MINISTRY OF TRANSPORT AND MINING

THE NATIONAL MINERALS POLICY

FOSTERING SUSTAINABILITY

In Jamaica's Minerals Sector

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Providing DEVELOPMENT **OPPORTUNITIES**

Contributing to JAMAICA'S Economic Future

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ACKNOWLEDGMENTS

The presentation of the National Minerals Policy represents years of dedicated work and extensive collaboration with numerous industry and non-industry players.

Ministry of Transport and Mining (MTM) wishes to thank the members of the Minerals Policy Development Committee (MPDC) for providing technical support and guidance for the development of the National Minerals Policy 2017 – 2030 as well as its Action Plan and Strategy.

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Message FROM THE MINISTER

The Honourable **Robert Montague, MP**
Minister of Transport and Mining

This policy is guided by an overarching vision that by 2030, Jamaica's minerals sector will be "a primary contributor to sustainability, globally competitive and co-existing with competing interests in the wider economy". The goal is to ensure that our country's mineral resources support sustainable national development and contribute to sustainable prosperity.

Minerals are finite resources and a significant part of the patrimony of a people. However, left undeveloped, they are of little benefit, particularly in the case of a Small Island Developing State (SIDS) like Jamaica. These mineral resources, which are used in construction, food preservation, animal feed, medicines, water treatment, craft and various other areas of industry, are needed to advance the economy, generate wealth and improve the well-being of our people.

Primary industrial activities generate limited social and economic benefits. I am therefore pleased that this Policy promotes value-added mineral production, which creates far greater revenues for the country and simultaneously makes greater use of its human resources. Ensuring increased local content in all segments of the Minerals Sector is also a key policy focus.

The National Minerals Policy addresses, in a comprehensive way, the regulation of mineral exploitation activities in order to establish inter-sectoral harmony and to mitigate environmental hazards. Sustainability matters regarding access to mineral reserves, the rehabilitation of mined lands and the minimization of effluent and waste of resources are of paramount importance to the future of the minerals sector.

Consequently, the development of this Policy, Action Plan and Strategy took account of these and other long term issues. The Policy advances that where there are instances of critically adverse environmental, cultural and social impacts, serious consideration will be given to forego mining in the specific area.

The National Minerals Policy reflects the Government's determination and posture towards developing a broad-based sector within the construct of sustainability and establishes the official framework and facilitating structures that will guide the effective management and continued transformation of the sector towards a balanced and competitive environment, while ensuring congruence with competing interests in the wider economy.

The success of the National Minerals Policy as well as its Action Plan and Strategy requires national consensus and I welcome all stakeholders to join with us in achieving a sustainable minerals sector that is a viable contributor to Jamaica becoming "...the place of choice to live, work, raise families and do business".

Our Commitment to Jamaica

Mining has a big impact on the surrounding environment. That's why our approach is calculated; we take pride in our responsibilities, and are considerate, responsible. And using modern mining techniques, we are sensitive to the surrounding environment, ecology and communities.

Fostering Sustainability In Jamaica's Minerals Sector

LIST OF ACRONYMS

ALCOA	Alumina Company of America
ALPART	Alumina Partners of Jamaica
AMJ	Alcoa Minerals of Jamaica
BCDP	Bauxite Community Development Programme
CAP	Clarendon Alumina Production Limited
CCPA	Cockpit Country Protected Area
EIA	Environmental Impact Assessment
EITI	Extractive Industries Transparency Index
GOJ	Government of Jamaica
HEART/NTA	Human Employment and Resource Training/National Training Agency
HIA	Health Impact Assessment
ICMM	International Council on Mining and Metals
IDP	International Development Partners
IUCN	International Union for Conservation of Nature
JAMALCO	Jamaica Alumina Company
JBI	Jamaica Bauxite Institute
JBM	Jamaica Bauxite Mining Limited
JISCO	Jiuquan Iron and Steel (Group) Company
MBLMC	Minerals-bearing Lands Management Committee
MGD	Mines and Geology Division
MinDAC	Minerals Development Advisory Council
MPDC	Minerals Policy Development Committee
MPDD	Minerals Policy and Development Division
MSTEM	Ministry of Science, Technology, Energy and Mining
MTM	Ministry of Transport and Mining
NEPA	National Environment and Planning Agency
NGO	Non-governmental Organization
NLA	National Land Agency
NMI	National Minerals Institute
NRCA	Natural Resources Conservation Authority
NRL	Noble Resources Limited
NWA	National Works Agency
OPM	Office of the Prime Minister
PCJ	Petroleum Corporation of Jamaica
R&D	Research and Development
SD	Sustainable Development
SDI	Spatial Development Initiative
SIDS	Small Island Developing State
SME	Small and Medium Sized Enterprise
SWOT	Strengths, Weaknesses, Opportunities, Threats
U-TECH	University of Technology, Jamaica
UC RUSAL	United Company RUSAL plc
UNEP	United Nations Environment Programme
UWI	University of the West Indies
WINDALCO	West Indies Alumina Company
WRA	Water Resources Authority

INTRODUCTION

Mineral resources such as iron ore, bauxite, water, coal, uranium, petroleum, natural gas, clay, precious metals, salt, precious and semi-precious stones, are the base materials for significant industries. Minerals also find use in soil stabilization, pollution control, media purification, numerous industrial processes, and environmental applications. For their wide ranging uses, mineral resources are critical to national development.

Jamaica's main mineral resources include bauxite, limestone, shale, gypsum, hard volcanic rocks, pozzolan as well as non-metallic minerals. As major resources for development, the extraction and management of minerals must be integrated into the country's overall strategy for economic development.

The local Minerals Sector comprises all activities related to the mining and quarrying industries, including the exploitation of materials deposited in the sea, as well as activities that involve, inter alia, the exploration, use and processing of the country's mineral resources into value-added products.

The sector is a conglomeration of activities, the scope of which includes:

1. Mineral exploration, including the companies involved in such activities
2. Mineral exploitation, namely the mining and quarrying of clay, dolomite, gypsum, limestones, marble, sand and gravel, shale, silica sand, volcanic rocks, semi-precious minerals, etc.
3. Mineral processing and the manufacturing of mineral-based products, including:
   - Construction blocks, ready-mix concrete and tiles: floor and ceiling tiles
   - Mineral-based bonding agents: Portland cement, thin-set, grout, etc.
   - Dimension stones: counter tops, furniture, flooring, cladding material, etc.
   - Lime, Ground Calcium Carbonate (GCC), Precipitated Calcium Carbonate (PCC), etc.
   - Skid resistant aggregates and other special construction aggregates.
4. Mineralogical, mining, and metallurgical research and development, legislation, education, financing and training associated with the sector and the wider minerals industry.
5. Marketing, trading and professional services.
6. Transportation, machinery, mineral waste management and recycling.
7. Land management, including managing mineral reserves and land rehabilitation.

RATIONALE FOR THE NATIONAL MINERALS POLICY

The Government of Jamaica recognizes that a properly planned and efficiently regulated sector, along with professional marketing of the country's minerals can contribute more significantly to national development and increased competitiveness within the global marketplace. In addition, Jamaica, as signatory to a number of international

agreements relating to the environment has an obligation to meet the imperatives, and the Minerals sector plays a key role in this regard.

Within this context, the National Minerals Policy 2017-2030 establishes the framework for the country's approach to developing its minerals sector, managing its mineral resources and mining ativities. The Policy seeks to ensure that the benefits to be derived from the sector are optimised and sustained for the benefit of Jamaica, especially in relation to earning foreign exchange, creating jobs and acting as a catalyst for further industrialization.

The Policy and its accompanying Action Plan and Strategy follow extensive public and private sector consultations and were crafted on the basis of prevailing and projected national and global scenarios.

This policy arises out of a necessity to:

- Maximize the economic and social benefits of mineral exploitation for the Jamaican people
- Ensure Jamaica's mineral wealth is protected and supports sustainable national development while minimizing the negative impacts on communities and the natural environment
- Stimulate an internationally competitive investment environment for the minerals sector
- Protect the country's geological information
- Ensure the integration of the mineral sector into community and national development plans
- Encourage diversification, value added production and inter-sectoral linkages
- Establish institutions that will train competent persons to effectively manage and facilitate the sector's continued development and harmony with other segments of the economy.

Developed within the context of the various vulnerabilities and limitations that are associated with SIDS, the National Minerals Policy 2017-2030 augments the goals articulated in the country's National Development Plan: Vision 2030 Jamaica, which identifies minerals as a significant pillar for growth. The Policy outlines the direction for Jamaica's minerals sector and is premised on the notion that a profitable and well-functioning minerals/mining sector will contribute to sustainable development.

The National Minerals Policy seeks to position the sector for increased recognition in its contribution to national economic growth and development. Underlying this is the vision that by 2030, Jamaica's mineral sector will be:

"A contributor to sustainability, globally competitive, diversified, focused on value addition and co-existing with competing interests in the wider economy."

With persistent global demand for mineral resources and increased local consumption, Jamaica, by adapting to the dynamic market conditions has the potential to realize this vision.

Which involves relevant stakeholders from the public sector and the private sector. Key Policy Indicators (KPI) will be used to assess the effectiveness in achieving Policy goals.

Some KPIs include:

- Percentage change in export earnings from the Bauxite/ Alumina Industry.
- Percentage change in contribution of Mining/Minerals to Gross Domestic Product (GDP).
- Average percentage change in value added outputs of non-metallic minerals (lime, cement, whiting, etc.).
- Percentage change in export earnings from the Industrial Minerals Industry.
- Percentage change in US$ foreign exchange inflows of export earnings from Bauxite Industry.
- Ratio of carbon emissions to tonnes of bauxite mined.

The National Minerals Policy will initially be evaluated after the first three years. Thereafter, it will be reviewed and updated every five years consistent with local and global changes in demand, energy, the environment and other prevailing circumstances that impact the sector.

KEY POLICY ISSUES

1. COMPETITIVENESS

- International competitiveness of the minerals sector.
- High investment costs to upgrade and expand plants, equipment and systems.
- Insufficient use of advanced marketing strategies and additional investments to further modernize the sector.
- Absence of an aluminium smelting and fabrication industry.

2. DIVERSIFICATION AND VALUE ADDED PRODUCTION

- Low levels of value-added activities.

3. LAND and MINERAL RESOURCE MANAGEMENT

- Need for improved mineral land and resources/reserves management.

EXECUTIVE SUMMARY

The minerals sector represents a critical component in Jamaica's development. Bauxite, limestone and other minerals are of major significance to the country's economic transformation owing particularly to their contribution to the national economy and their impact on, and linkages with other sectors.

SECTION 1 – JAMAICA'S MINERALS SECTOR

Jamaica's minerals operations are primarily located in rural and semi-rural areas and are therefore integral to the livelihood of persons within these communities.

Bauxite and alumina have provided a firm foundation for Jamaica's economic and social development. After more than 60 years of mining, over 1.2 billion tonnes (long dry tonnes) of high quality bauxite remain available.

The skills, knowledge and experiences gained from our bauxite/alumina industry will facilitate the development of new and additional mineral industries, including limestone. These minerals will remain important contributors to Jamaica's economic transformation.

SECTION 2 – THE MINERALS/MINING POLICY FRAMEWORK

The National Minerals Policy recognizes that a modern and vibrant minerals sector must be based on robust and efficient institutions as well as profitable industries.

Aligned to Vision 2030 Jamaica: National Development Plan, the policy's strategic framework is designed to address and surmount the main barriers to development in the minerals sector. It addresses the following key policy issues such as international competitiveness of the sector, need for improved mineral land and resources/reserves management, inter-sectoral disconnects, environmental, climatic and socio-cultural harmonization.

SECTION 3 – IMPLEMENTATION FRAMEWORK

The implementation of the National Minerals Policy requires a continuous programme of monitoring and evaluation, which involves relevant stakeholders from the public sector and the private sector. Key Policy Indicators (KPI) will be used to assess the effectiveness in achieving Policy goals.

