PPP) is expected to reach US\$28.9 billion during 2013.¹⁴

During 2012, the percentage share of services in the country's GDP is estimated to be 43.6 percent, which is the highest for any sector. This was followed by agriculture (31.8 percent) and industry (24.6 percent).¹⁵

Mozambique's economy is expected to grow at about 8 percent for both 2014 and 2015, driven by high foreign direct investment (FDI) inflows — mostly in extractive industries, continued increase in coal production, infrastructure investment and credit expansion. Inflation in the country, which was as high as 12.7 percent in 2010 and 10.8 percent in 2011, reached historical lows of 2.1 percent in 2012 against an expected 7.2 percent, which has allowed for monetary policy easing, resulting in credit expansion. The fiscal deficit is expected to increase from 8.2 percent in 2012 to 9.2 percent and 9.5 percent in 2013 and 2014, respectively. The government intends to invite private investments in the country through public-private partnerships to finance infrastructure development.¹⁶

The growth in Mozambique's mining sector is expected to increase from 1.5 percent of GDP in 2011 to 2.9 percent of GDP in 2017.

Fraser Institute rankings

Economic Freedom of the World 2012 Report¹⁷

Amongst the 144 countries covered in the Fraser Institute's *Economic Freedom of the World 2012 Report*, Mozambique ranked 134th, with a score of 5.45 on a scale of 10.[#]

The annual peer-reviewed report ranks 144 countries around the world, based on their policies that encourage 42 different economic measures in the following areas:

- size of government: expenditures, taxes and enterprises
- legal structure and security of property rights
- access to sound money
- freedom to trade internationally
- regulation of credit, labour and business.

Note: [#]The rating of 10 is taken as the highest and one as the lowest in the *Economic Freedom of the World 2012 Report*

¹⁰Mozambique Country Profile, Foreign & Commonwealth Office, accessed on 21 July 2012

¹¹Mozambique: Overview, African Economic Outlook, accessed on 1 June 2012

¹²Background Note: Mozambique, US Department of State, accessed on 1 June 2012

¹³World Economic Outlook Database April 2012, IMF, accessed on 5 June 2012

¹⁴World Economic Outlook Database April 2013, IMF, accessed on 24 June 2013

¹⁵CIA: The World Factbook, Mozambique, accessed 24 June 2013

¹⁶Mozambique: African Economic Outlook, accessed 24 June 2013

¹⁷*Economic Freedom of the World 2012 Annual Report*, Free the World, 2012

Regulatory environment^{18,19,20,21}

According to the Mozambican mining law, the government owns all mineral resources and allows autonomous mining extraction operations by private companies with mineral exploitation rights determined by the scale of proposed operations. Since a local company needs to be incorporated into an operation, all applications for exploration and mining rights have to be addressed to the Minister of Mineral Resources and Energy for processing by the National Directorate of Mines. In general, large-scale and foreign investment projects are subject to individual licensing agreements.

The Mozambican government is planning to submit a draft revised mining law by the end of 2013 in order to streamline procedures which, in turn, is expected to attract more FDI into its thriving coal sector. It is expected that the new mining law will not alter royalties or mining taxes, and the rationale for the new mining law is purely to speed up the mining licence process and to reduce mining investment administration.²¹



¹⁸Technical Report — Mozambique, The MSA Group, 23 September 2011

¹⁹Mozambique Country Report, Fernanda Lopes & Associates, March 2012

²⁰Ministry of Mineral Resources and Energy, Republic of Mozambique, accessed on 30 May 2012

²¹BMI Q2, 2013

Table 2: The mining certificate, pass and licences available to mining companies in Mozambique

Licence type	Duration	Renewable	Cost of licence (US\$)	Purpose
Reconnaissance	2 years	Not renewable	Fee for registration of application: 70 Fee for issue of title: 30	A reconnaissance licence allows the holder to carry out reconnaissance operations over relatively large areas (not exceeding 100,000 hectares) during a maximum period of two years. The licence is non-renewable and non-transferable.
Exploration licence	5 years	3 years	Licence fee: 70 Fee for registration of application: 30 Fee for issue of title: 20 Fee for renewal: 18	An exploration licence allows its holder to conduct prospecting and research operations in a designated area (not exceeding 25,000 hectares) for a period of five years and is renewable for up to a further five years. To extend a licence, an application must be submitted to the Minister at least 60 days before the expiry of the current licence.
Mining concessions	25 years	Not exceeding 25 years	Fee for registration of application: 70 Fee for issue of title: 43 Fee for renewal: 30	A mining concession is a licence that allows the exploitation of mineral resources in a given area. Concessions are granted by the state for the period equivalent to the economic life of the mine (or mining operation) up to a maximum of 25 years, and are renewable for further periods not exceeding 25 years. The area of the concession shall not exceed that which is reasonably necessary for the mining operation. To discourage applicants from requesting large areas and keeping them out of use, surface tax is levied on mining concessions.
Mining certificate	2 years	Not exceeding 2 years	Fees for application of transfer of title: 89 Fees for registration of transfer of titles: 9	It may be granted to any individual or legal person domiciled in Mozambique, including both Mozambican nationals and foreigners. The mining certificate cannot be granted for any area excluded by law from mining activity or for any designated area for a mining pass or for any area under exploration licence or mining concession. The certificate is extendable for successive periods of no more than two years each, provided the mining operation underway justifies this and the area does not exceed 500 hectares.
Mining pass	1 year	1 year	Not available	A mining pass can only be granted to individual persons of Mozambican nationality with legal capacity, enabling them to undertake the operations permitted by this title. A specified area of land may be declared a designated area for a mining pass. The mining pass permits the holder to undertake small-scale (artisanal) mining activities. It is non-transferable.

Sources: Technical Report — Mozambique, The MSA Group, 23 September 2011; Mozambique Country Report, Fernanda Lopes & Associates, March 2012; Ministry of Mineral Resources and Energy, Republic of Mozambique, accessed on 30 May 2012

Taxation^{22,23}

In Mozambique, corporate income tax of 32 percent is levied on mining companies. The new tax regime for mining companies is expected to increase the overall tax on the mining activity. Besides corporate tax, mining companies are also required to pay royalties to the state. A 3 percent royalty is mandatory for all mineral production, except for precious metals, gemstones and diamonds. Royalties for precious metals, gemstones and diamonds are 5 percent, 6 percent and 10 percent, respectively.

The government, however, also provides incentives for investments in the mining sector. The following are the various specific incentives which can be provided to mining companies by request:

- exemption over the first 5 years from customs duties, on importation of equipment related to prospecting, research and mining exploration; if listed in “K list” of Customs Tariff Schedule
- such exemption is extended to VAT (including VAT of internal acquisitions) and to specific consumption tax
- the acquisition of services by the mining sector relating to drilling, exploration and construction of infrastructures — during the exploration and development phases — are now exempt from VAT.

Note: Such benefits will only be granted if such products are not produced in Mozambique.

Power supply²⁴

Established by the state in 1977, the Electricidade de Moçambique (EDM) is the main electricity authority in Mozambique. The EDM is responsible for the generation, transmission and distribution of electricity in the country. In addition, there are other companies that produce and distribute electricity — the most notable among them is Hidroelétrica de Cahora Bassa (HCB), owned jointly by Portugal (7.5 percent) and Mozambique (92.5 percent). HCB is the biggest hydroelectric project in Southern Africa with an installed capacity of 2,075 megawatts (MW). Other large hydroelectric plants in Mozambique include the Mavuzi plant, which has an effective capacity of 44.5MW out of 52MW nominal capacity, the Chicamba plant, operating at 34MW capacity out of the installed 38.4MW capacity and the Corumana plant, which generates 14MW out of the 16.6MW capacity.^{25,26}

Mozambique’s current electricity-generating capacity is about 2,200MW, supplied mainly by the HCB dam, of which nearly 65 percent is exported to the neighboring South Africa. In contrast, only 18 percent of Mozambicans have access to electricity. The country’s power demand, currently at 1,600MW, has been rising by 15 percent per year. In the northern parts of the country, the base of most new mining projects, this growth has been even higher, estimated at over 20 percent, according to Carlos Yum, Director for Business Development at EDM.

