Jamaica, a leading per capita export country known for its commitment to creativity, innovation and exceptional quality.

April 2009
Mining and Minerals

Introduction

Rationale

Jamaica has a range of commercially exploitable minerals, including a wide variety of limestone, hard volcanic rocks, bauxite, marble, base and precious metals, sand and gravel. These minerals are of major significance to Jamaica’s economic development, particularly their contribution to the national economy, their impact on, and linkages with other sectors, and their overall contribution to GDP. In fact, since 1985 the Minerals Industry has contributed at least 5.2% to Jamaica’s annual Gross Domestic Product (GDP); and during the period 2001-2006 Mining and Quarrying represented on average 5.6% of Jamaica’s GDP.

The relative contribution of the mining and quarrying industry to the Jamaican economy has shown a long-term decline over the period since Independence, falling from 10.3% of Gross Domestic Product (GDP) in 1962 to 5.9% of GDP in 1982 and to 5.1% in 2001. However the industry has shown growth in recent years, rising to 5.4% of GDP in 2006.

The industry also has the highest labour productivity in the Jamaican economy, due to its capital intensity and efficiency, advanced technology and the high quality of its human capital. This is not the case in all firms across the industry as significant levels of upgrading are required among operators in particular product groups to realise the tremendous potential for export growth.

The Mining and Quarrying Sector also will have implications for other areas of national development including transport, urban and regional planning, agriculture, tourism, environmental management and housing. The most important metallic mineral for the Jamaican mining and quarrying sector is bauxite, the ore from which alumina and aluminium are derived.

The Jamaican industry is very heavily influenced by the peculiar industry structures. The target market is typically influenced by foreign-owned firms which are impacted by conditions in their home countries. For example, exports were down (2008) to the Turks & Caicos because ownership of the influence of foreign-owned buying firms. The markets therefore may have to be more diversified to cushion such impacts. This industry is also in survival mode and may be shutting down; having been impacted by the decline in investment and construction. The industry has been one of the best export performers, and is therefore important that it be strategically
Addressing the opportunities in new areas, while seeking to alleviate some constraints faced by the industry, is at this time very critical.

**Product Groups and Related Programmes**

It is extremely important to note that the Minerals Policy is the guiding strategy for the industry, and from which the export strategy has been carved. It is also important to note that the Vision 2030 Jamaica Mineral Sector strategy was also aligned to the original Minerals Policy and strategy work. While these industry development plans address the full scope of the industry, including exploration, research and development, transport and waste, the scope of the export strategy is the export activities of select products:

- Limestone
- River aggregate
- Gypsum
- Hard Volcanic Rocks
- Bauxite / Alumina
- Gold
- Copper

The primary products are listed above, however their value-added derivatives are included in the scope of the export strategy. Some are current export products while some represent potential for export product diversification and value-addition.

It is also important to state as well that the strategy team identified areas for further elaborating the Export Strategy for Minerals, in order to explore some aspects more deeply in support of both this export strategy for the industry as well as the Minerals Policy. A refinement is likely ahead of the annual strategy review.

**Where Do We Want to Be?**

**The Vision**

The Vision Statement for the Mining and Quarrying Sector for Vision 2030 Jamaica is:

“A World-Leading minerals sector, efficiently leveraging all endowments and capabilities to deliver sustained economic viability based on value-added products, disciplined and responsible environmental stewardship, and enlightened community engagement, reinforced by an overriding commitment to health and safety”
An export-specific vision has not been articulated for the sector, and the above will guide this export strategy.

**Where Are We Now? An Assessment**

**Export Performance and Assessment of Overall Competitiveness**

**Production and competitiveness**

Total production of bauxite in 2006 was 14.9 million tonnes, the highest level achieved since 1974. Whereas in 1974, 47 per cent of total bauxite production consisted of alumina, in 2006 the share was 67 per cent, clearly indicating a progression up the value chain. Exports of bauxite and alumina were valued at US$1.2 billion in 2006, and represented 59.3 per cent of earnings from export of goods in 2006. Total alumina capacity has increased steadily from 3 850 kilo tonnes in 2002 to 4 451.1 kilo tonnes in 2006. Increased capacity was attributed to expansion projects primarily at the ALPART and JAMALCO refinery. Within the five year period 2002-2006 average capacity utilisation at the alumina refineries ranged between 92.1 per cent in 2006 to 99.8 per cent in 2003. The capacity at the sole crude bauxite plant has been stable at 4 500 kilo tonnes between 2002 and 2005, however, in 2006 capacity rose to 5 000 kilo tonnes.