Some KPIs include:

- Percentage change in export earnings from the Bauxite/ Alumina Industry.
- Percentage change in contribution of Mining/Minerals to Gross Domestic Product (GDP).
- Average percentage change in value added outputs of non-metallic minerals (lime, cement, whiting, etc.).
- Percentage change in export earnings from the Industrial Minerals Industry.
- Percentage change in US$ foreign exchange inflows of export earnings from Bauxite Industry.
- Ratio of carbon emissions to tonnes of bauxite mined.

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KEY POLICY ISSUES

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- Absence of an aluminium smelting and fabrication industry.

2. DIVERSIFICATION AND VALUE ADDED PRODUCTION

- Low levels of value-added activities.

3. LAND and MINERAL RESOURCE MANAGEMENT

- Need for improved mineral land and resources/reserves management.

4. LEGAL AND POLICY FRAMEWORK

- Weak/ineffective supporting framework for the development of the minerals sector.

5. SUSTAINABILITY ISSUES

- Inadequate corporate, social and environmental stewardship programmes and the need to strengthen climate resilience by entities within the sector.
- Inadequate/inappropriate minerals waste disposal measures.

6. CO-EXISTENCE WITH OTHER SECTORS AND ACTIVITIES

- Low levels of integration of the sector into the wider economy.

- Stifled/insufficient growth of new segments of the minerals sector.
- Low levels of local content (goods and services), especially in the Bauxite and Alumina Industry.

7. INFORMED, EDUCATED AND TRAINED CADRE OF PERSONS

- Anaemic skills training and employment of efficient and modern technologies.

8. REPRESENTATION OF JAMAICANS IN OWNERSHIP/INCLUSION IN THE MANAGEMENT OF MINERALS ENTITIES

- Insufficent numbers of Jamaicans, particularly women, being represented as owners and managers of larger minerals operations.

GUIDING PRINCIPLES

I. Commitment to the rule of law, transparency and accountability.

II. Progressive public policy framework.

III. Commitment to sustainability – Effective environmental stewardship, pollution prevention and the application of industrial symbiosis and the ecosystem approach.

IV. Continued value-addition, local skills development and a strong research and development ethos.

V. Responsible investors and a strong culture of corporate social responsibility.

VI. Sector diversification and integration into the wider economy.

OBJECTIVES

Goal 1 - To modernise the framework for sustainable minerals use to optimize the sector's benefits to national development.

Goal 2 - To improve the competitiveness of the Mining/Minerals Sector through diversification, value-addition and the adaptation of international best practices.

Goal 3 - To improve occupational health and safety, community relations and environmental stewardship throughout the sector.

Goal 4 - To increase efficiencies within the Mining/ Minerals Sector by encouraging research and development for innovation.

Goal 5 - To educate and train Jamaicans in support of the Mining/Minerals Sector.

Goal 6 - To facilitate economic benefit optimisation and increased participation of Jamaicans, including ownership, at all levels of the Mining / Minerals Sector.

OBJECTIVES

- To manage and further develop the minerals sector in order to accrue optimal value to Jamaica
- To ensure compliance and effective regulation of the minerals sector
- To regularise the minerals sector's operations and to foster and promote effective community relations, proper health, safety and environmental best practices
- To facilitate greater gender balance, particularly the involvement of women within the sector
- To develop the required human resources and improve mining technology
- To incentivize research and development and the application of innovation
- To increase value added production and diversification
- To increase the sector's global competitiveness.

POLICY POSITIONS

- The Government of Jamaica (GOJ) will ensure a modernised mining framework that encourages sustainability and increased competitiveness to drive investments.
- The GOJ will ensure transparency and accountability within the minerals sector.
- The GOJ will design and implement appropriate policies that will ensure the minerals sector does not negatively impact the environment.
- The GOJ will require the implementation of international best practices for environmental stewardship, community relations and occupational health and safety standards throughout the minerals sector.
- The GOJ will ensure appropriate land management uses and restoration practices are observed.
- The GOJ will ensure fair and equitable compensation principles are in place and practised, and encourage strategic investments in host communities and the wider economy.
- The GOJ will ensure that the incentives and fiscal regimes applicable to the mining and minerals sector are internationally competitive and allow the country to earn acceptable returns from the use of its mineral resources.

- The GOJ will encourage and facilitate the training of persons in relevant minerals development and related skills necessary to effectively manage and advance the sector.
- The GOJ will encourage the diversification of the minerals sector to allow for increased production of value added mineral products and the development of various industries within the sector.
- The GOJ will encourage and facilitate, where possible, the efficient and appropriate application application and use of energy, land, waste and other resources.
- The GOJ will ensure greater coordination among minerals sector stakeholders in pursuit of increased value addition and greater synergies; the protection of shared interests, maintenance of industrial harmony and enhanced sustainability.
- The GOJ will encourage the participation of females at all levels within the sector.
- The GOJ will encourage local ownership of minerals development operations and other forms of investments by Jamaicans in the local Minerals Sector. This also includes maximizing the quantity of local content (goods and services) by Jamaicans.
- The GOJ will ensure the establishment and maintenance of appropriate intra and inter-sectoral linkages that will result in increased efficiencies and competitiveness.
- The GOJ will ensure activities within the local minerals sector do not contravene international agreements, commitments and principles on climate change to which Jamaica is signatory.
- The GOJ will facilitate the streamlining of relevant Government agencies to reduce duplications and ensure increased efficiencies through the creation of a National Minerals Institute and other entities.

SECTION 1 - JAMAICA'S MINERALS SECTOR

AN OVERVIEW OF JAMAICA'S MINERALS SECTOR

The Minerals Sector represents a critical component in the development of many countries, like Jamaica, that are endowed with exploitable mineral resources. Commercially exploitable mineral deposits are of major significance to Jamaica's economic transformation and the creation of inter-sectoral linkages.

BASIC MINERAL RESOURCE DATA

Table 1 provides a basic outline of some of Jamaica's major mineral resources and reserves and projected mine life.

TABLE 1: BASIC MINERAL RESOURCES/RESERVES AND POSSIBLE MINE LIFE

MINERAL	RESOURCES AND RESERVES (1)	MINE LIFE (2)
Bauxite	1,600 Mt (Resources and reserves. Approximately 30% – 45% proven reserves) (2)	50-100 years (proven and probable) at an extraction rate of 11 million tonnes/yr.
Clay	Over 160 Mt (Reserves and estimated resources. Approximately 10% proven reserves) (2)	Over 100 years at an extraction rate of 1.5 million tonnes/yr.
Gypsum (including 90%, 80%, 70% gypsum and anhydrite)	29 Mt (Reserves) (2)	33-38 years (including anhydrite).
Black Sands (including sand, iron and titanium oxide)	19Mt (Estimated resources)	
Aggregate (skid-resistant)	271 Mt (Proven reserves) 1,130 Mt (Probable reserves)	Over 200 years at an extraction rate of 5 million tonnes/yr.
Alluvial sand and gravel	600 Mt (3) (Probable reserves)	Over 75 years at an extraction rate of 5 million tonnes/yr. Reserves will be heavily influenced by climate.
Dolomitic limestone	Over 2,700 Mt (Resources and reserves. Approximately 10% – 15% proven reserves)	Over 300 years.
Limestone (whiting grade)	1,115 Mt (4) (Resources and reserves. Approximately 20% proven reserves)	Over 200 years.
Limestone (chemical, industrial, metallurgical grade)	5,750 Mt (4) (Resources and reserves)	Over 700 years.
Silica Sand	To be determined (TBD)	TBD

Source: Mines and Geology Division, Ministry of Transport and Mining

(1) Mineral deposits are classified according to an internationally agreed set of definitions such as JORC and NI 43-101 where the increasing level of geological knowledge and confidence is the first key variable and the consideration of mining, metallurgical, economic, social and political factors is the second set of modifying factors. Resource represents a lower level and reserve a higher level of confidence. A reserve can usually be mined at a profit.

(2) Based on current rates of exploitation and present price levels.

(3) Estimated ten-year replenishment rate.

(4) Inferred Resource Estimate.

PROFILE OF JAMAICA'S MINERALS SECTOR

Bauxite and Alumina Industry

The bauxite and alumina industry accounts for approximately 90% of the value of the local minerals sector's annual output and was initially driven exclusively by foreign direct investment by North American companies. However, the government acquired some of its assets in the 1980s. This has been followed by new foreign direct investment in recent years.

As at December 2016, the main players in the bauxite and alumina industry were:

- The West Indies Alumina Company (WINDALCO) – owned by United Company RUSAL (UC RUSAL).
- Jamaica Alumina Company (JAMALCO) – a joint venture partnership between Noble Resources Limited (NRL) (55%) and Clarendon Alumina Production Limited (CAP) (45%).
- Alumina Partners of Jamaica (ALPART) – Acquired by Jiuquan Iron and Steel (Group) Company Limited (JISCO) from UC RUSAL in July 2016.
- New Day / Noranda Jamaica Bauxite Partners (NJBP) (exporters of crude bauxite)- a joint venture between JBM and New Day Jamaica Limited (NDJ Limited).

Quarrying Industry

The non-metallic minerals industry is dominated by locally owned small limestone quarries and river-based sand quarries that are located throughout the country. Currently, the industry has no operations with annual production which may be classified as world-class and only one company is listed on the Jamaica Stock Exchange (JSE). This policy aims to change these situations.

Operations within Jamaica's quarrying industry are largely classified as:

i. Raw material extraction
ii. Primary processing (crushing, screening, etc.)
iii. Value-added (mineral based manufacturing)
iv. Stone-craft, concrete fabrication and installation
v. Services (professional, maintenance, etc.).

Other classifications relate to the size and the reach of the operations as follows:

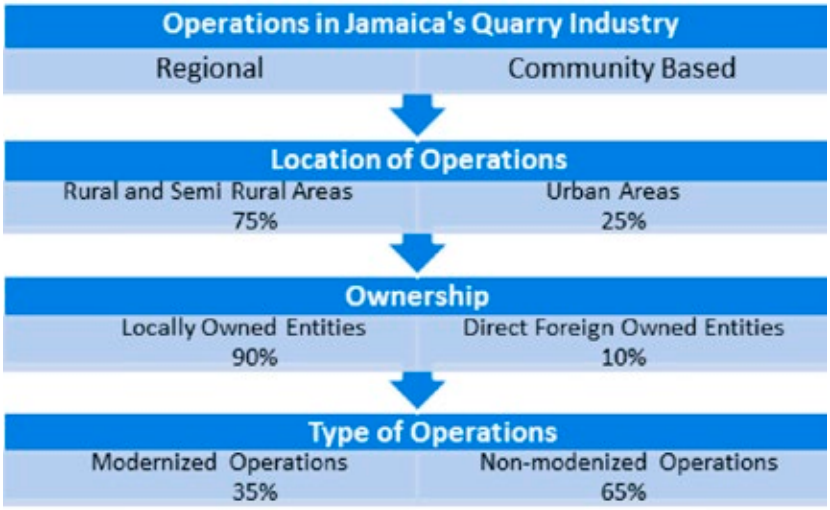
i. Advanced companies
ii. Companies with a national market
iii. Companies with a market extending only to a region of the country
iv. Community-based companies
v. Seasonal and special purpose operations.

Currently, the industry predominantly comprises the extraction and primary processing stages. In excess of 85% of the output is used in the local construction industry while local use of gypsum and shale is almost exclusively for the manufacture of cement. Limestone is also used to manufacture calcined and hydrated lime for various applications such as alumina production, flocculants, fillers and agricultural purposes.

MINERAL	EXPORT	DOMESTIC USE
Gypsum		Cement
Pozzolan		Cement
Shale	10%	Cement
	15%	Cement, construction, calcined and hydrated lime for alumina production, fillers, agriculture, paint, etc.
Sand and gravel	8.5%	Construction, sand blasting, water filtration, etc.

Approximately 85% of the chemical and pharmaceutical grade limestone mined annually is exported.

Operations in the 'regional' and 'community-based' categories typify Jamaica's quarrying industry. Over 90% of the entities within the industry are locally owned. The table below outlines the status of quarry operations across Jamaica.