The proposed projects in the country include a 1,245MW plant in the northern part of the Zambezi River, where Cahora Bassa is also based, and the 1,500MW Mphanda Nkuwa plant further downstream. However, these hydroelectric projects are dependent on the construction of a US\$1.8 billion transmission line between the Zambezia province and Maputo. Currently, power from existing dams are first sent to South Africa and then transmitted back to Mozambique.

In Mozambique, all power generation projects have been delayed for many years. However, the coal and gas rush in the country is likely to provide the impetus for investments in these projects. To power their projects, coal miners in the country, including Brazil’s Vale and Rio Tinto, plan to build plants to generate electricity using waste coal. In future, they may also sell power to the national grid. Further, recent mega gas discoveries are expected to spur development of similar projects by 2020, most of which would be based near the offshore Rovuma basin in the north of the country. In addition, with nearly 300MW of gas-fired power plants under construction and due by 2014, gas-to-power plants may help address the country’s supply gap,

²²Mining in Mozambique, Mbendi, accessed on 30 May 2012

²³Concern Over Proposed Amendments to Mozambique’s Mining Law, Mining Weekly, 9 December 2011

²⁴Mozambique Power Supply Constrained Until 2020, Yahoo News, 26 April 2012

²⁵Electrical Power in Mozambique — Overview, Mbendi, accessed on 4 June 2012

²⁶Portugal Sells 7.5 Percent Stake in Power Company to Mozambique, Bloomberg Businessweek, 9 April 2012

according to Carlos Yum, Director for Business Development at EDM. Gigawatt Mozambique, 40 percent of which is owned by South African company Gigajoule, has invested US\$230 million in a 100MW gas-fired plant in Ressano Garcia, which borders South Africa. The plant is expected to start operations by the end of 2013. On 30 May 2012, a new natural-gas-processing facility was inaugurated in Temane, in the southern Mozambican province of Inhambane. The plant will increase energy production to 50.8MW hour, up from the previous level of 33.3MW hour. Of the 15.5MW hour energy increase, 7.5MW hour energy is earmarked for Mozambique.^{27,28,29}

In the second half of 2012 (July–December), Mozambique bought 500,000 tons of oil products (350,000 tons of gasoil, 110,000 tons of gasoline and 40,000 tons of jet fuel) in the spot market, to secure fuel for backup power generators to cope with power shortages.³⁰

Infrastructure development³¹

In Mozambique, infrastructure is well developed in some sectors, such as its East–West transport infrastructure, power grid, and water and sanitation networks. However, the nation continues to face critical challenges in other areas, including North–South transport connections development, effective water system management and hydroelectric generation expansion.³² The country's infrastructure is unable to meet demands of the mining sector and the consensus is that further sector growth will most likely exacerbate lack of adequate infrastructure even further. Currently, the country's infrastructure is undergoing significant expansion and major rehabilitation, led by the private sector. This includes capacity upgrades to the port of Beira as well as the Sena railway line. By 2020, the private sector is expected to invest US\$34 billion in infrastructure development.³³

Over 2006–11, EDM invested nearly US\$90 million in a comprehensive expansion and upgrade of the electricity infrastructure in the country's capital city, Maputo. This resulted in an extra 440 kilometer of low-voltage and 135 kilometres of medium-voltage transmission lines. As a result, the number of Maputo households with electricity almost tripled over that period, rising from 90,000 to 236,000. Currently, almost 90 percent of the city's population has access to electricity, according to EDM. Further, during the same period, 273 new transformer posts were installed in Maputo, resulting in significant improvement in the quality of electricity supply. For 2012, EDM had set the target of raising access to electricity to almost 100 percent, across all Maputo city neighborhoods. As of mid-November 2011, 921,704 households in the country — which represents nearly 18 percent of the Mozambican population — were linked to the national grid. The Maputo city figure of 236,000 households accounts for 27 percent of the national total.³⁴

FDI from emerging economies plays an important role in infrastructure development in Mozambique. During 2011–20, China is expected to invest over US\$13 billion, mainly in infrastructure (ports, roads and energy). Further, Brazil is focusing on agriculture, mineral resources, infrastructure and health, with up to US\$4 billion investments projected during 2011–15, according to the Investment Promotion Centre, Mozambique. Further, the Mozambican government's 2010–14 five-year plan (Plano Quinquenal do Governo) also focuses on investments in infrastructure and basic social services, with a view to fight poverty and improve living conditions by generating employment opportunities. The following are some of the important infrastructure targets under the five-year plan:

- completing the 750-kilometre road linking the North–South (EN1) highway
- increasing power generation capacity by completing the first phase of the Mpanda Nkuwa (1,500MW), the North Cahora Bassa (1,245MW), the Moatize Coal Power Plant (600MW) and the Benga Coal Power Plant (500MW) projects
- increasing access to water in rural areas from 52 percent to 69 percent.

²⁷ SADC Resurgence, energy Forecast, 17 January 2012

²⁸ Mozambique: Sasol Increases Natural Gas Production in Temane, allAfrica.com, 30 May 2012

²⁹ Mozambique's First Gas Fired Power Plant Aims for End 2013 Completion, Africa Electricity, 2 May 2012

³⁰ Mozambique Set To Buy 500,000T Oil Products: Trade, Embassy of the Republic of Mozambique, Washington DC, 8 May 2012

³¹ Republic of Mozambique: Country Strategy Paper 2011–2015, African Development Bank Group, August 2011

³² Mozambique's Infrastructure — A Continental Perspective, World Bank, September 2011

³³ Private Sector Driving Infrastructure Development in Mozambique, Frost&Sullivan, 27 March 2012

³⁴ Maputo Electricity Infrastructure Upgraded, ESI-Africa, 17 November 2011

Labour relations and employment situation

Mozambique has a high population annual growth rate of 2.8 percent, with an estimated 300,000 new entrants into the labour market. The overall unemployment rate stands at 27 percent. The formal economy is largely urban, accounting for only 32 percent of all employment. As a result, many new entrants into the labour market are forced into marginal jobs in the informal economy, in both rural and urban areas, with little prospect of reliable employment.³⁵

Over 2006–11, the reduction of poverty levels stagnated, largely due to failure to generate employment and increase productivity in the agricultural sector.

In May 2007, a labour law was passed as a result of a compromise between labour unions and employer groups. The bill relaxed several labour market rigidities that were allegedly inhibiting job creation. It also allowed a wider range of contracts, including short-term contracts for fixed periods, and linked laid-off workers' severance payments to their earnings and duration of employment.³⁶

In Mozambique, vocational training courses are offered by various ministries, such as the Institute of Employment and Training (INEFP) under the ministries of labour, agriculture and transport, tourism and public works. In addition, there are many private training providers that offer specialised skills training for niche markets.³⁷

The government's Employment and Professional Training Strategy, 2006–15, aims to create one million jobs by 2015. In addition to job creation, the country aims to create an institutional and participatory labour market management mechanism that allows decision making as well as initiates actions that guarantee a balanced labour market and reduces unemployment and its effects.³⁸

Sustainability and environment

The growing natural resources sector in Mozambique has increased the necessity of sustainability practices, particularly relating to society and the environment. The resettlement of populations is currently a major issue for local authorities, communities and human rights organisations. Resettlement of populations should be based on global sustainable principles and practices. The companies' reputation and social licence to operate is largely dependent on a successful resettlement programme.