Capacity utilisation at the bauxite plant was 91.0 per cent, the highest within the five year period. The lowest capacity utilization was 74.1 per cent in 2004 when Hurricane Ivan ravaged the island. Jamaica’s international competitiveness in the bauxite and alumina industry is affected by its relative position against its main global competitors. The competitors in terms of metal grade alumina are: China, Australia, USA and Brazil. For bauxite, competition emanates from Guinea, Australia and Brazil. Production of most non-metallic minerals has been increasing since 2002, including limestone, gypsum, and sand & gravel. In 2006 production for industrial minerals were as follows: silica sand 9.6 kilo tonnes, limestone 2.8 million tonnes, gypsum 0.4 million tonnes, Marble 100 tonnes, Sand and Gravel 2.7 million tonnes, Marl and Fill 3.0 million tonnes. Since 2005 pozollan, a volcanic material used in the production of Portland cement, has been added to the list of industrial minerals that are mined in Jamaica. Export earnings from gypsum were US$1.5 million in 2006 while limestone was US$1.8 million for that same year.
The industry's Value Chain – An Illustration and analysis

Key
- Current Value Chain Activity
- Future Value Chain Activity (i.e. not currently being done)
- International Value Chair Component
- Currently a component of the National Value Chain
- To become a component of the National Value Chain
- Gradient fill is part local and part international
Industry Profile

Over 90% of the entities within the sub-sector are locally owned with direct foreign ownership represented primarily by the Caribbean Cement Company through its subsidiary Jamaica Gypsum and Quarries Limited, Rugby Jamaica Lime & Minerals Limited, and Chemical Lime. Entities within the sub-sector are primarily family-owned, with the exceptions being the largest entities. By world standards, entities within the sub-sector are generally micro to small, and less than 15% are regarded as medium (500,000 – 1,000,000 tonnes annually) and large (over 1,000,000 tonnes annually). Currently there are no entities of a world-class size - with annual production of over 4 million tonnes. However major multinational companies, including Rinker, which could produce these volumes, have been considering establishing operations in Jamaica.

Performance against Critical Success Factors

Critical factors for international performance include the production capacity, proximity to ports and product quality. As noted, the production capacity in Jamaica is much smaller than the international competitors, and so the country would be more competitive in value added materials, which also attract significantly more revenue. The land transport costs are too high for any quarries and facilities to be location more than 12 miles from ISPS – certified ports. Also, without the required grade of products, there is no chance of competing globally.

Government Policy and Strategy in Support of the Sector

The Ministry of Mining and Telecommunications has drafted a National Minerals Policy, which is now being reviewed in national consultations. The Policy focuses on the achievement of the vision articulated earlier. The resources of the Ministry and its agencies will be allocated for the execution of the Policy.

The Sector’s Trade Support Network: Capacity, Competency and Coordination

The Mines and Geology Division (MGD) of the Ministry of Agriculture and Lands has the statutory responsibility under the Mining Act and the Quarries Control Act to supervise over all prospecting, mining and quarrying operations throughout the island. The Division also manages the investigation, characterisation,
documentation and release of information on all aspects of the geology of Jamaica. The Minerals Policy and Development Division (MPDD) is responsible for policy development with a specific focus on promoting sustainable development and contributing to the ongoing modernisation of the minerals industry, including proposing amendments to minerals related legislation, introducing new minerals-related legislation, and developing programmes and projects to facilitate the industry’s continued development and the efficient management of mineral-bearing lands.

The Jamaica Bauxite Institute (JBI) was established in 1976 to deal mainly with the sovereign aspects of the Government’s participation in the bauxite and alumina industry. Its main functions include monitoring and studying the alumina and aluminium industry; providing technical advice; undertaking research and development activities; assessing and ensuing rationalisation in the use of Jamaica’s bauxite reserves and bauxite land; and monitoring and making recommendations on pollution control and other environmental concerns in the industry. In conjunction with other agencies such as the MGD and the National Environmental Planning Agency (NEPA), the JBI is also involved in environmental monitoring and interfacing with communities hosting bauxite and alumina operations.