Direct foreign ownership companies are primarily involved in the manufacturing of lime, cement and other minerals-based bonding agents, the quarrying of limestone, shale, pozzolan and sand quarrying, and the exportation of sand, gypsum and shale.

Modernized operations and management systems are involved in value-added production and export activities or have the immediate potential to undertake such activities. There is also a second tier of companies that serve national markets and, while not as well-equipped as the most advanced companies, they possess capacity for value-added and export production.

Rural and semi-rural entities do not possess the ability to undertake production for export markets. The challenges for these entities include lack of effective management and expertise, poor records maintenance, old and poor quality mining equipment, and staff who predominantly have little or no direct formal training in mining and quarrying. If these challenges are addressed, the industry has an excellent opportunity to capture additional value.

Seasonal and special purpose operations comprise approximately 22% of all quarries. These are primarily limestone quarries and generally focus on the removal of marl, sand and the crushing of limestone for public sector infrastructure projects.

The differences in characteristics of these entities are relevant to the industry's long-term development. The most advanced companies will usually be best able to respond to initiatives aimed at encouraging the production of value-added mineral products and increasing exports, while specific strategies will be required to develop the capacity of smaller and less capitalized operations.

Metallic Minerals

Metallic Minerals represent an under-developed segment of Jamaica's minerals sector. It is the focus of on-going mineral exploration campaigns by several junior and mid-sized private entities, and will be an important segment of the industry in which the policy seeks to attract investment.

Gold (Au), silver (Ag), copper (Cu) and lead (Pb) are the primary precious and base metals explored in Jamaica.

Gold Mining

Between March 2001 and June 2004, a small open-cast mine at Pennants, Clarendon produced approximately 13.4 thousand ounces of gold (Au) and 7.6 thousand ounces of silver (Ag).The geological report indicates that the mine has not been exhausted as there are resources at depth which will require the development of an underground mine.

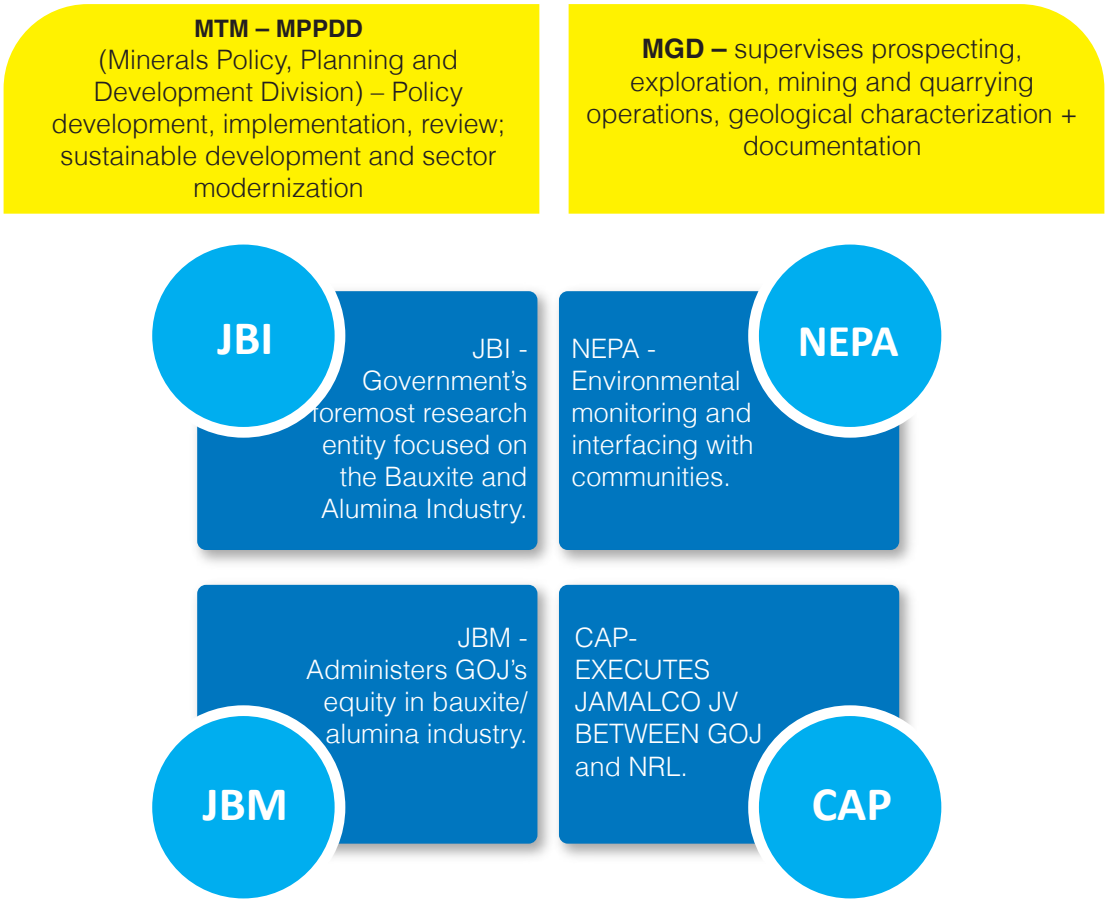
MANAGEMENT OF THE MINERALS SECTOR

The ministry with responsibility for the minerals/mining portfolio has overall policy responsibility for guiding the sector's development, while several GOJ entities are responsible for its management. The National Minerals Policy promotes the continued separation of responsibilities between the various entities in order to avoid conflicts of interest, protect the integrity of all stakeholders and to inspire public trust.

Through the Mines and Geology Division (MGD), GOJ regulates the sector. The Jamaica Bauxite Mining Limited (JBM) and Clarendon Alumina Production Limited (CAP) are responsible for the Government's participation in commercial activities in the bauxite/alumina industry. Other government authorities such as the National Environment and Planning Agency (NEPA) and the Water Resources Authority (WRA) are also involved in regulating the minerals/mining sector.

SCOPE AND STRUCTURE OF THE MINERALS \ MINING SECTOR

MTM –Overall policy development, implementation, monitoring, evaluation and review



The main legislative issues are addressed in various pieces of legislation that govern the minerals sector. Appendix II contains a detailed list of the statues.

INFRASTRUCTURE

Proper and well-maintained infrastructure is essential for a well-functioning minerals sector.

Current Status of the Infrastructure

- Small airstrips, where they exist, facilitate easy internal movement. However, improvements to Jamaica's road, rail and port infrastructure are needed to facilitate the development of a sustainable minerals sector.
- Well-developed telecommunications systems enable easy access to local and international markets.
- Several physical and chemical laboratories, which are primarily privately owned, are available. However, there are no internationally certified and recognized laboratories dedicated to the minerals sector.

Infrastructure built for the minerals/mining sector can become a part of its most important contribution to Jamaica's broader development agenda. The idea of creating 'Development Corridors' (DCs) or 'Spatial Development Initiatives' (SDIs)- to use non-renewable natural resources to improve infrastructure and develop sustainable enterprises in the country addresses this issue. Infrastructure, particularly roads, can be tools for unlocking economic activities in rural areas. Through continuous dialogue between mining companies, communities and the public sector, it is possible to maximize benefits for the entire country.

SWOT ANALYSIS OF JAMAICA'S MINERALS SECTOR

For Jamaica's minerals sector, the identification of strengths and weaknesses represents the internal assessment of the sector while the consideration of opportunities and threats represents the analysis of its external environment.

STRENGTHS

- Significant quantities and excellent grade of mineral resources, namely bauxite, limestone and hard volcanic rocks.
- The mineralogical and metallurgical properties of Jamaica's minerals, including bauxite (where notably the percentage of available alumina and reactive silica, rank among the best in the world) and limestone (where the exceptional purity, brightness, and amorphous, non-crystalline characteristics are highly regarded).
- Mineral deposits, particularly bauxite, limestone and hard volcanic rocks lie on, or close to the surface making them easier and less expensive to mine.

- Proximity of some mineral deposits to port facilities.
- Substantial reserves of high-quality non-metallic minerals, particularly limestone (approximately 150 billion tonnes) and hard volcanic materials.
- High quality lime, cement, alumina and several other value-added mineral products being produced.
- Several successful quarry operators, as well as local and foreign investors with strong interest in expanding operations and targeting niche markets overseas.
- Favourable geographical location, proximity and timely logistical access to the markets of the Caribbean, USA and South America.
- Public institutions with qualified personnel, years of research and regulatory experience.
- Access to mineral resources via road network, and rail, in some instances.
- Highly skilled and trainable workforce.
- Availability of information/data. The country is mapped, and there are drill and other technical data on various mineral deposits and mineral resources.

WEAKNESSES

- Dependence of the bauxite/alumina industry and industrial minerals industry on expensive imported energy (bauxite/alumina requiring approximately 10 million barrels of oil equivalent per annum at peak levels of production of approximately 4 million tonnes of alumina), which negatively impacts competitiveness.
- Dependence on an almost mono-mineral sector (bauxite and alumina) with limited value chain progression.
- Local alumina refineries are, for the most part, designed to process bauxite at low temperature. At the current mature stage of the industry, this could undermine its international competitiveness unless further research is undertaken and investments made in high temperature plants.
- An overwhelming and expensive reliance on road transport for cross-country movement of bulk industrial minerals and industrial mineral products.
- Non-existent marine transport for the minerals sector and rail is exclusively used by the bauxite and alumina industry.
- Insufficient focus on the rehabilitation of mined-out non-metallic minerals-bearing lands.
- Absence of dedicated training and research institutions for the minerals sector.
- Limited spatial planning.
- Limited use of new and innovative technologies for improving the output of value-added mineral products.
- High levels of environmental impact.
- Informal and planned residential settlements in proximity to alumina refineries and other industry assets, including residue disposal areas (RDA) ("red mud lakes"). This is partly the result of poor local and national planning, which increases the possibility for conflict with other land users.
- Lack of and in most cases non-use of renewable energy technologies.
- Limited energy efficient and energy conservation practices.
- Low levels of reinvestment of proceeds into the sector, and strategic investment in host communities and the wider economy.
- Poor coordination among stakeholders.
- No environmental bonds / restoration bonds posted by bauxite/alumina companies.
- Absence of developed closure plans.
- Illegal activities in the minerals sector.

The Non-Metallic Minerals Sub-sector:

- Large fleet of old and inefficient equipment and plants.
- Dominance of undercapitalized and small-scale operations with high operating costs.
- Concentration on the production of primary products.
- Limited exposure of mining-related human resources: a paucity of mining engineering, mineral processing, minerals marketing and related skills.
- Low levels of exports, low ratio of exports to total annual production and the need for improved coordination of marketing strategies.
- Very small expenditure on mineral exploration and research: less than 10% of the operators can provide satisfactory data on the quantities and categories of reserves.
- Over-reliance on Government as the major consumer.
- Limited penetration of sustainable development practices.
- Lengthy processing times for licences (new and renewals).
- Short duration of quarry licences.
- Difficulties in sourcing affordable financing for business development and expansion.
- High interest rates, import duties and taxes.
- Limited access to bulk-handling ports and loading facilities to accommodate exportation together with the high capital intensity that is associated with making the needed improvements.
- High costs associated with using existing ports for the export of quarry materials.

- High cost of inputs, including electricity, fuel and lubricants, plant and equipment.
- Informal and planned residential settlements in declared Quarry Zones: an outflow of poor national planning resulting in sterilization and conflict with other land users.
- Low value of restoration bonds.
- Many limestone quarries are located outside approved Quarry Zones, thus increasing the possibility for conflict with other land-users.