As a result, the government is working together with the mining community on new regulatory procedures which will place requirements on sustainable practices to companies.

Environmental regulation and challenges

The National Institute of Disaster Management (INGC) is the agency established in 1999 to coordinate disaster risk management activities in Mozambique. It operates under the Ministry of State Administration (MAE) with the mandate to coordinate emergencies, promote disaster prevention through population and government mobilisation, protect human lives, ensure multi-sectoral coordination in disaster emergency, coordinate early warning systems, carry out public awareness and re-utilise arid and semi-arid zones³⁹ at national, provincial and district levels as well as the community levels.

³⁵Thematic Analysis: Promoting Youth Employment, African Economic Outlook, accessed on 5 June 2012

³⁶Mozambique, OECD, April 2008

³⁷Mozambique, OECD, April 2008

³⁸Ensuring Employment: Situation and Trends, United Nations Development Programme, accessed on 5 June 2012

³⁹Website: <http://www.ingc.gov.mz>

Mozambique is a signatory to major multilateral environmental agreements, including biodiversity, climate change, desertification, endangered species, hazardous wastes, law of the sea, ozone layer protection, ship pollution and wetlands.

Greenhouse gas

According to UN sources, Mozambique accounts for only 0.01 percent of greenhouse gas (GHG) emissions. The country's Environmental Performance Index (EPI) of 51.2 ranks it 112th in the EPI country ranking.⁴⁰ The main source of GHG emissions for Mozambique are emissions from land use, land use change and forestry (LULUCF). Emissions from agriculture and energy sectors are the second and third largest sources of emissions.

Key risks to climate change

Mozambique is vulnerable to adverse weather. The main climate change and natural disaster risks are associated with droughts, floods and storms.⁴¹ Sectors such as agriculture, energy, transport infrastructure — particularly roads — and coastal areas are the most vulnerable. The country's tropical cyclone season lasts from January to March every year. Pollution, land degradation and deforestation are also considered major problems. Pollution results primarily from (i) sedimentation and pesticide and fertilizer runoffs in agriculture, (ii) discharge of untreated waste containing heavy metals and hydrocarbons from the industry, and (iii) untreated waste discharged to rivers and the sea from sewage and domestic waste sources. Land degradation includes loss of agricultural soil through soil erosion and desertification. This results from poor land use practices such as fire used for land clearing for cultivation, hunting, logging and acquisition of other non-timber forest products. Land degradation is also reported from erosion and silting in artisanal mining operations. Deforestation derives mainly from fuel wood collection, shifting agriculture, forest fires, timber exports and lack of plans for land use.⁴²

The country's low capacity to deal with climate change risks is due to lack of financial, technical and human resources. There is no dedicated personnel in government responsible for climate change policy.

Social economic development challenges

The country's main socioeconomic challenges are posed by poverty. The new Poverty Reduction Plan (PARP, 2011–14), approved by the government in 2010, focuses on increasing agricultural production, promoting the development of small and medium enterprises (SMEs) and on investment in human and social development. Between 1996 and 2009, efforts to reduce poverty levels reached an average annual rate of 1.17 percent. A current expectation is to reach an ambitious 2.6 percent per annum by 2014, i.e. more than twice the reduction achieved in the past 15 years. For this goal, the budget allocation to priority sectors in 2012 was 66.7 percent of the total budget.⁴³

In terms of human development, the enrollment rate of girls in both primary (109 percent) and secondary (23 percent) education remains lower than that of boys (121 percent, and 28 percent, respectively). The overall literacy rate among adults increased from 45 percent in 2001 to 56.1 percent in 2010, with the highest amongst men (70.8 percent) against 42.8 percent among women. The HIV/AIDS prevalence rate amongst adults was 11.5 percent in 2011, and this continues to be a disease that poses major challenges to the country. The infant mortality rate in 2011 was 86.2 percent, while life expectancy for 2012 was estimated at 52.8 years.⁴⁴

Food insecurity rates are at 35 percent, while stunting (height for age <-2 standard deviation) affects 43 percent of children (DHS 2011). According to the WHO, the high levels (>40 percent) of chronic malnutrition represent a serious public health problem for the development of human capital. As a result of malnutrition, 50 percent of children under five years in Mozambique cannot achieve their full potential in terms of physical, mental and cognitive development. On the other hand, 75 percent of children and 48 percent of mothers suffer from anemia or low iron in the blood. Vitamin A deficiency affects 69 percent and 11 percent of under-five children and mothers in Mozambique, respectively.

⁴⁰Website: <http://www.epi2010.yale.edu/>

⁴¹KLIMOS Environmental Sustainability Profile MOZAMBIQUE, October 2012

⁴²Sida's Helpdesk for Environment and Climate Change (2011). Environment and Climate Change Policy Brief – Mozambique. October 2011, www.sidaenvironmenthelpdesk.se

⁴³Ministry of Finance (2011) Relatório de Execução Fiscal do Orçamento do Estado — January–December 2011. Government of Mozambique

⁴⁴UNESCO (2011). Education Profile of Mozambique. United Nations Educational, Scientific and Cultural Organization

Availability of land

Mozambique's greatest potential stems from its natural resource base. Surface water resources are abundant, although unevenly distributed in time and space. Over half of the water resources emanate from abroad. The total area of arable land and pasture is estimated at 36 million hectares, of which only 3.9 million hectares are actually cultivated. With 10 agro-ecological zones, the country is diverse in terms of soil and climate. Annual rainfall varies from 327mm in the southwest area of Pafuri to 2.611mm per year in the highlands of the Gurue district in the province of Zambézia (CAP 2000). About 3.7 million farms cultivate the land, the majority of which (about 98 percent) are small.



Key commodities — Production and reserves

Production level of key commodities in Mozambique

Coal production

In Mozambique, coal mining is the fastest growing industrial segment according to Frost & Sullivan. Significant reserves of coking coal have been discovered in the Tete province and the Zambezi area, which have attracted a number of prominent mining companies. Vale Mining and Rio Tinto are developing mines in the country and constructing key infrastructure to facilitate export of mining commodities.⁴⁵

Vale has been producing coal from the Moatize mine since July 2011. The company has invested in developing two railroad projects — the Sena railroad project and the Nacala corridor project for transporting coal from the Moatize mine to the sea port for exports. The 575-kilometre long Sena railroad project is already in operation and connects the Moatize mine to the port of Beira, in the south of Mozambique. It has a transport capacity of 6 million tons of coal per year. The Nacala corridor project, which is currently under development, will connect the Moatize mine to the port of Nacala. The 912-kilometre long corridor is expected to have a transport capacity of 18 million tons of coal per year. In addition, the company is expanding production by developing a phase II project at the Moatize mine. The phase II operations are expected to double the current 11 million tons per annum production capacity from the mine. The company is slowing down the development of the phase II mine to ensure that it comes into operation simultaneously with the new Nacala corridor rail route, which will transport the coal from the mine.⁴⁶ These projects are significant foreign mining investments for Mozambique, with a major share of Mozambique's future coal production expected to come from the Moatize project.