The Jamaica Bauxite (JBM) and the Bauxite and Alumina Trading Company of Jamaica Limited (BATCO) are involved in the marketing of the Government’s share of bauxite resources and sale of alumina. The main pieces of legislation governing the minerals industry are the Mining Act, the Quarries Control Act and their Regulations, the Minerals (Vesting) Act and incentive legislation for the Bauxite and Alumina Industries. A National Minerals Policy is being prepared to guide the sustainable development of the minerals industry.

There is no Jamaica Bauxite Institute equivalent for the non-metallic industries, and it is thought that such an entity is required.
SWOT Analysis of the Sector

**Strengths**

- Significant quantities and excellent grade of mineral resources, namely bauxite, limestone and hard volcanic rocks.
- Strategic location to major international markets.
- Ongoing investment in the industry. This is especially the case in the Bauxite/Alumina sub-sector and the Industrial Minerals Sector.
- Growing businesses - Some companies have amassed a favourable amount of experience and financial resources which are being reinvested to facilitate further growth.

**Weaknesses**

**General**

- High level of dependence on the Bauxite Alumina Sector.
- Over-reliance on foreign direct investment capital.
- Aging infrastructure, which require modernisation at a more rapid pace.
- High energy cost and dependence on imported energy.
- Absence of detailed minerals-related data in the non- bauxite/ alumina sub-sector.
- Tardiness at rehabilitation of mined lands.
- Proliferation of illegal quarrying activities.

**The Industrial Minerals Sector**

- Under-capitalization of operations.
- Limited access to bulk loading port facilities, which stifles the sector's development.
- Large number of land-locked quarries, which contributes to high inland freight cost and the transportation of material over long distances on public roads.
- Proliferation of small, globally unproductive and uncompetitive quarries.
- Poor public image.
- Low levels of formally trained personnel in areas specific to the sector's development. These
include mining engineering, minerals management, minerals economics and related areas.

**Opportunities**

- Need to streamline the quarry zoning process.

- As the dominant minerals-based economy in the Caribbean Single Market and Economy (CSME), Jamaica has a history of involvement in mining and the manufacturing of minerals-based products.

- Significant export potentials, especially in respect to the United States, segments of South America and other segments of the Caribbean.

  **The southern United States has an annual deficit of approximately 40 million tonnes of crushed rock for use in the construction sector.**

  There are also possibilities to sell large volumes of value-added mineral products, including lime, marble and marble products (bath tubs, face basins, counter-tops, tiles, etc.), skid resistant aggregates, construction and decorative blocks, and boulders for coastal defence.

- A growing and increasingly sophisticated local construction sector, which uses an array of mineral products that can be locally produced at very competitive prices.

- Planned pet-coke and coal-fired power plants within the Americas present opportunities for the exportation of limestone for desulphurization purposes.

- Increased quantities of limestone for soil stabilisation, pollution control and the production of more environmentally friendly products.

- Significant possibility for greater levels of integration within the local minerals industry.

- Opportunities for import substitution.

- Expansion and diversification of the minerals industry. This involves an overall increase in the size of the industry, and diversifying into sectors such as the Metallic Minerals Sector and the Industrial Minerals sector. Currently, the former plays no role, while the latter plays only a marginal role in the industry.
Threats

- A highly liberalized economy which allows for the increased possibility of importing mineral products that can be locally produced.
- More facilitatory government policies and a more engaging private sector in competing mineral producing countries such as the Dominican Republic, The Bahamas and Mexico, threaten growth potentials in Jamaica.
- Low levels of research and product development.
- Absence of institutions training mining/minerals professionals.
- Difficulties in locally-owned entities accessing capital funding on terms which would stimulate their development.
- Failure to present a consistent and organized public relation campaign promoting the industry.

The development of disruptive technologies as it relates to the manufacturing of substitutes to replace Jamaican minerals and mineral products in competing markets.

The restricted ownership structure of particularly the Bauxite and Alumina Sector, and the frequency with which the ownership of major entities within the sector has changed particularly since the late 1990s.

The possible economic impacts of mergers and take-overs by major multi-national minerals-related companies. Particular concerns relate to the ownership, management practices and business ethos of companies in the local minerals industry.
The Way Forward
(over 3-5 years):

The Development Perspective:
Developmental Considerations and Priorities

- There are weak reforestation laws and practices
- There is a poor mentality when it comes to modernisation and efficiency, which is also limited by cost.