OPPORTUNITIES

- Use of a mining company's annual productivity plan as the principal driver of its global cost positioning.
- Existence of large local, regional (CSME) and export market possibilities (minerals and mineral products export targets to be set at a minimum of US$800M by 2030).
- Existing capabilities within the Hope Analytical Laboratories Network (HALN) with potential to deliver more efficient analytical support to the minerals sector. Possibility to amalgamate the laboratories operated by the MGD and the JBI.
- Existence of co-generation power systems based on cheaper and cleaner sources of energy.
- Revamped railway system to accommodate the use of rail as a cost-effective means of inland transportation for industrial minerals.
- Potential use of the levy-free or reduced levy fiscal incentive regime to encourage alumina refineries to invest in dual-feed digestion systems, plant expansion and value progression.
- Existing technology to transport bauxite by pipeline in the form of a treated-slurry from the mine to the refinery, thus minimizing dust pollution and other impacts and costs.
- Development of integrated minerals industrial parks focusing on lime, GCC, PCC, pigmented lime, limestone and other value-added products at Tarentum, Clarendon; Hope River Quarry Zone, St. Andrew; Lydford, St. Ann in order to maximize scale and scope advantages associated with large-scale port development at Salt River, Harbour Head, Old Reynolds Pier. Similar industrial parks could be developed in other areas of the country.
- Aligning the 1998 Manley Accord in the Bauxite/Alumina Industry with the prerequisites of attaining developed country status by 2030.
- Brazilian, Caribbean, Venezuelan and US markets for metallurgical limestone and dolomite.
- Growing Caribbean/North American markets for various industrial mineral products.
- Production of value-added import substitutes such as calcium citrate and calcium propionate derived from calcium oxide (lime) as well as export products such as GCC, PCC and pigmented lime.
- Use GOJ policy to decouple lime production from alumina production. This provides the possibility for Jamaican companies to dominate lime production for sale to the alumina companies and participation in the export market.
- Export market expansion through new trade agreements.
- Possibility to access cheaper energy (e.g. LNG, pet-coke, coal, renewables).
- Potential for development of new products (aluminium, skid-resistant aggregates) and new resources (off-shore minerals, including oil and gas, and rare earth minerals recovered from the red mud produced by the Bayer Process).
- Demand for technologies for small scale mineral operations, rehabilitation, stone craft design, etc.
- Integration of the minerals sector into the local economy.

THREATS

- Continued slow global economic growth, which may supress demand for bauxite, alumina, and other minerals and mineral product exports from Jamaica and lead to further contraction in the local minerals sector.
- Price volatility of critical imported inputs such as fuel and caustic soda.
- Patterns of severe weather, due in some measure to global climate change that may disrupt production and damage facilities and other assets.
- Growing competition for investment from low-cost advantaged bauxite, alumina and aluminium producing countries such as Australia, Brazil, Guinea and United Arab Emirates.
- Increasing sterilization of mineral resources due to planned and unplanned developments on mineral-bearing lands.
- Possible erosion of support for bauxite mining, alumina processing and other minerals development activities due to the perception that the minerals sector fails to adequately benefit communities.
- Potential harmful implications of high concentrations of beryllium in Jamaican bauxite/alumina.
- Continued (historical) reduction in the real price for raw mineral exports. It is necessary to focus on the production of value-added, especially high-end value-added products, where possible.
- Continued liberalization of the local economy and our inability to compete with cheap imports: marble from India, etc.

- Failure of local capital to make large investment in the sector: profits are repatriated by foreign-based investors.
- Aging, small and inefficient alumina plants cannot compete with newer, larger efficient plants in competing markets.
- Poor condition of some public roads used to access mineral deposits and to transport minerals and mineral-based products.
- Continued low levels of local capital being invested in major segments of the sector.
- Extortion and general criminality.
- External imposition of standards by mineral importing countries – e.g. non-tariff barriers to trade.
- Continued failure to integrate the sector into the wider economy.
- Weak enforcement of mining laws/regulations.
- Poorly funded Geological Survey Division and limited national will to protect mineral-bearing lands.
- Monopoly of important segments of the minerals sector by a very few dominant investors.
- Failure to obtain energy at prices and on terms favourable to the sector's continued development and international competitiveness.
- Limited GOJ-funded mineral exploration to define the country's mineral wealth and the products that can be generated from it.

A VISION OF JAMAICA'S MINERALS SECTOR IN 2030

By 2030, Jamaica's minerals sector will be a contributor ***to sustainability, globally competitive, diversified, focused on value addition and co-existing with competing interests in the wider economy.***

This vision is underpinned by the principle that a vibrant minerals sector must be based largely on a well-functioning mining industry, which makes significant contributions to sustainable development. The profits and revenues derived from the sector must be strategically invested in other areas of the economy and human development to allow for long term economic development. A strong minerals/mining sector can facilitate manufacturing, backward, forward and lateral integration into the local economy, import substitution, production and export of increasing quantities of value-added products.

The National Minerals Policy supports the implementation of Vision 2030 Jamaica – National Development Plan, by contributing to the creation of an enabling environment for the national outcome of "internationally competitive industry structures" and the implementation of the following three national development strategies:

- Develop company sophistication and productivity,
- Develop economic linkages and clusters, and
- Promote eco-efficiency and the green economy.

RESPONSIBLE MINERALS SECTOR - RESPONSIBLE INVESTORS

To achieve the 2030 vision of Jamaica's minerals sector, the necessary investors, operators and other key actors must be attracted. Investors are required to demonstrate a developed culture of corporate social responsibility that redounds to the long term benefit of host communities and by extension to the country.

Where appropriate, entities within the minerals sector may access incentives under the Fiscal Incentives (Miscellaneous Provisions) Act 2013 and other relevant legislation. The development of the industrial minerals industry and the metallic minerals industry will require facilitation similar to that encapsulated within the Cement Industry (Encouragement and Control) Act, Bauxite (Production Levy) Act, Bauxite and Alumina Industries (Encouragement) Act, and Bauxite and Alumina Industries (Special Provisions) Act.

Value addition will be a main consideration in the possible award of incentives.

Jamaica's minerals sector is governed by the rule of law. Investors will not be subject to repatriation or other arbitrary treatment. The minerals sector will prioritize and foster long-term development. The sector will continue to include both national and international investors, and will be open to responsible actors who comply with the policies and actions necessary to facilitate its development and contribute to Jamaica's sustainable development.

A promotional strategy, which communicates the opportunities presented by Jamaica's mineral resources will be developed. The strategy will be based on the values which are presented in this policy.

TRANSPARENCY AND ACCOUNTABILITY

A globally competitive minerals sector which acts as a primary contributor to sustainability and co-exists with competing interests in the economy requires transparency and accountability of all stakeholders. This will include transparency in clarity of processes, roles, responsibilities, timely access to required and relevant information, reporting government earnings from the sector, and the scope and types of investments in the development of host communities. Another important step towards this end will be the creation of a framework that ensures transparency in all agreements reached between the GOJ and investors.

Investors, state entities, communities and the government will exercise accountability in their duties, decisions and responsibilities. Commitments to stakeholders will be honoured; redress, including fair compensation, will be provided, especially if duties and commitments are not met or are breached.

Creating Linkages with the Creative Industry

Creativeness is an essential part of Jamaican culture. By establishing and strengthening the linkages between Jamaica's creative talents and the minerals sector, substantial value and employment can be created.

Using raw minerals and stones as craft material for locally made souvenirs is a new way of thinking about the minerals industry; it confirms that the minerals sector can be a catalyst to move Jamaica forward.

Investors, state entities, communities and the government will exercise accountability in their duties, decisions and responsibilities. Commitments to stakeholders will be honoured; redress, including fair compensation, will be provided, especially if duties and commitments are not met or are breached.

Jamaica should by 2030 have joined the Extractive Industries Transparency Initiative (EITI), www.eiti.org). Established in 2002, the EITI is a global standard aimed at improving revenue transparency and accountability in the extractive sectors, through the disclosure of payments to the government from private companies, and the disclosure of receipts from the government. Implementing the EITI standard is a complex undertaking which will bring Jamaica in line with international best-practices in financial transparency within its mining/ minerals sector.

SUSTAINABILITY ISSUES

The GOJ requires environmentally sound, socially responsible, financially profitable and technically appropriate investments in the sector.

Investors in the sector are required to comply with codes of practice, guidelines, standards, regulations and legislations for the maintenance and improvement of the environment. These include, for example, the controlled release of substances into the environment, trans-boundary movement of hazardous wastes, disposal of ship-generated wastes in an environmentally sound manner, and engaging conservation and management practices to reduce the risk of disasters and the negative impacts of climate change. International best practices in the rehabilitation of mined lands will form a key consideration in the sustainability of the mining sector. These standards will also be applicable to the reuse and recycling of waste generated by the sector.

The GOJ will facilitate, require and encourage the sector to:

1. Integrate sustainable development considerations within the corporate decision-making process.
2. Implement and maintain ethical business practices and sound systems of corporate governance.
3. Demonstrate respect to all who are affected by its activities.
4. Implement risk management strategies based on valid data and sound science.
5. Facilitate continued improvement in its occupational health and safety programme.
6. Contribute to conservation of biodiversity and integrated approaches to land use planning.
7. Develop responsible product design, use, re-use, recycling and disposal of its products.
8. Contribute to the social, economic and institutional development of the communities in which it operates.
9. Implement effective and transparent engagement, communication and independently verified reporting arrangements with its stakeholders.
10. Continuously improve its environmental performance.

Mining entities are required to prevent and or minimize the creation of waste. Where wastes are created, including overburden, waste rock, off-specification products, tailings, as in the case of 'red mud', wash and process water, and dust, measures must be taken to effectively treat and ensure their safe storage and disposal. These include employment of the best technologies and methods, management systems and use of the best possible sites to allow for safe storage and containment, especially in the event of over-topping, security against intrusion, collapse of the walls of these containment

structures, leakage into surface and underground water resources and dispersion of untreated materials into the atmosphere.

Where it is environmentally safe and structurally appropriate, wastes must be employed in productive and profitable activities. These include soil enhancement, fill, the construction of roads and other structures, and the manufacture of construction aggregates, feedstock for cement and concrete, construction blocks and other products. Useful components in all states of matter are to be extracted and the remaining mass recycled. Water must be recycled and reused for mineral processing, dust suppression, or treated and appropriately discharged into the environment

Investors in the sector are required to comply with codes of practice, guidelines, standards, regulations and legislations for the maintenance and improvement of the environment. These include, for example, the controlled release of substances into the environment, trans-boundary movement of hazardous wastes, disposal of ship-generated wastes in an environmentally sound manner, and engaging conservation and management practices to reduce the risk of disasters and the negative impacts of climate change. International best practices in the rehabilitation of mined lands will form a key consideration in the sustainability of the mining sector. These standards will also be applicable to the reuse and recycling of waste generated by the sector.

EXPLOITATION OF MARINE MINERAL RESOURCES

Jamaica has significant marine territory and is committed to utilizing its near shore and deep sea mineral resources. The GOJ is committed to begin exploring the sea floor for metallic and other non-fuel mineral resources.

The GOJ will encourage and facilitate this endeavour in keeping with the United Nations Convention on the Law of the Sea, other relevant conventions and local statues, and will approve permits for the exploration and the eventual mining of minerals in the near shore and deep seabed. Additionally, the Government will apply to the International Seabed Authority (ISA) for permits to mine in international waters.

GENDER ISSUES

While women dominate the administrative and office management segments of many operations within the Mining/ Minerals Sector, it remains overwhelmingly male dominated. Significantly, an increasing number of women are entering the minerals sector at different levels. With more women than men graduating from our tertiary institutions, this is expected to accelerate over the next 7 – 10 years, especially as more women begin to graduate with qualifications in engineering, the earth sciences, mine management, machine operation and other specialties which are required in the minerals sector. There are no legislative barriers to the entry and upward mobility of women in the sector. However, cultural and regulatory improvements are necessary to afford women increased physical security, freedom from predatory practices, and increased comfort at places of work within the sector. This is particularly necessary in the emerging non-bauxite/alumina industry.

Required interventions include the provision of physical security, acceptable bathroom and changing facilities for women, access to capital for women owners of mining operations or those wishing to enter the sector, a targeted and sustained campaign to attract more women into the sector, especially in technical and managerial positions, and workplace sensitization sessions for male employees to ensure that they become more comfortable with women in the workplace, especially in technical and managerial roles.