Rio Tinto holds mining and exploration licences in the Moatize basin in Tete province of Mozambique. It manages the Zambeze Project, Tete East Project and the Benga mine. The company is considering total or partial sale of its operations at the Benga coal mine after a downward review of coal reserves at the mine along with challenges in transporting coal from the mine after the Mozambican government disallowed barging of coal in early 2012 on environmental grounds.^{47,48} The Benga coal mine, which was opened in May 2012, undertook its first coal exports in June 2012. The company has paused coal transport through the Sena railway line in northwest Mozambique after threats by Renamo (former civil war guerrilla organisation), to disrupt rail traffic. Sena is the only railway line connecting the coal fields in the Tete province to the port of Beira.⁴⁹

Mozambique is expected to be a key driver of global coal production going forward, reaching coal output of 41.8 million tons by 2017 from 6.3 million tons in 2011, according to BMI forecasts. Despite this bullish outlook for Mozambican coal, Mozambique is still expected to account for less than 1 percent of global coal output by 2017. However, the majority of this coal is destined for export, most notably to China and India, which could make Mozambique one of the top 10 largest coal exporters in the world.⁵⁰ Figure 1 shows the production levels of coal from 2009–17 (forecast).

⁴⁵Private Sector Driving Infrastructure Development in Mozambique, Frost & Sullivan, 27 March 2012

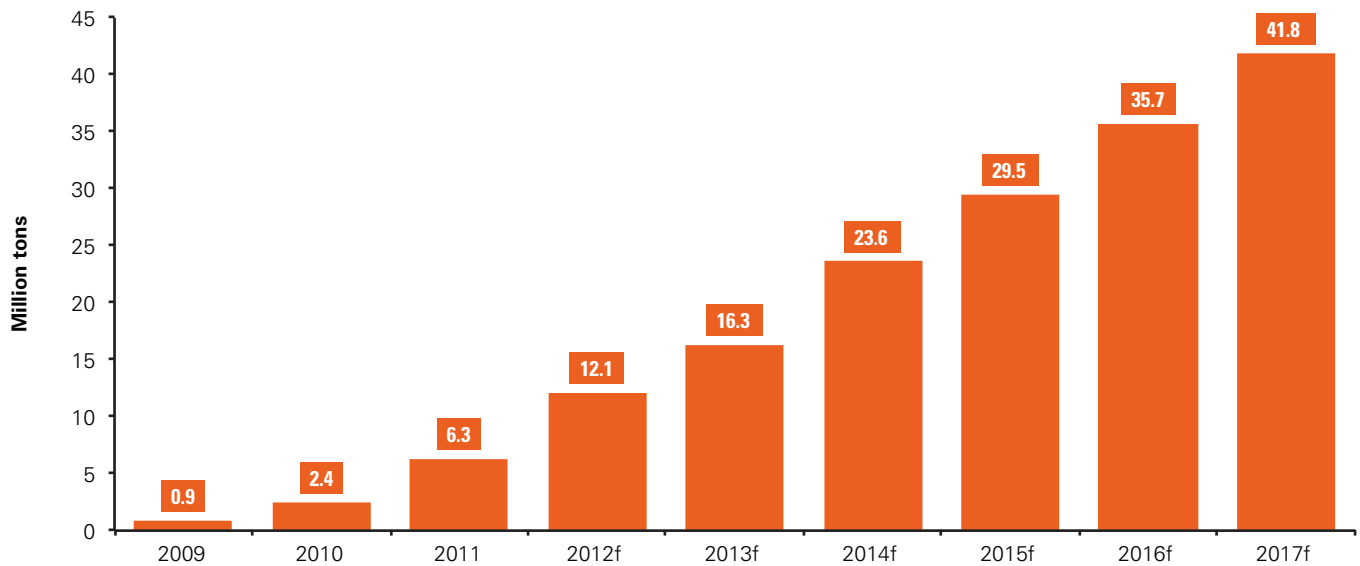
⁴⁶Keith Campbell "Vale reveals progress in Moatize expansion and Nacala corridor development," MiningWeekly.com, 8 March 2013

⁴⁷"Rio Tinto considers selling out in Mozambique," Mining Review.com, 27 June 2013

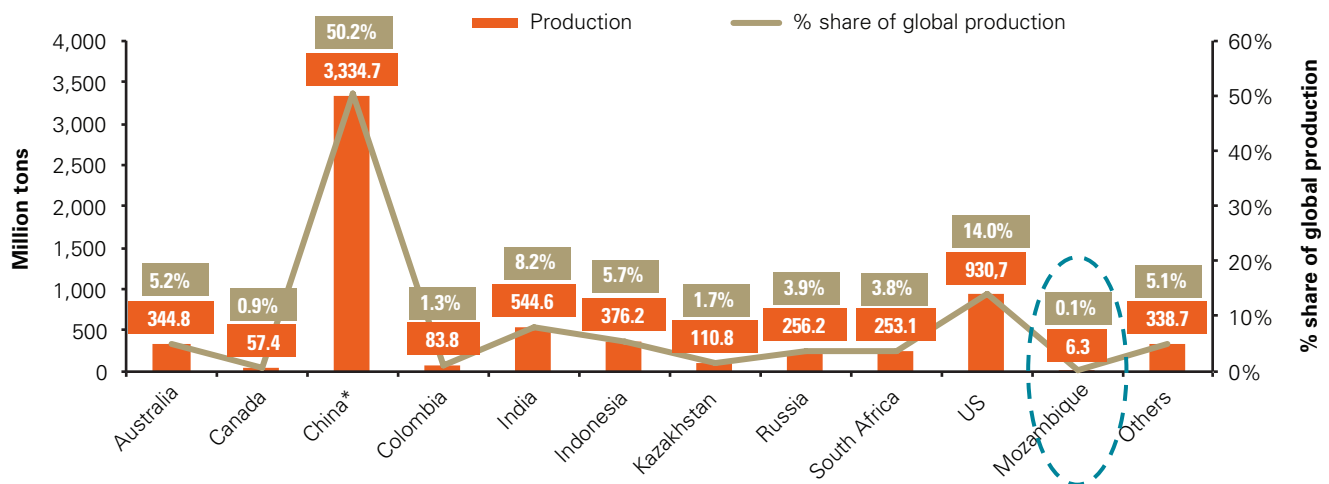
⁴⁸"Rio Tinto reviews Mozambique as miners retreat from big plans," Mineweb.com, 22 Jan 2013