The Competitiveness Perspective

The issues discussed below are focussed primarily on the non-metallic industries

Strategic Consideration # 2
– Border-In Issues and Priorities

- There are perceived inequalities between local enterprises and foreign ones – for example tax breaks make investment projects more competitive.
- No specialised training for the sector at the tertiary level.
- R&D (related to product development and application, as well as processing) has been limited to limestone and gypsum. While there has been no research for other product groups based on the cost as well as the limited local technical expertise to conduct such work. Research has been done on limestone, gypsum, and pozzolan (private). Where some research has been done by private firms is still owned by the firm and not accessible to the industry.
- Obsolete equipment and processes being used in the industry makes enterprises less competitive in terms of efficiency.
- An inadequate number of skilled operators is available.

Strategic Consideration # 3
– Border Issues and Priorities

- High cost of capital to execute R&D findings
- High land transport costs because of distance from the ports that is driven by fuel costs and the requirements to use particular roads based on weight limits.
- There is a limited number of strategically located specialised ports to serve the sector
- The export process for the sector may be onerous
Strategic Consideration # 4
– Border-Out Issues and Priorities

The target markets for new products are sometimes complicated because there are cartels in some instances. The selection of international partners is therefore critical. Synergies with shipping companies rather than firms offering the same product are some of the options that may have to be assessed.

Each Caribbean territory has country specific requirements that are to be met. However, buyers in these markets are willing to pay more because they are buying small quantities which would have cost more from other exporters (and Jamaica has a market for its product with current inefficiency costs and able to recover costs for meeting the different requirements).

The mining industry is heavily foreign-owned. The level of competitiveness is controlled by the overseas firms (and sometime the investment is not dedicated to firms here – so that the Jamaican sector becomes among the least competitive country in the sector globally). Also once the relationship with another major partner breaks, then product is no longer exported from Jamaica. For example, once USA stops buying from Russia, then sales from Russian-owned firms locally also stops.

The Client Perspective

Strategic Consideration # 5
– Client Prioritisation: Support Requirements and Response

There is usually a difficulty encouraging firms to export and to take the export business seriously. However, even before engaging some firms for export, there are some criteria that must be met. These are capacity, Proximity to ISPS bulk port, standards levels (e.g. ISO), export management competency, adequate mobile equipment for the capacity, cost conversion.

Cost Conversion (or firm’s sales price) is product specific, and guidelines are provided to assist the rating of firms by this criterion. The benchmark/target figure is based on (i) competing markets’ cost conversion (ii) desired margin on the market price.

Each enterprise in the sector is to be assessed against the criteria to target export services and programmes to each category that emerges.

Implications for Sector Support Services

Strategic Consideration # 6 – Business Competency

Export competency development
would be needed, and would have to be complemented by export awareness.

In some firms there are poor industry business and management practices. The move towards benchmarks in the sector should be accelerated and there ought to be support from GOJ and private sector on initiatives already proposed.

**Strategic Consideration # 9**

- **Quality Management**

Firms will need to achieve international standards in order to meet specifications of international buyers. The necessary testing facilities locally are required to facilitate the product testing for export.

**The Institutional Perspective**

- **Strategic Consideration # 11**

  - Strengthening the Sector’s Strategy

**Support Network:**

- **Strategy Coordination and Management:**

  **Structure**

While there is a private sector body within the industry, based on some regulatory aspects to the industry that impact on development so significantly, it is proposed that the public sector continue to lead. This leadership may be transitioned later with the strengthening of the private body and the advancement in terms of policy and the modernisation programme of the industry.

**Process (Strategy Monitoring)**

Based on the above recommendation, the public sector unit would also monitor the strategy.
**Vision**

Jamaica is a world leader in the Minerals Industry, efficiently leveraging all endowments based on value-added products, responsible environmental stewardship, enlightened community engagement and commitment to health and safety.

**Development Perspective**

The Jamaican Minerals Industry optimises its contribution to increased export earnings, job creation and community development through modernisation and improved efficiencies.

**Competitiveness Perspective**

<table>
<thead>
<tr>
<th>SUPPLY SIDE (BORDER-IN)</th>
<th>TRANSACTION COST OF BUSINESS (BORDER)</th>
<th>DEMAND SIDE (BORDER-OUT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialised tertiary and technical training introduced and/ or increased. Research provided to facilitate increased value addition. Firms modernised to achieve improved efficiencies.</td>
<td>Investment and access to capital provided to enable implementation of R&amp;D findings. Number of strategically located specialised ports increased.</td>
<td>Market opportunities are packaged and disseminated to firms. Export sales generated by local operations (independent of overseas operations) is increased.</td>
</tr>
</tbody>
</table>