COMMERCIAL OPPORTUNITIES

Investment opportunities exist at all points along the Minerals Sector's value chain. These include mineral exploration, laboratory analytical services, value added production from various minerals including clay, semi-precious minerals (mineral craft), bauxite (chemical grade alumina for various industrial applications), and limestone (industrial lime, precipitated calcium carbonate, grounded calcium carbonate, grout and thin-set, bonding agents, fine and coarse aggregates, boulders for shore protection, paint and cement manufacturing, dry-wall, tiles, cladding materials, abrasives, counter tops and other products).

The Minerals Sector, which accounts for over fifty per cent (50%) of Jamaica's traditional exports (STATIN 2016, 2017), generates several products, with the Industrial Minerals Industry being integrally associated with the fortunes of the local construction sector. With continued growth in construction and public infrastructure, which are heavily reliant on several mineral products, there is potential for significant increased contribution to national growth and development.

Additional commercial opportunities within the Sector are explored in greater detail in Appendix XI.

SECTION 2 - THE MINERALS/MINING POLICY FRAMEWORK

KEY POLICY ISSUES

The Key Policy Issues along with the associated strategies are outlined below:

1. COMPETITIVENESS

Jamaica's minerals sector faces a number of challenges to its long-term competitiveness. The most pressing issue of high energy costs must be resolved. In addition, enabling the creation and the retention of the best trained and experienced staff is a problem to be resolved by all segments of the sector, which were negatively impacted during the 2008-2011 global economic recession.

While the bauxite and alumina industry is part of a vertically integrated global industry, the industrial minerals industry, base and precious metals industry have been less exposed to global economic competition due to:

- The typically low value-to-bulk ratio of industrial minerals,
- The limited development of non-bauxite resources, and
- Jamaica's geographic location.

Additionally, in order to develop value-added industries based on processing of mineral resources, the minerals extraction stages must provide competitively priced raw materials. Critical parts of this process will be to increase the scale and scope of operations within the sector, significantly increase the volume and value of value-added exports for both bauxite/alumina and industrial minerals, and restart and expand commercial production of metallic minerals.

2. DIVERSIFICATION AND VALUE-ADDED PRODUCTION

A key policy position is the transformation of the Minerals Sector from its current characterization as a predominantly mono- mineral sector to one with several distinct and highly developed minerals industries.

Increased emphasis will be placed on achieving higher rates of exportation, value-addition, diversification in output, increased production, increased linkages with various sectors and integration into the wider economy.

This Policy will also aim to expand the domestic use of locally manufactured mineral products. Adding value can create higher-paying job opportunities and added revenue streams. Opportunities for greater value capture from extractive activities also exist through forward, backward and lateral linkages, as well as through the creation of resource corridors.

Jamaica's National Minerals Policy 2017 – 2030

This Policy will provide for the development of an effective, efficient and competitive regulatory environment for the minerals sector.

The thrust of the policy is to expand and diversify the minerals sector through optimum exploration, extraction, value addition and utilization of resources using modern technology as well as research and development (R&D).

Emphasis is given to sustainable development, with clear focus on the application of technology, environmental protection, and the management of social impacts and the reinvestment of profits to drive increased and equitable development.

The GOJ is committed, where possible, to forming mutually beneficial partnerships with investors in the minerals sector. Central to these arrangements will be a commitment to maintain and increase employment figures, value chain progression, GOJ equity in the operations and profit sharing.

Bauxite

The trajectory of world demand and prices will require the industry's progression up the value chain, thereby converting an increasingly larger share of total bauxite production into higher value alumina, chemical grade alumina and aluminium. For example, in 2008 Jamaica exported 4.4 million dry metric tons of crude bauxite to the U.S. There will be a concerted effort to have such materials refined locally. Cheaper energy and more efficient plants will be of key importance to realise this goal.

Metallic Minerals Other Than Bauxite

Restarting commercial production of metallic minerals, namely gold with silver, and expanding into the mining of copper will be a major focus. The extraction of rare earth metals and other minerals from bauxite waste will be pursued, if market conditions allow.

Industrial Minerals

Significant focus will be given to developing this industry as part of the plan to diversify and expand the Minerals Sector. Increased value addition, import substitution and exportation will be encouraged.

Lime Production

The decoupling of lime production from the alumina plants to independent third party core businesses with the possibility for excess production for local use and the export markets is essential to the development of the limestone industry.

The Creative Industry and the Minerals Sector

Inter-sectoral linkages between the Minerals Sector and the creative industry can generate jobs, added-value and increase the range of products available in the craft and other creative industries. Greater focus will be placed on developing these linkages.

3. LAND AND MINERAL RESOURCE MANAGEMENT

Planning for the sector requires long-term projections for land-use and management. A multi-agency Minerals-bearing Lands Management Committee (MBLMC) will be established to assist the land management process.

A primary factor that the regulators will consider in granting approval for mineral exploitation will be the agreed post-mining use of the lands.

Prior to quarry licences and mining leases being approved, there must be agreement between the proponents of minerals development and regulators regarding mine closure plans. Minerals development will then proceed in order to realize the closure plan, unless both parties, and particularly the investors, decide to effect improvements that will vary the original plan.

The following will be implemented:

i. Increased levels of community consultations.

ii. Employment of internationally recognized categorization in reporting on mineral resources and mineral reserves.

iii. Application of sequential land-use planning.

iv. Multiple uses of ports and port facilities.

v. Confinement of minerals development activities to Minerals Development Zones (MDZ), wherever feasible and sustainable.

vi. Improvement of inventory of mineral resources and reserves island-wide to incorporate exclusion of mined-out lands, sterilized resources and addition of new discoveries. This includes establishing a Minerals Reserves Bank (MRB) to minimize sterilization and to facilitate the sector's long-term development.

vii. Exploitation of marine mineral resources.

3.1 MINERALS RESERVES MANAGEMENT AND DATA BANK

The Mines and Geology Division (MGD) will maintain an active Minerals Reserves Data Bank (MRDB) of all commercially exploited and exploitable minerals within the country. An annual report on the status of the mineral reserves and resources will be presented to Cabinet and Parliament.

The MGD will monitor the minerals reserves held by various companies.
Legislative measures will be introduced to discourage cherry picking, high grading and other practices that damage mineral reserves. Blending will be required to protect and extend mineral reserves.

3.1.1 MINERAL LANDS BANK

A Mineral Lands Bank (MLB) to facilitate the exchanging of mineral-bearing lands for non-mineral bearing lands or mined out mineral bearing lands by entities that would otherwise effect sterilizing developments on mineral-bearing lands will

be established. These lands are to be jointly managed by the Ministry with responsibility for mining and the Commissioner of Lands.

3.1.2 MINERAL LANDS PURCHASE FUND (MLPF)

The land bank is to be supported by a Mineral Lands Purchase Fund (MLPF) that the government commits to establish. The MLPF will allow for the purchasing of mineral bearing lands from persons who wish to effect developments on said lands that would sterilize the minerals on and within said lands.

3.2 LAND RESTORATION

Between 1952 and February 10, 2017 a total of 10,200.00 hectares of land, representing approximately 1.020% of Jamaica's total land area of roughly 1 million hectares, had been mined. The bauxite industry accounted for 8,769.43 hectares of the lands mined out, 9,513.09 hectares of the lands disturbed for mining and 11,657.67 hectares of the lands certified rehabilitated.

The quantities of land mined, rehabilitated, disturbed for mining and otherwise impacted by the bauxite industry are outlined in Table 2.

TABLE 2: BAUXITE LANDS MINED AND REHABILITATED STATUS SUMMARY AS AT FEBRUARY 10, 2017

CLASSIFICATION OF LAND IMPACTED	QUANTITY (HECTARES)
Area Disturbed For Mining	9,513.09
Area Mined Out	8,769.43
Area Being Mined/Open	739.03
Pit Area Certified	7,526.40
Rehabilitated Area Certified	11,657.67
Swell Area	4,219.63
Area Exempt from Certification	218.19

Restoration/Rehabilitation Bond

This Policy requires the restoration of mined and disturbed lands as a central feature of sequential land-use planning.

Progressive rehabilitation will be required in all mining/ quarrying operations. Additionally, all mineral development operations (mines, quarries and related manufacturing operations) will be required to post a rehabilitation bond to cover the cost of land rehabilitation and site clean-up.

4. STRENGTHENING LEGAL AND POLICY FRAMEWORK

The supporting legal and policy framework for the minerals sector will be adjusted to protect and enhance its competitiveness, long-term development, diversification with a focus on value-addition, sequential land-use and protection of the interests of the state. The capacity of GOJ entities, business-friendly orientation and coordination among agencies in the sector will be strengthened.

Minerals and mining-related statues will be amended and new statutes developed. The following new statutes are proposed:

i. Minerals Development Act,
ii. Minerals Industries (Encouragement Act), and
iii. Geological Survey Act.

Permit and Licence Regimes

Applications for Mining Leases (MLs), Quarry Licences (QLs), Prospecting Licences (Exclusive Prospecting Licences (EPLs) and Special Exclusive Prospecting Licences (SEPLs)) and other minerals and mining permits are made to the Minister with responsibility for mining through the Commissioner of Mines, which is housed at the Mines and Geology Division (MGD).

Depending on their scale, development projects for the exploitation of mineral resources are subject to development permits that may require a carbon management policy, Environmental Impact Assessment (EIA) report, a Health Impact Assessment (HIA) report, and other permits outlined under the National Environment and Planning Agency's (NEPA) permit and licensing regime.

The GOJ is committed to ensuring that the costs of the sector's environmental impacts are not externalized on the community. There will be close and strategic relationships with the National Environment and Planning Agency (NEPA), the Forestry Department, the ministry with responsibility for the environment, the Water Resources Authority (WRA) and

other state organs with responsibility for the environment, public health and public safety.

Quarry Licences Tenure

Quarry licences for carbonates, volcanic rocks and other properly capitalized operations will be granted for periods of ten (10) years and more. Licences for river-based sand quarries will not exceed one (1) year.

Operations holding multi-year mining leases and quarry licences will be required to pay an annual licence or lease renewal fee, which will be dedicated to research and generally to fund activities aimed at improving the GOJ's management and development of the sector.

5. SUSTAINABILITY ISSUES

Investors in the sector are required to comply with internationally and locally recognized codes of practice, guidelines, standards, regulations and legislations for the maintenance and improvement of the environment. These include, for example, the controlled release of substances into the environment, trans-boundary movement of hazardous wastes, disposal of ship-generated wastes in an environmentally sound manner, and engaging conservation and management practices to reduce the risk of disasters and the negative impacts of climate change. Companies will be required to furnish the Commissioner of Mines with an annual report outlining their environmental stewardship and impact on the environment.

5.1 MINERAL EXPLOITATION REQUIRING CABINET APPROVAL

Mineral exploitation in areas protected under various pieces of legislation and equivalent to the International Union for Conservation of Nature's (IUCN) Categories I and II Protected Areas, as outlined in the Policy for the National System of Protected Areas, will not be undertaken, unless mandated by the Cabinet. The Cockpit Country Protected Area (CCPA) and the Blue and John Crow Mountain National Park (BJCMNP) are examples of such areas. The impact assessment of any such decisions must fully reflect the economic cost of the minerals to be sterilized, the natural resources and eco-systems of the protected areas that might be affected.

In recognition of Jamaica's accession to the United Nations Educational, Scientific and Cultural Organization's (UNESCO) Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention), the Government of Jamaica will ensure that no mining takes place in areas designated as World Heritage Sites under this Convention without Cabinet's approval and that due recognition be given to the role of the International Council on Monuments and Sites (ICOMOS) in the implementation of the World Heritage Convention, while ensuring that a balance exists between the preservation of culture and the economic development of the country.

5.2 PREPARING FOR CLOSURE

Imperatives for mine closure:

1. Proponents of minerals development activities must develop a mine closure plan, which clearly outlines the future use of the specific parcels and blocks of mined or disturbed lands.
2. The Mine Closure Plan is to be presented to the Commissioner of Mines and other relevant authorities.
3. Prior to the closure of mineral operations, there must be agreement between the investor and permitting entities regarding the future use of the lands and other assets.
4. The required budgets, human resources and other assets necessary to effect successful and sustainable mine closure must be made available before minerals development operations cease.