⁴⁹"Renamo threatens halt Rio's Beira exports," Business Day Live, 27 June 2013

⁵⁰Mozambique Q2 Mining Report Released, MiningWeekly, 24 June 2011

Figure 1: Mozambique coal production levels, 2009–17f

Source: Business Monitor International Q2 2013 report

Figure 2: Mine production of coal for top producing countries, 2011

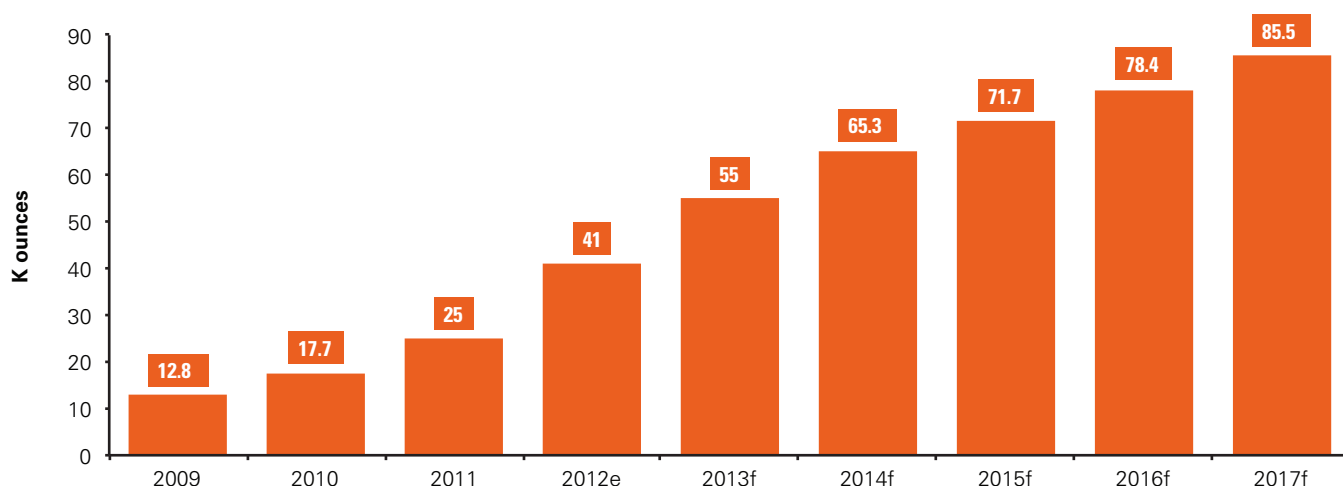
Source: Bureau of Resources and Energy Economics Resource & Energy Statistics Annual 2012

*China's production excludes production from Hong Kong.

Gold production

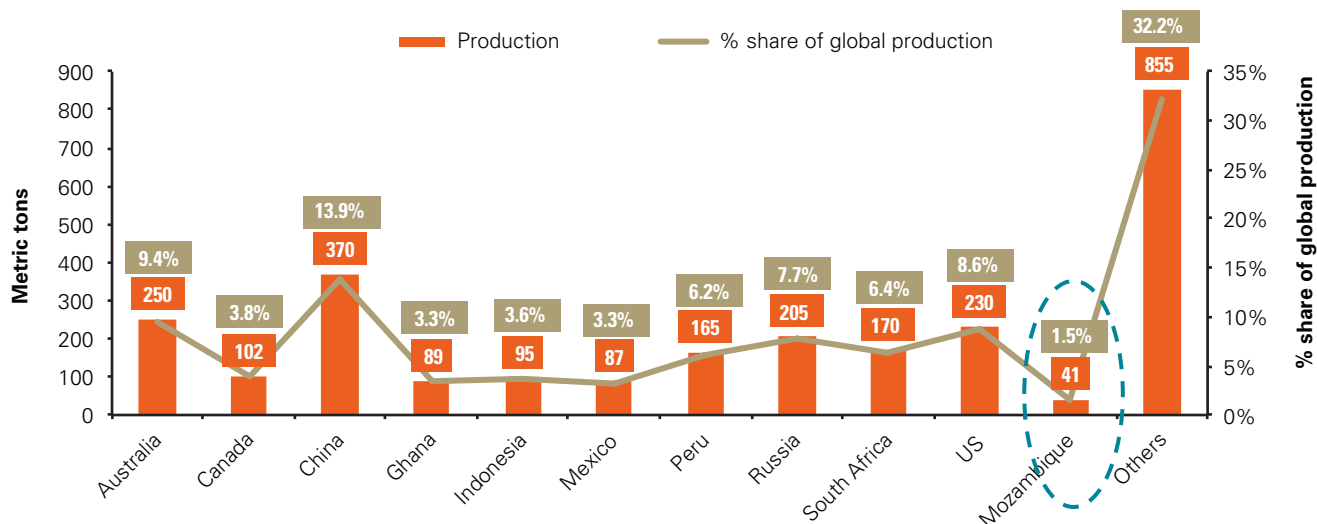
Gold production in Mozambique is expected to increase significantly, albeit from a low base, driven mainly by Auroch Minerals Manica Gold Project which is expected to come online. Despite being largely overshadowed by its booming coal sector, gold is still expected to boost the mining industry and economy. By 2017, Mozambique's gold production is expected to increase from 25,000 ounces in 2011 to 85,000 ounces by 2017.⁵¹ Figure 3 shows the production levels of gold from 2009 to 2017 (forecast).

Figure 3: Mozambique gold production levels, 2009–17f



Source: Business Monitor International Q2 2013 report

Figure 4: Mine production of gold for top producing countries, 2012e



Source: US Geological Survey Mineral Commodity Summaries, Gold 2013

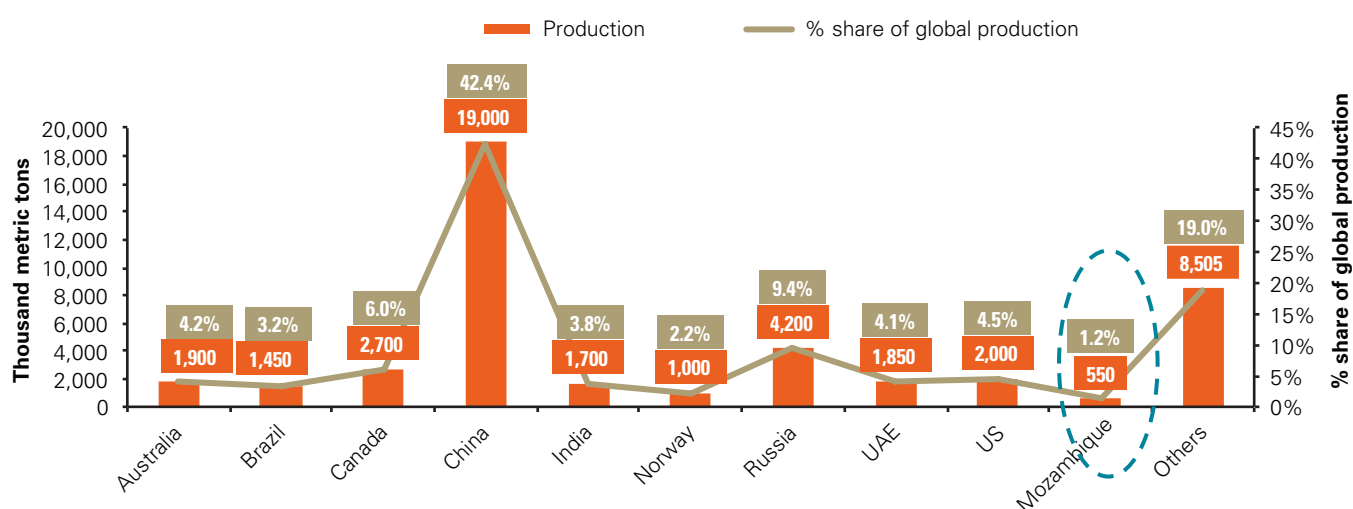
⁵¹BMI Q2 2013, WBMS

Aluminium production

Aluminium production is one of the most important revenue generators for Mozambique. The Mozal aluminium smelter operated by BHP Billiton is one of the largest aluminium smelters in Africa. Currently, Mozambique is actively seeking investments from more developed economies. During June 2013, South Korea agreed to work closely with Mozambique to develop the country's rich energy and other natural resources.⁵²

The Mozal aluminium smelter is the only aluminium producer in the country and sources its electricity primarily from South Africa.⁵³ During 2012, Mozambique produced 550 metric tons (MT) of aluminium. Figure 5 shows the production levels of aluminium in Mozambique in comparison to global levels during 2001–11.