**Client Perspective**

<table>
<thead>
<tr>
<th>TRADE INFORMATION</th>
<th>STANDARDS AND QUALITY MANAGEMENT</th>
<th>BUSINESS DEVELOPMENT AND EXPORT READINESS</th>
<th>FINANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market intelligence on prospective market and buyers provided.</td>
<td>Firms in the industry obtain international quality certification. Local testing facilities upgraded to provide specifications tests for export products.</td>
<td>Management skills are developed and improved through introduction of benchmarks. Export market knowledge and export management skills developed.</td>
<td>Affordable and accessible finance made available.</td>
</tr>
</tbody>
</table>

**Institutional Perspective**

The Mines & Geology Division is strengthened to deliver optimal support to industry development, and coordination of services provided by relevant technical entities.
**THE DEVELOPMENT PERSPECTIVE**

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>MEASURES</th>
<th>TARGETS</th>
<th>INITIATIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>Percentage of firms with full compliance to lease agreements and regulations</td>
<td>100</td>
<td>• Conduct rationalisation of current lease agreements beginning with the assessment of existing leases, including the review for compliance to legal agreements.</td>
</tr>
<tr>
<td>• Mines &amp; Geology/Ministry</td>
<td>• DBJ</td>
<td>Y1-2</td>
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**THE COMPETITIVENESS PERSPECTIVE**

**BORDER — IN: (Value Chain Development)**

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<th>OBJECTIVES</th>
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<th>TARGETS</th>
<th>INITIATIVES</th>
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</thead>
<tbody>
<tr>
<td>To facilitate product diversification, increased levels of import substitution, improved product quality, optimised utilisation of mineral resources, and expansion of the industry.</td>
<td>Increase range of products Percentage of products that are value-added Baseline to be provided</td>
<td>• Design and implementation of a modernisation programme for the industry. • Provide technical support to access MOI, or write loan proposals to access funds. • Provide training in quality management systems for all staff (quarry and processing) • Train personnel on technical know how, financial and business management. • Implement specialised industry professional courses (mgmt and supervisory mgmt levels). • Provide assistance to get ISO certification funding.</td>
<td>• Ministry of Mining</td>
</tr>
<tr>
<td>• MIIC</td>
<td>• JTI</td>
<td></td>
<td>Annual</td>
</tr>
<tr>
<td>• Sector/Cluster group</td>
<td>• University of Technology</td>
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<tr>
<td>• (Financial Institutions)</td>
<td>• HEART/NTA</td>
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<td>• UWI</td>
<td>• NEPA</td>
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<td>• PIOJ</td>
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<td>• MQAJ</td>
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<td>• PAJ</td>
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**BORDER**

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<th>INITIATIVES</th>
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<tbody>
<tr>
<td>Infrastructure</td>
<td>Access to current export points maintained and expanded New countries New products Types of products Value &amp; volume of exports</td>
<td>• Develop a shared port policy to ensure access to key strategic ports for exports. • Facilitate joint venture with major international partner for value-added production. • Expand the time window provided by the PAJ for export from 6 months to at least 2 years.</td>
<td>• Mines &amp; Geology/Ministry</td>
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<tr>
<td>• MIIC</td>
<td>• Ministry of Tourism</td>
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<tr>
<td>• JTI/JEA</td>
<td>• Port Authority of Jamaica</td>
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# ACTION PLAN

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<th>OBJECTIVES</th>
<th>MEASURES</th>
<th>TARGETS</th>
<th>INITIATIVES</th>
<th>OWNER/SUPPORT ENTITIES</th>
<th>TIMELINE</th>
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<tr>
<td><strong>BORDER-OUT</strong></td>
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<tr>
<td>Sector Promotion</td>
<td>Export targets</td>
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<td>JTI, MQAJ</td>
<td>Annual</td>
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<tr>
<td>(export objective)</td>
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## BUSINESS & EXPORT COMPETENCY

**To increase exports**

- % of industry firms participating (current and potential exporters): 80% (15%)
  - Provide export financial management skills training.
  - Develop a simple guide for contracting a marketing consultant to enter the export field - export readiness/venture guide for the sector.

- JEA, JTI, Mines & Geology, Sector/Cluster group

**Quality Management**

- Percentage of industry firms certified: 30%
  - Provide cost-effective certification and training programme in ISO 1400.

- Mines & Geology, Sector/Cluster group

- Y1 (possible annual renewal)
priority industry strategies