Minerals development must proceed in accordance with the closure plan. Developers may however, submit to the relevant authorities proposed improvements to aspects of the plan.

On completion of mining and other minerals development activities, the mining infrastructure, including haul roads, rails, wells, buildings, power plants, and other assets must, where practical, be incorporated into the national infrastructure registry for use by the wider population.

6. CO-EXISTENCE WITH OTHER SECTORS AND ACTIVITIES

The GOJ accepts that the future of Jamaica's economic progress will necessitate a combination of mining and other economic activities and sectors. In support of this objective,

this Policy commits the Minerals/Mining Sector to pursue co-existence with the diverse users of the land and contributors to the country's economy as a necessary approach to facilitate each contributing optimally to the development of Jamaica's people.

7. INFORMED, EDUCATED AND TRAINED CADRE OF PERSONS OPERATING ACROSS ALL LEVELS WITHIN THE SECTOR

The GOJ recognizes that the growth and development of the Minerals Sector is dependent on a strong, efficient and competent workforce. The acquisition of necessary skills, insights, attitudes and technical competencies to facilitate the transformation of the sector will be facilitated.

A curriculum for the training of persons in mining/minerals related fields has been developed and is available on the HEART-NTA platform for use by any training institution. Additionally, the Government encourages training institutions to utilize this curriculum or develop their own for use in training human resources for the sector.

8. REPRESENTATION OF JAMAICANS IN OWNERSHIP AND MANAGEMENT OF MAJOR MINERALS ENTITIES

As a major wealth creation opportunity, Jamaicans and in particular women, are under-represented in the ownership and management of major minerals operations. This policy encourages Jamaicans to invest in the sector and to be involved in the ownership and management of the largest operations.

As a major wealth creation opportunity, it is important for more Jamaicans, particularly women, to pursue ownership and management of major minerals operations.

GOALS, POLICY POSITIONS AND STRATEGIES

The National Minerals Policy is undergirded by the general position of the Government that will ensure **transparency and accountability** within the minerals sector as well as a **modernised legislative, mining and product development framework** that encourages sustainability and increased competitiveness to drive investments.

GOAL 1: TO MODERNISE THE FRAMEWORK FOR SUSTAINABLE MINERALS USE TO OPTIMIZE THE SECTOR'S BENEFITS FOR NATIONAL DEVELOPMENT.

MAIN CONCERNS – Policy Issues # 2, 3 and 4

- Properly managed, mining and minerals sector needed to provide a cornerstone for Jamaica's economy and future development.
- Strategies needed for the effective management and modernisation of the minerals sector on the basis of sustainable mineral use pursued by both the public and private sectors.
- Mechanisms to ensure the exploitation of minerals on the seafloor.
- Streamlining of various Government functions

POLICY POSITION - The Government of Jamaica will ensure a modernised mining framework that encourages sustainability and increased competitiveness to drive investments.

KEY ACTIONS & STRATEGIES

- Modernise the major pieces of legislation directing the sector. These include the Minerals (Vesting) Act, the Mining Act, the Quarries Control Act and corresponding regulations. Introduce a comprehensive Minerals Development Act replacing the earlier separate acts.
- Introduce a Minerals Industries (Encouragement Act), which will be applicable to all minerals and segments of the minerals sector. It shall subsume the Bauxite and Alumina Industries (Special Provisions) Act and the Bauxite and Alumina Industries (Encouragement) Act.
- Identify and gazette Mineral Development Zones (MDZs) and ensure that they are linked to development plans.
- Update the Mining laws and regulations to ensure where necessary, stronger regulations are implemented.
- Evaluate and equip the agencies with the necessary tools to effectively monitor the operations within the sector and create an economic database of local and global mineral activities.

- Ensure all applicants for mining leases and quarry licences submit a closure plan and there is a high rate of compliance.
- Re-examine the environmental impacts of the various operations and implement applicable actions.
- Identify export markets and assist companies, especially small and medium sized entities (SMEs), to increase market share and export earnings.
- Through various facilitatory mechanisms, including fiscal incentives where most appropriate and in the national interest:
    - o Enable mining companies to implement their required energy solutions, plant modernization and expansion and other development projects.
    - o Enable the development of infrastructure required by the minerals sector.
- Encourage the use of equipment, machinery and technology that improve efficiencies, productivity and economics.
- Develop and maintain an on-line database of mineral resources and all other relevant information and data on Jamaica's mineral wealth for use by the government and investors.
- Encourage import substitution and the production of profitable value-added products.
- Facilitate the minerals sector being attuned to the international economic situation and derive maximum advantage out of production.
- Promote and facilitate the establishment of secondary and tertiary minerals-based industries.
- Facilitate and encourage excellent corporate social responsibility and require all companies to post rehabilitation bonds.

Areas of emphasis to ensure success of this Goal include the following:

- Revision of laws and regulations.
- Liaising with the Energy and Finance Ministries to pursue options/mechanisms that will encourage the use of adequate, affordable and reliable energy sources to improve the sector's competitiveness and help facilitate its success. In partnership with the private sector, the GOJ commits to resolve this critical issue.
- Mineral production and export.
- Penalties for environmentally hazardous actions/ behaviour/operations.
- Creation of Mineral Development Zones.
- Management of mineral resources through orderly extraction and use of tailings.
    - o The exploitation of tailings from the Bayer Process (red mud) for rare earth metals, iron and other minerals is of particular importance.
- Inventory of mineral deposits and the creation of a database of mineral reserves.
- Requirement for mining operations to post rehabilitation bonds.
- Value addition whenever possible, profitable and strategic.
- Creation of a National Minerals Institute (NMI). This will be a main entity helping to guide the sector's development, particularly in the areas of minerals management, sector promotion, product research, product and technology development.
- Investments in quality laboratories, plants and physical infrastructure, including roads, rails and ports for storage and the quick movement of minerals and mineral products, particularly exports, are vital for the minerals sector's continued development.
- Conservation of minerals for the purpose of augmenting the resource base through improvements in mining methods, use of modern technologies and ore blending.
- Recycling of minerals, metals and waste generated by the sector will be promoted.
- Priority will be placed on the development of an internationally competitive minerals sector by reducing operation costs, increasing efficiencies, increasing exploitation, and producing value-added products, whenever feasible.
- Product diversification, increased levels of import substitution and improved product quality will be primary foci. The contribution of the minerals sector to Jamaica's GDP will be optimised.

SUSTAINED MINERAL EXPLORATION

A programme of continuing mineral exploration, including mineral resources within the marine space, will be established. This will augment and create mineral reserves, assist in providing certainty of mineral resources availability, generate employment, extend the life of mineral operations and protect government revenues.

A national drill core and geological samples archive will be maintained by the Commissioner of Mines.

GOAL 2: TO IMPROVE THE COMPETITIVENESS OF THE MINING/MINERALS SECTOR THROUGH DIVERSIFICATION, VALUE-ADDITION AND THE ADAPTATION OF INTERNATIONAL BEST PRACTICES

MAIN CONCERNS – Policy Issue # 1

- The establishment of an internationally competitive investment regime that facilitates the development of a strong and profitable minerals sector.
- The need to implement more efficient energy programmes that will result in increased competitiveness.
- The need for lower energy costs to investors in the Minerals Sector.

POLICY POSITIONS – The Government of Jamaica will:

- Ensure a modernised mining framework that encourages sustainability and increased competitiveness to drive investments.
- Ensure that the fiscal regimes applicable to the mining and minerals sector are internationally competitive and allow acceptable returns from the exploitation of the mineral resources
- Encourage the diversification of the minerals sector to allow for greater value addition and the development of various industries within the sector.
- Encourage and facilitate where possible, the efficient and appropriate application and use of energy, land, waste and other resources.
- Ensure fair and equitable compensation principles are in place and practised, and encourage strategic investments in host communities and the wider economy.
- Ensure greater coordination among minerals sector stakeholders in pursuit of increased value addition and greater synergies; the protection of shared interests, maintenance of industrial harmony and enhanced sustainability.
- Facilitate and encourage local investment and rapidly and significantly increase the use of local content in the minerals sector.

KEY ACTIONS & STRATEGIES

- Reduce the barriers to investment by creating simpler processes where necessary.
- Align the National Minerals Policy, Action Plan and Strategy with the National Export Strategy.
- Collaborate with the Ministry of Finance to develop a stable, predictable, appropriate and equitable fiscal regime with well-defined parameters (interest rates, duties and taxes) for the sector to facilitate increased investment, exports and retooling.
- Create a database with relevant economic information on the sector and ensure these are widely available and easily accessible.
- Identify export markets and assist companies, especially small and medium sized entities (SMEs), to increase market share and export earnings.
- Design specific measures to attract investors. These include:
  - o better access to information and liberating mineral bearing lands for exploration and development,
  - o mandating the DBJ to provide attractive financing to the minerals sector,
  - o extending the facilities under the Bauxite and Alumina Industry Encouragement Act and similar legislation to the wider minerals sector,
  - o Creation of a comprehensive Minerals Development Act.
- Implement the tenets and principles of international organizations/associations concerned with good governance of the extractive sector, such as the EITI.
- Encourage investors to obtain a 'social licence' to facilitate their operations. They are required to observe NEPA's permitting and licensing process, including, where applicable, pursuing consultations with stakeholders and executing their corporate-social responsibilities.
- Ensure agreements between Government and investors are transparent and equitable.
- Introduce a Geological Survey Act to facilitate the effective management of the country's geological assets and the development of a robust and competent Geological Survey.
- In partnership with the private sector, employ measures to improve the sector's image and promote its product locally and internationally.
- Facilitate and encourage increased investments in value addition.
- Provide relevant market intelligence and encourage research into material properties, the creation of new products, new areas of product application, minerals development funding and related matters.
- Require (through legislation and negotiation) that minerals ports be used for multiple purposes and are available to third parties. Where applicable, intra-island barging will be promoted.

Areas of emphasis to ensure success of this Goal include the following:

- Increased integration between the Minerals/Mining Sector and other segments of the economy, including engineering, education, manufacturing, craft, telecommunications, agriculture, tourism, the financial sector, transport and haulage, construction and waste management.
- **Sequential land-use planning -** issues of conflicting land use with other sectors of the economy, mineral resources and mineral reserves management, post-minerals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development planning and protection of government revenues from the sector will be effectively addressed and synergies enhanced.

- The GOJ is to develop and pursue systems for market information and quality standards coupled with the strengthening of the monitoring and evaluation framework for the sector.
- The GOJ is to ensure that incentives within the minerals sector align with the Fiscal Incentives (Miscellaneous Provisions) Act 2013, incentive regimes specific to the Bauxite and Alumina Sector, other legislations and mechanisms, and an investor-friendly and competitive fiscal framework with well-defined parameters is established. The proposed Comprehensive Minerals Development Act will give greater clarity to this commitment.
- The GOJ is to build institutional capacities to give effect to laws and policies that are enacted and implemented.

GOAL 3: TO IMPROVE OCCUPATIONAL HEALTH AND SAFETY, COMMUNITY RELATIONS AND ENVIRONMENTAL STEWARDSHIP THROUGHOUT THE SECTOR

MAIN CONCERNS - Policy Issues # 3, 5 and 7

- Best practices are adhered to in health, safety and environmental management, including the disposal of waste materials that are generated by the sector.
- New, innovative and appropriate technologies are to be employed to address sector generated waste including dry-stacking. The use of land considers the need for economic development, the protection of watersheds, water resources, forests, heritage, culture, biodiversity, land and other assets.
- The operations of the Minerals Sector are not externalized on host communities and the wider society.
- Benefits from mining activities redound to host communities.
- Emergency preparedness planning is robust and continuous.

Policy Positions - The Government of Jamaica will:

- Design and implement appropriate policies that will ensure the minerals sector does not negatively impact the environment.
- Require the implementation of international best practices for environmental stewardship, community relations and occupational health and safety standards.
- Ensure appropriate land management uses and restoration practices are observed.