Figure 5: Mine production of aluminium for top producing countries, 2012e



Source: US Geological Survey, Mineral Commodity Summaries, Aluminium 2013

Table 3: Mozambique and world aluminium production levels, 2001–12e

Year	World (Thousand metric tons)	Mozambique (Thousand metric tons)	Percentage share of global production
2001	24,300	266	1.09
2002	26,100	273	1.05
2003	28,000	407	1.45
2004	29,900	549	1.84
2005	31,900	555	1.74
2006	33,900	564	1.66
2007	38,000	564	1.48
2008	39,600	536	1.35
2009	36,900	545	1.48
2010	40,800	557	1.37
2011	44,400	562	1.27
2012e	44,900	550	1.22

Source: US Geological Survey, Mineral Commodity Summaries

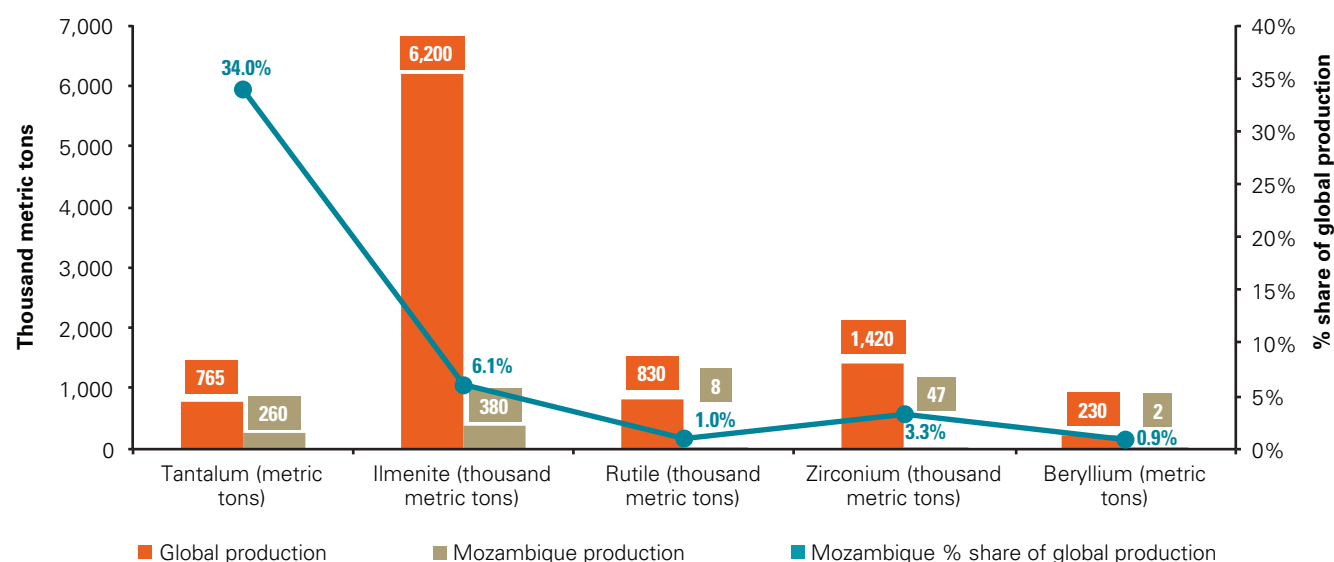
⁵²S. Korea, Mozambique Pledge Close Cooperation in Energy, Resources Via Factiva, accessed 21 June 2013; Mozambique Economy & Industry, Our Africa, accessed 21 June 2013

⁵³Interra Database, accessed 21 June 2013

Other key commodities mined in Mozambique

Commodities such as tantalum, ilmenite, rutile, zirconium and beryllium are also mined in the country. Mozambique is expected to have produced about 34 percent of the global tantalum production during 2012. However, it produced other commodities such as rutile and beryllium on a smaller scale.

Figure 6: Share of Mozambique in global production for other mined commodities, 2012e



Source: US Geological Survey, Mineral Commodity Summaries 2013

We expect the value of the country's mining sector will reach US\$735 million in 2017, from US\$178 million in 2011. This growth supports our bullish view for the Mozambican economy and will see the mining sector rise from 1.5% of GDP in 2011 to 2.9% in 2017.⁵⁴

Source: BMI Q3 2013 report

Natural gas production

In Mozambique, the natural gas industry is also expanding. A natural gas reserve of 32 trillion cubic metres has been discovered off the coast of Mozambique, close to Pemba. This discovery may make Mozambique one of the largest exporters of natural gas to Asia. Further, between 2014 and 2016, gas field operations are expected to become operational.⁵⁵

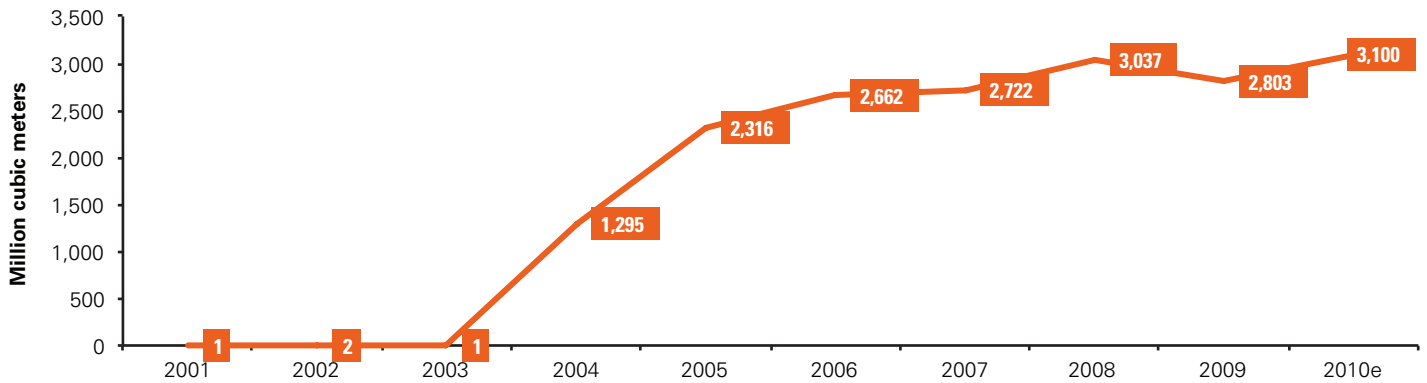
In 2011, US-based Anadarko Petroleum estimated that its natural gas reserves in Mozambican reserve bloc fields might reach 850 billion cubic meters of recoverable natural gas.⁵⁶ In February 2012, Eni SpA, Italy's largest oil company, announced a second natural gas field discovery near the Mamba South (in the Cabo Delgado province, off the coast of Mozambique) gas field, that the company discovered in 2011. The new discovery of 212.5 billion cubic metres of gas in Mamba South is expected to increase the natural gas resource in Mozambique to 850 billion cubic metres.⁵⁷ Figure 7 shows the production levels of natural gas during 2001–10.