KEY ACTIONS & STRATEGIES

- Require the implementation of new and appropriate technologies for the recovery and reuse of waste rock and top soil from mining.
- Best practices and appropriate systems will be required to meet the challenges attending to tailings, waste water streams, emissions into all environmental media, land rehabilitation, biodiversity, heritage and cultural protection.
- Improved integration between GOJ entities, more regular and detailed testing of water quality to prevent possible contamination of water resources (ground and surface water).
- Ensure the enforcement of Life of Mine plans , which are properly monitored and if not adhered to, penalties levied.
- Encourage mineral entities as well as entrepreneurs to pursue opportunities to use minerals waste to create other products including cast iron and dross-based products, bricks, pigments, floor tiles and water treatment options.
- Ensure state agencies are properly equipped to evaluate and monitor waste disposal sites and activities.
- Require mining companies to include emissions standards and procedures that are consistent with international standards and global best practices – encourage requirements to obtain international standard certifications (for e.g. the ISO 50001 and 14000 geared towards the implementation of Energy and Environment Management, respectively).
- Promote the development of a carbon management policy by mining entities.
- Increase air quality monitoring in and around mining and mineral processing operations.
- Establish community-based Joint Minerals Development Monitoring Committees (MDMC) based on the experiences form the Joint Bauxite Community Councils (JBCC). These committees should facilitate good relations between communities and companies, and provide a recognised structure to channel host communities' concerns to minerals development companies and benefits from mining back to the host communities.
- Consider and evaluate various proposals to facilitate and ensure there are adequate financial means for rehabilitation and mine closure work such as insurance policies, rehabilitation bonds, environmental management plans and disaster prevention and management plans.
- Improve the competence and capacity of GOJ entities and other stakeholders to effectively and proactively monitor the sector's compliance with environmental, health and safety, and related laws and regulations, ensure increased participation in the regulatory and approval processes as

well as in the on-going mining activities and post-mining closure.

- Promote mineral exploration and exploitation as a stimulus to attract further economic development in host communities. Apply the development corridor concept.
- Ensure strict implementation of and adherence to health and safety standards and Jamaican laws governing these subjects.
- Vigorously enforce penalties against mineral exploiting operations for breaching the operating conditions of their licences, leases and or applicable statutes.
- Require minerals development companies to hold adequate insurance and other securities to mitigate damages and loss arising from their activities.
- Adopt pollution prevention (including the elimination of recurring dust nuisances and hazards where possible) as opposed to 'end of pipe' or pollution control approaches – to take into consideration nuisances during and after mining operations. This Policy promotes industrial symbiosis and the ecosystem approach.
- Create 'no go areas' in which mining activities will not be allowed. The CCPA is one such area.
- Ensure the effective rehabilitation of mined-out and other disturbed lands.
- Identify and sensitize stakeholders of the threats posed to the business from rising sea levels and adverse weather conditions (e.g. impact on berths / port facilities and infrastructure such as access to mining roads / quarrying sites).

Areas of emphasis to ensure success of this Goal include the following:

- Ensure that operations within the minerals sector observe the required occupational health and safety requirements, environmental standards and pursue community relations policies that engender community support.
- Continued training of GOJ personnel within the Minerals Sector.
- Exposure of investors, mine managers, regulators and other stakeholders to best practices in active mining and minerals development operations.
- Sessions with the Jamaica Business Development Commission (JBDC) and similar organizations to expose them to business opportunities that are available from minerals waste.

GOAL 4: TO INCREASE EFFICIENCIES WITHIN THE MINING / MINERALS SECTOR BY ENCOURAGING RESEARCH AND DEVELOPMENT FOR INNOVATION.

MAIN CONCERNS – Policy Issues # 1, 2 and 6

- Improved and increased beneficiation.
- Increased value-added production.
- Increased preparation for mine closure.
- Institutional framework for developing and employing new and clean technologies.
- Increased application of science and technology throughout the sector.
- Research and development employed for geological mapping, exploration, mining and other activities.
- Reduced duplication by Government mining entities

Policy Positions – The Government of Jamaica will:

- Encourage and facilitate, where possible, the efficient and appropriate application of energy, land and other resources.
- Ensure the establishment and maintenance of appropriate intra and inter-sectoral linkages that will result in increased efficiencies and competitiveness.
- Ensure agreements, commitments and principles on climate change to which Jamaica is signatory are honoured.
- The GOJ will facilitate the streamlining of relevant Government agencies to reduce duplications and ensure increased efficiencies through the creation of a National Minerals Institute and other entities

KEY ACTIONS & STRATEGIES

- Establish a National Minerals Institute (NMI) to lead research, development and innovation relating to all minerals.
    - o The NMI will build on integrating the experiences, physical assets and staff of the Jamaica Bauxite Institute (JBI), the Earthquake Unit (EU) and segments of the Mines and Geology Division (MGD).
    - o The NMI will work in tandem with national tertiary institutions and the private sector.
- Seek to use cleaner energy sources in mining operations (e.g. cleaner fuels for vehicles and greater penetration of renewable energy technologies)
- Strengthen energy efficiency and energy conservation practices across the sector
- Strengthen the linkages and interaction between the various institutions that are pursuing R&D
- Give focus to applied research which improves efficiencies in the sector.
- Introduce an annual quarry licence and mining lease renewal fee.
- Promote quality assurance standards.
- Improve the capacities of existing laboratories to establish

efficient and functional physical and chemical analytical facilities with internationally recognized certification.

- Create incubation facilities to allow for the commercialisation of new R&D results.

Areas of emphasis to ensure success of this Goal include the following:

- Modernize and ensure internationally recognized/ industry relevant certification of GOJ owned laboratories within the Mining Sector.
- Streamline the management of GOJ laboratories.
- Provide financing and other resources to ensure research by GOJ entities into minerals and mining related matters.
- Provide incentives for private sector entities to pursue innovation and research.

GOAL 5: TO EDUCATE AND TRAIN JAMAICANS IN SUPPORT OF THE MINING / MINERALS SECTOR

MAIN CONCERNS – Policy Issue # 7

- Training and retention of specialized mining skills.
- Improved knowledge/skills in plant operations.
- Linkages with educational institutions to develop appropriate training programmes and opportunities.
- Public awareness regarding the sector's significance to national development and the need to protect the country's mineral resources.

Policy Positions - The Government of Jamaica will:

- Encourage and facilitate the training of persons in relevant minerals development and related skills necessary to effectively manage and advance the minerals sector.
- Facilitate the streamlining of relevant Government agencies to reduce duplications and ensure increased efficiencies through the creation of a National Minerals Institute and other entities.

KEY ACTIONS & STRATEGIES

- Establish a human resources training regime to ensure the availability of trained personnel at all levels for the minerals sector. The resources available at CMU, HEART/ NTA, U-TECH, UWI and other tertiary institutions will be harnessed for this task. Cooperation with suitable overseas institutions will be crucial to obtain optimum value from expenditure on training and education.
- Establish licensing authority for minerals-related professionals.
- Encourage private companies to dedicate resources to improve the competencies of their staff and provide bursaries for students.
- Investigate and promote local and international training opportunities to industry practitioners.
- Promote programmes aimed at educating the populace about the sector's significance to national development and the need to protect our mineral resources.

Areas of emphasis to ensure success of this Goal include the following:

- Pursue accreditation for mining courses (certificates, diplomas and degrees) at local institutions.
- Utilize various media and other fora to inform Jamaicans about the importance of mining and the wider minerals sector.

GOAL 6: TO FACILITATE ECONOMIC BENEFIT OPTIMIZATION AND INCREASED PARTICIPATION OF JAMAICANS, INCLUDING OWNERSHIP AT ALL LEVELS OF THE MINING/ MINERALS SECTOR

MAIN CONCERNS – Policy Issue # 8

- Jamaicans, including an increasing number of women, are significant owners and managers of minerals related businesses.
- Benefits from the proceeds of minerals development redound to host communities and the Jamaican public.

Policy Positions – The Government of Jamaica will encourage:

- Local ownership of minerals development operations and other forms of investments by Jamaicans in the local Minerals Sector. This also includes maximizing the quantity of local content (goods and services) by Jamaicans.
- The participation of females at all levels within the sector.

KEY ACTIONS & STRATEGIES

- Transform the Bauxite Community Development Programme (BCDP) into a Minerals Community Development Programme (MCDP). This will extend investment to communities that have been impacted by mineral development activities other than bauxite and facilitate the re-investment in these communities of financial resources generated by the sector.
- Through legislation, require mining companies, within a maximum of 5 years, to provide land titles to persons whom they resettle. The Bauxite Lands Land Titling Committee (BLLTC) will monitor this process with respect to persons relocated by the bauxite mining companies.
- Mandate by law and facilitate sustainable 'life after mining' projects and the maintaining of good environmental quality in host communities.
- Regulatory entities will ensure that minerals development operations do not externalize the cost of their operations on the public. Where communities are negatively impacted, the responsible company will pay adequate compensation and correct the mischief.
- Ensure that private land owners can benefit to the same

extent as government when mining occurs on their lands.

- Facilitate ownership of equity in mineral operations by Jamaicans, including promotion of joint ventures, and other ownership arrangements between local and foreign capital.
- Encourage the creation of a capital development fund to facilitate investments in the minerals sector by local SMEs.
- Promote private venture capital funds and other innovative structures and financing mechanisms to support the minerals sector. Funds held by entities such as the National Insurance Scheme (NIS), pension funds, and the National Housing Trust (NHT) should be allowed to invest in bankable and profitable segments of the minerals sector.
- Ensure mining entities establish and maintain standards for the physical security, acceptable bathroom and changing facilities for women.
- Through various international partnerships and co-operations, encourage women and other Jamaicans to access the necessary capital/financing to enable ownership of mining operations.
- Require workplace culture sessions for male employees to ensure that they become more comfortable with women in the workplace, especially in technical and managerial roles.

Areas of emphasis to ensure success of this Goal include the following:

- Require mining companies to provide Jamaicans with blocks of shares.
- GOJ to make available to Jamaicans a portion of its ownership stake in mining operations.
- Through policy and legislation, ensure Jamaicans occupy senior managerial and technical positions in mining companies.
- Encourage Jamaican participation in programmes that facilitate development and growth of women in the sector.

POLICY INSTRUMENTS

The Government will utilize both regulatory instruments (laws, policies and regulations) and economic instruments (incentives, waivers, fees, taxes, tax credits, etc.) to achieve the desired outcomes that are proposed by this policy.

In addition, the Government will encourage the private sector to implement certain practices and guidelines as well as other private sector based instruments to impact their development.

POLICY OUTCOMES

Modernized Minerals Sector (Goals 1, 2, 3, 4 & 5)

- Diversification of exploited minerals
  - o Transformation from perception of a mono-minerals industry
  - o Increased focus on value-added products
- Integration of the Minerals sector into the wider economy
- Longer terms for licences and leases
- Stronger intra and inter-sectoral linkages
- Partnership with tertiary and other training institutions

IMPROVED SUSTAINABILITY (GOALS 1 & 3)

- Improved quality and more rapid land rehabilitation
- Sequential land use management
- Submission and implementation of closure plans
- Increased use of renewable energy and application of energy efficiency
- Improved emissions, health and safety standards
- Waste reduction and re-use
- Increased Jamaican ownership and management of minerals development operations
- Increased number of women in all areas of the sector
- Improved use of earnings generated from the sector
- Improved water management and recycling

INCREASED EFFICIENCIES (GOALS 1 & 4)

- Training and certification of competent cadre of individuals to operate within the sector
  - o Exposure to new technologies
  - o Establishment of a Minerals School
- Research & Development
- Spatial Planning
- More efficient processes (shorter turn-around time for approvals; easier application processes)
- Review licensing regime and duration
- Increased profits and reduced waste from each unit of capital and labour invested

AN ENABLING POLICY, LEGISLATIVE AND REGULATORY FRAMEWORK (GOALS 1 & 3)

- Modernization of legislative framework
- New and amended legislation
- Stronger monitoring mechanisms
- Stronger penalties for non-compliance

MODIFIED FISCAL REGIME (GOALS 1-6)

The existing fiscal regime for the Bauxite/Alumina Industry will, modified, as necessary, to facilitate increased investments and the development of all segments of the Minerals/Mining Sector.