⁵⁴Mozambique Q2 Mining Report Released, MiningWeekly, 24 June 2011

⁵⁵Private Sector Driving Infrastructure Development in Mozambique, Frost & Sullivan, 27 March 2012

⁵⁶Is Mozambique the Next African Energy Superpower?, Oil Price, 1 December 2011

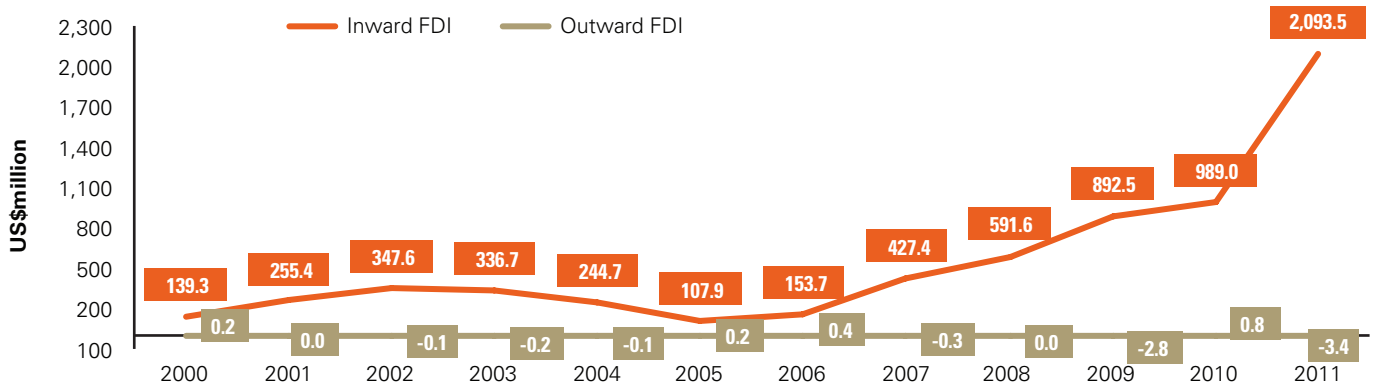
⁵⁷Eni Reports Second 'Giant' Natural-Gas Find Off Mozambique, Bloomberg, 15 February 2012

Figure 7: Production levels of natural gas in Mozambique, 2001–10

Source: US Geological Survey Mineral Information–Mozambique

Inbound and outbound investment

FDI to Mozambique has continuously increased over 2006–11. The mining sector witnessed investments by mining majors, such as Vale and Rio Tinto, developing coal projects in the Tete province of the country.⁵⁸ Figure 8 shows the inward and outward FDI.

Figure 8: Trend for net inward and outward FDI in Mozambique, 2000–11

Source: "World Investment Report 2012", United Nations Conference of Trade and Development, June 2012

Mozambique achieved strong annual GDP growth rate of about 7 percent since 2007 except for 2009.⁵⁹ The government was aiming to achieve a growth rate of 8 percent in 2013. However, it has now revised this growth forecast to 7 percent. This can largely be attributed to the impact of heavy floods that hit the country in January 2013 and affected the country's mining infrastructure. Vale's Moatize coal field production was adversely impacted as the Sena railroad, linking the field to the central Mozambican port of Beira, was affected for two weeks.^{60,61}

According to the Standard Bank Group, Mozambique, at present, requires infrastructure development to assist the exploitation of its natural resources and to maintain a high development rate for the sector. The country needs to prioritise the development of its roads, railways and ports infrastructure along with its natural gas and coal infrastructures.⁶²

⁵⁸Shaun Harris "FDI pours into Mozambique", Financial Mail, 20 December 2012

⁵⁹"World Development Indicators", World DataBank, accessed 4 June 2013

⁶⁰"Mozambique trims 2013 growth forecast to 7 pct", via Factiva, accessed 3 June 2013

⁶¹"Mozambican Sena railway line back in operation after interrupted by floods", African.news.cn, 6 March 2013

⁶²Keith Campbell "Natural resources continue to drive Mozambican economy and attract foreign interest", MiningWeekly.com, 10 May 2013

Going ahead, it is expected to witness investment from the Chinese group Kingho, which plans to invest in coal mining in Mozambique. The group intends to build a port in the city of Beira and a railway line linking the port to the Moatize coal field in Tete province. Also, the Japanese government is expected to sign a framework agreement with the country. This will pave the way for future Japanese investment into the country's mining and energy sectors.⁶³

Table 4: Producing mines/companies in Mozambique⁶⁴

Mine	Location details		Owners/companies (percentage stake)	Commodities mined
	Location	Province		
Benga Colliery	Tete	Tete	Rio Tinto Ltd. (65%), Tata Steel Ltd. (35%)	Thermal coal, Coking coal
Marropino Tantalum Mine	Quelimane	Zambezia	Noventa Ltd. (100%)	Tantalum
Minas Moatize Colliery	Tete	Tete	Beacon Hill Resources Plc (95%), Government of Mozambique (5%)	Coal (Thermal and Coking)
Moatize Colliery	Tete	Tete	Vale S.A. (95%), Empresa Mocambicana de Exploracao Mineira, S.A. (5%)	Thermal coal, Coking coal
Moma Heavy Mineral Sands Mine	Angoche	Nampula	Kenmare Resources Plc (100%)	Zircon, Rutile, Ilmenite, Heavy mineral sands, Monatize
Montepuez Ruby Mine	Marrupa	Cabo Delgado	Mwiriti Limitada (25%), Gemfields Plc (75%)	Ruby

Source: Intierra

Table 5: Recent M&A activity in Mozambique⁶⁵

Deal announced date	Deal status	Target company	Bidder company	Deal value (US\$ m)
April 2008	Completed	Rachana Global LDA (coal mine assets in Mozambique)	Videocon Industries Ltd.	330

Source: Mergermarket

⁶³"Chinese group Kingho plans to invest in coal mining in Mozambique", macauhub, 20 May 2013; "Japanese to invest in Mozambican mining", Mining Review.com, 31 May 2013

⁶⁴Intierra database, accessed 4 June 2013

⁶⁵Mergermarket, accessed 3 June 2013

Major mining companies in Mozambique^{66*}

Key domestic players

- Dno Asa Mozambique
- Eco-Energia Moçambique Lda.
- Empresa Mocambicana de Exploracao Mineira, SA
- Empresa Nacional de Hidrocarbonetos de Moçambique
- Hariche Group Limited
- Mozambican Hydrocarbon Company
- Mwiriti Limitada (Mwiriti Limitada, Ruby Deposit in Mozambique)

Foreign companies with operations in Mozambique*

- Ncondezi coal company
- Anadarko Petroleum Corporation (Anadarko Mozambique Area I Limitada)
- Rio Tinto Group (Aquila Resources Ltd., Mozambique Coal Exploration Tenements; Riversdale Mozambique Limitada; Zambeze Coal Project)
- ArcelorMittal (ArcelorMittal Maputo SA, Companhia Mozambique de Trefiloria, Companhia Siderurgica de Mozambique, Steel Rolling Mill in Maputo)
- Coal India Ltd. (Coal India Africana Limitada; Two Coal Mining Blocks A1 and A2 in Mozambique)
- Pathfinder Minerals Plc (Companhia Mineira de Naburi S.A.R.L., Sociedade Geral de Mineracao de Mozambique S.A.R.L.)
- BHP Billiton Group (Corridor Sands Limitada, Mozal S.A.R.L.)
- Kenmare Resources plc (Grafites de Ancuabe S.A.R.L.)
- Tata Chemicals Ltd. (Grown Energy Pty. Ltd.)
- Noventa Limited (HAMC Limitada)
- Jindal Poly Films Limited (Jindal Resources [Mozambique] Limitada)
- Global Coke Limited (Licence 1165L)
- Mamba Minerals Limited (Mamba Minerals Limited, Mining Concession 755 C [Chua] and Concession 201C [Nhamacurara])
- Denison Mines Corp. (Mavuzi Uranium Mine in Northwestern Mozambique)
- ABM Resources NL (Mimosa Gold Project)
- Beacon Hill Resources Plc (Minas Moatize LDA)
- GreenerEarth Resources and Projects Ltd (Mozambique Coal Mines, Osho Gremach Mining Limitada)
- Baiyin Nonferrous Metal Group Co. Ltd. (Noble Trade & Commerce)
- State Atomic Energy Corporation ROSATOM (OmegaCorp Minerais Limitada)
- North River Resources Plc (OmegaCorp Minerais Limitada, Gold and Uranium Projects)
- Syrah Resources Limited (Twigg Exploration & Mining Ltda.)
- Vale S.A. (Vale Moçambique, Limitada)

⁶⁶Capital IQ, accessed on 6 June 2012

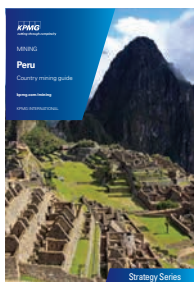
Note: *The methodology used for the identification of mining companies:

•For the identification of mining sector companies in Mozambique, we accessed Capital IQ to generate the list of companies operating in Mozambique in the following industry sectors: coal and consumable fuels, oil and gas exploration and production, diversified, metals and mining, gold and steel. The list was then filtered to exclude domestic Mozambican corporations.

•The list of foreign companies with operations in Mozambique includes companies whose ultimate parent company was headquartered outside Mozambique.

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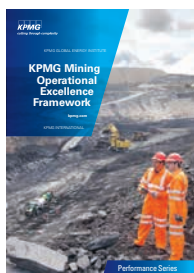
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A combination of demand from the East, dwindling mineral resources and rising costs is reshaping the mining sector. As mining companies attempt to manage their asset life cycle in this new landscape,

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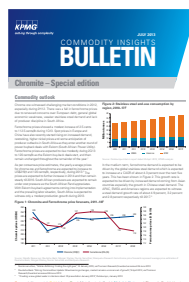
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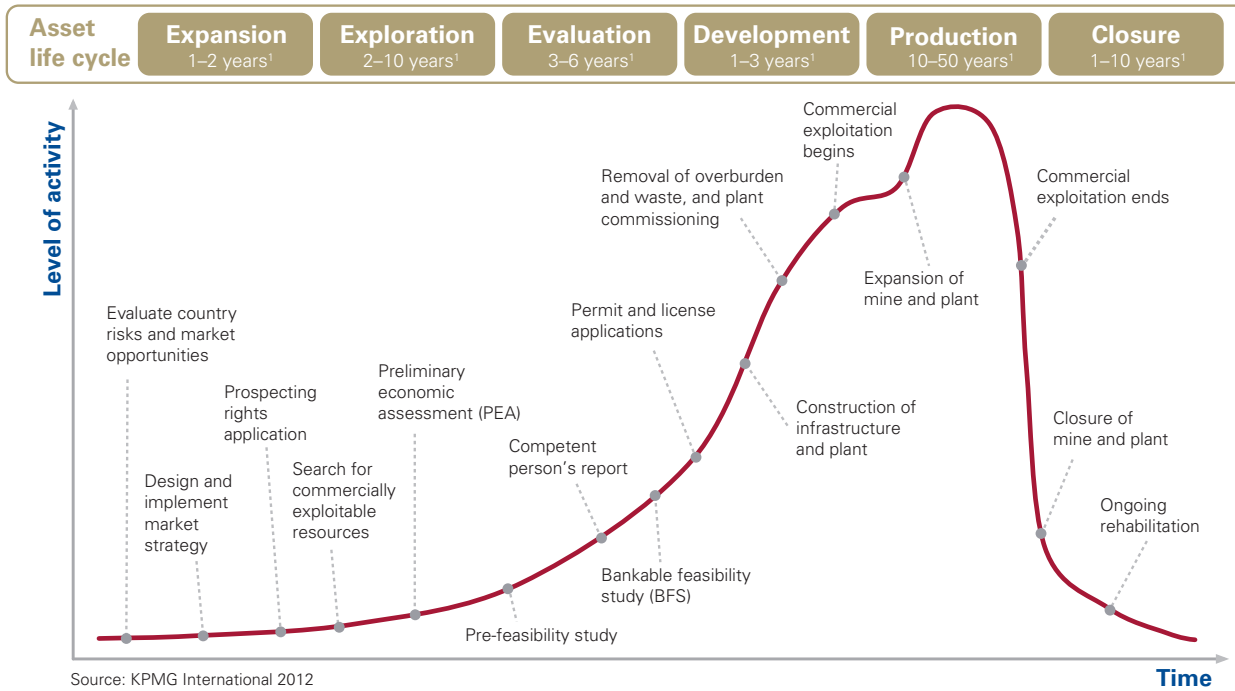
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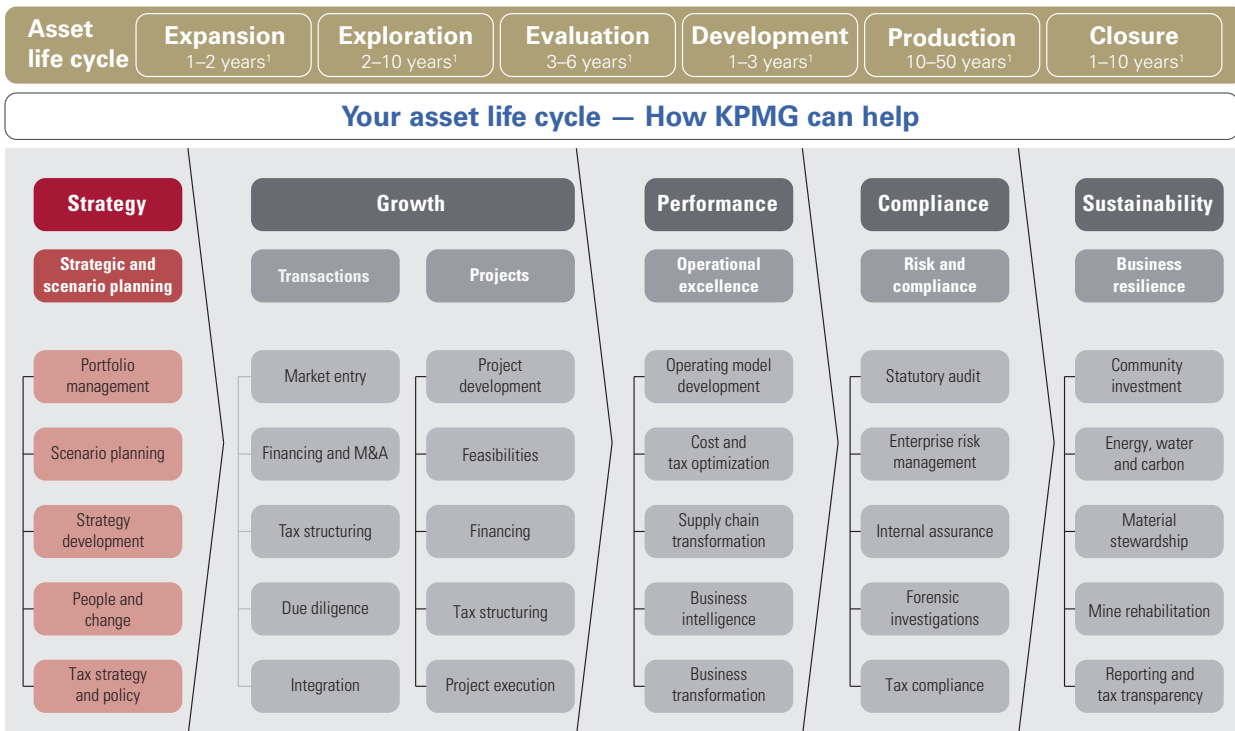
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Mining asset life cycle



KPMG's mining strategy service offerings



Source: KPMG International 2012

Note: ¹Estimated duration of stage in the mining asset life cycle

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