Plant expansion, including the establishment of certified and accredited laboratories, as well as equipment acquisition and modernization, research and development along with the development of new mineral processing and waste management technologies, and the creation and marketing of new value added products will be incentivized.
Waiver of the Bauxite Production Levy and other payables to the Government will be significantly curtailed.

INCREASED INVESTMENTS (GOAL 2)

- Import substitution
- Increased export financing
- Information easily available to potential investors
- Re-investment of proceeds in the sector and the wider economy
- Expansion of installed production capacity, particularly in the area of value addition
- Favourable investment climate (interest rates, duties, taxes, trained and efficient labour force, etc.)
- Improved training and increased number of persons trained by the sector. This includes increased numbers of women

STRONGER COMMUNITY RELATIONSHIPS (GREATER INTEGRATION BETWEEN STAKEHOLDERS WITHIN COMMUNITIES) (GOALS 3 & 6)

- Integration of abandoned minerals development assets (haul roads, bridges, buildings, wells, etc.) into community and national development
- Increased corporate social responsibility, including sustainable community development programmes
- Strategic investments in host communities
- Reinvestment in host and other minerals-related communities of a minimum of 20 per cent of all royalties collected annually

INCREASED EMPHASIS ON ENVIRONMENTAL STEWARDSHIP (GOAL 3)

- This includes stronger hazard mitigation mechanisms throughout the sector and effective control of negative environmental impacts
- Improved corporate, social and environmental stewardship programmes, including better climate resilience by entities within the sector
- Improved minerals waste management and disposal measures

SECTION 3 - MOVING FORWARD

IMPLEMENTATION FRAMEWORK

The policy's successful implementation will require linkages between the minerals sector and other segments of the economy and society. These include, but are not limited to energy, manufacturing, engineering, transport, environment, construction, tourism, finance, agriculture, sanitation, craft, and education and research.

THE MAJOR IMPLEMENTING ENTITIES ARE:

1. The Ministry with responsibility for mining
2. The Mines and Geology Division (MGD) / The Jamaica Bauxite Institute (JBI)
3. The National Minerals Institute (NMI)
4. The Ministry with portfolio responsibility for the environment has responsibility for environmental management, land use planning and development, spatial planning and solid waste management.
5. The National Environment and Planning Agency (NEPA)/ The Natural Resources Conservation Authority (NRCA)
6. The Jamaica Bauxite Mining Limited (JBM) and Clarendon Alumina Production Limited (CAP)
7. The Water Resources Authority (WRA), National Land Agency (NLA), the Forestry Department, the National Works Agency (NWA) and
8. Parish councils

Local universities and other research institutions will play a key role in keeping abreast of research as well as engage in research and development in minerals management, minerals processing technologies and processes, and minerals exploitation to meet the country's emerging needs and continuously work with the government and private sector to keep them informed of these emerging technologies as well as facilitate the adoption and adaptation of these technologies by consumers and investors. Universities and other tertiary level training institutions will take a leading role in the provision of training courses for persons working in or wishing to pursue a profession within the minerals industry.

PROPOSED NEW INSTITUTIONS

The following entities will be established to effect the minerals sector's development:

1. **The National Minerals Institute (NMI)** will lead research and pilot the management and development of all the country's minerals wealth, excluding oil and gas, and

water. It will subsume the functions of the Jamaica Bauxite Institute (JBI) and the Geological Survey and research functions of the current Mines and Geology Division (MGD), which will be incorporated into the new institute, bringing with it important experience and knowledge from the Bauxite and Alumina Industry, the Industrial Minerals Sub-sector and the Metallic Minerals Sub-sector.

The NMI will facilitate the minerals sector's transformation into a multi-minerals and predominantly value-added entity which is integrated into the wider economy. This includes the development of an integrated industrial minerals, metallic minerals, bauxite and alumina and rare earth metals sector, which is also focused on exploiting mineral resources in the marine space. The NMI will become the central entity responsible for managing Jamaica's mineral resources and developing its minerals sector. It will have no regulatory functions as all such functions will be remitted to the MGD.

2. The **Minerals Development Advisory Council (MinDAC),** will be revitalized and expanded to include oversight for training personnel for the minerals sector. It will work closely with the Ministry responsible for the minerals portfolio and will assist in providing guidance to the Minister and institutions on matters relating to the development of the minerals sector.
3. **The Minerals Development Fund (MDF)** will be utilized to purchase mineral-bearing lands, where necessary. It will consist of a Mineral Lands Bank (MLB) that will hold and trade mineral-bearing lands as a key strategy to minimize their sterilization.
4. The Bauxite Lands Land Titling Committee (BLLTC) will continue to effect its functions through the Minerals Policy, Planning and Development Division.

FINANCING THE NATIONAL MINERALS POLICY

The Policy will be financed through several mechanisms, including:

- An annual quarry relicensing fee to be levied on all holders of quarry licences,
- Increase in royalties on all minerals that are mined,
- An annual fee for all Mining Leases (MLs) and Special Mining Leases (SMLs).

These monies are to be held in a special account at the Ministry of Finance, and, where necessary, will be supplemented by funds from the Bauxite Production Levy and or other funds as Cabinet may determine from time to time.

MONITORING AND EVALUATION FRAMEWORK

The Ministry with responsibility for minerals/mining will be accountable for monitoring and evaluating the implementation of this Policy. A continuous programme of monitoring, involving relevant public and private sector stakeholders will be employed. This will be directed by the goals and indicators, guidelines of the Cabinet Office and aligned to the Monitoring and Evaluation Framework that is part of Vision 2030 Jamaica as well as the Whole of Government Business Planning Process.

The indicators represent the foundation of a results-based monitoring and evaluation system to ensure that the Policy's six goals and other policy commitments are achieved. This will, in turn, contribute to the achievement of the related goals as set out in Vision 2030 Jamaica- National Development Plan.

The policy will be evaluated after three years to ascertain the extent to which targets, goals and other deliverables are being achieved. It will be updated in light of progress to assess whether or not amendments in policy are required. Sustainable development criteria – economy, environment and social priorities- will be used to guide strategy in a balanced way for the longer-term.

The responsible ministry, currently the Ministry of Transport and Mining (MTM), will conduct broad stakeholder consultations periodically to review and assess the policy's effectiveness. The results of the assessment and evaluation, including recommendations, will be published in a report for submission to the Cabinet.

PROPOSED INDICATORS

The performance indicators for a sustainable minerals sector include targets for tailings management, energy use, greenhouse gas emissions management, external outreach, crisis management planning, emissions to all environmental media, ratio of value-added mineral production to raw mineral production and export, scale of on-going mineral exploration, transparency in reporting government earnings from the sector, number of hectares of land mined and restored annually, quality of land rehabilitation, and the scope and types of investments in the development of host communities.

In a wider context and across sectors, performance indicators for sustainability also include the sector's integration with the wider economy, biodiversity protection and replenishment, investment in human resource development beyond the requirements of the minerals sector, investment in infrastructure and long-term income generating activities to facilitate an enhanced livelihood after depletion of the mineral resource, land rehabilitation and other after-care activities.

The proposed indicators for the National Minerals Policy over the period 2016-2030 are presented in the table below. These indicators are the building blocks of the Monitoring and Evaluation programme. Targets will be set in collaboration with the key implementation partners.

INDICATORS AND TARGETS – NATIONAL MINERALS POLICY 2017 – 2030					
MINERALS SECTOR					
PROPOSED OUTCOME INDICATORS	**BASELINE**	**PROPOSED TARGETS**			**COMMENTS**
	2016 or Most Current	**2020**	**2025**	**2030**	
Percentage change in export earnings from the Bauxite/Alumina Industry (%)	14.2%	2-4%			
Average % change in value added outputs of non-metallic minerals (lime, cement, whiting, etc.)		50%			Locally set by the Ministry with responsibility for mining
Percentage (%) change in export earnings from the Industrial Minerals Sub-sector					
Percentage change in US$ foreign exchange inflows of export earnings from Bauxite Sub-sector (%)	14.2%	2-4%			
Average % change in value-added output of non-metallic minerals (lime, cement, whiting, etc.)	290 tonnes	Increase by 50%			
Percentage of total bauxite used in the production of alumina (%)	70.0%	≥ 80%	≥ 85%	≥ 95%	
Total operating cost of production per ton of alumina (US$)	US$320.00				
Percentage of mined lands rehabilitated (%)	66.00%				
Percentage of quarried lands rehabilitated (%)					
Tonnes of minerals extracted per annum					
Bauxite					
Limestone					
Shale					
Gypsum					
Clay					
Pozzolan					
Gold					
Silver					
Other minerals					
Hectares of mined-out lands rehabilitated per annum					
Number of licences and permits issued per annum:					
Quarry Licences					
Exclusive Prospecting Licences					
Special Exclusive Prospecting Licences					
Mining Leases					
Special Mining Leases					
Export permits					
Environmental permits					

INDICATORS AND TARGETS – NATIONAL MINERALS POLICY 2017 – 2030 (Continued)					
MINERALS SECTOR					
PROPOSED OUTCOME INDICATORS	**BASELINE**	**PROPOSED TARGETS**			**COMMENTS**
	2016 or Most Current	**2020**	**2025**	**2030**	
Hectares of land disturbed					
Percentage of minerals mined transformed into value-added products annually					
Curriculum for training of mining professionals (Mining School) implemented					
Number of persons certified					
National Minerals Institute established					
Mineral Lands Purchase Fund (MLPF) established					
Mineral Lands Bank established					
Ratio of emissions to tonnes of minerals mined					
Ratio of emissions to tonnes of value-added mineral products manufactured					
Number of accidents per annum					
Number of fatalities per annum					

Other indicators to be considered for the monitoring and evaluation of this policy are as follows:

- Use of fuel as a percentage of its annual output (fuel efficiency)
- Community development initiatives as a percentage of royalties
- Sector's percentage contribution to GDP
- Percentage of investments in the minerals sector as a percentage of total investments in the country
- Level of FDI in the sector as a percentage of total FDI in the country
- Percentage of employment in the sector as a percentage of total employment
- Number of jobs created by the sector and the number of indirect beneficiaries
- Percentage of mining operations with local and international certification (eg: ISO 14000 certification)
- Quality of water bodies, air, soil and biodiversity in mining areas
- Number of geo-hazard maps developed annually
- Amount of geological data updated, archived and protected annually
- Number of geological and resource assessment reports produced annually
- Annual expenditure on mineral exploration activities
- Ratio of emissions to total mined land areas
- Ratio of emissions to total quantity of mined minerals converted to value-added mineral products
- Energy intensity of the mining sector.

APPENDIX

APPENDIX I

THE NATIONAL MINERALS POLICY ACTION PLAN AND STRATEGY

Presented below is the Action Plan for the minerals sector. It is aligned to Vision 2030 Jamaica as well as to outcomes of this minerals Policy. The projects identified are listed along with the agencies responsible for implementation.

OUTCOMES	ACTIONS	RESPONSIBLE AGENCIES AND STAKEHOLDERS	TIME-FRAME
1.1: ***An enabling policy, legislative and regulatory framework***	1.1.1.1 Complete and promulgate the National Minerals Policy, including provisions for development of a non-metallic minerals sub-sector	**MTM**, NMI	Will commence immediately following Parliament's approval of the NMP
	1.1.1.2 Simplify licensing process for metallic and non-metallic minerals	**MGD,** NMI, **MTM**	By end of January, 2022
	1.1.1.3 Extend the period of licences for non-metallic minerals quarries	QAC, **MTM**	Completed by end of January, 2021
	1.1.1.4 Rationalize procedures for granting of blasting licences and regulating importation, handling, storage and transportation of explosive materials	**MEGJC, MGD**, MNS, **MTM**	Completed by end of January, 2023
	1.1.1.5 Promote public awareness of importance of minerals sector	**MTM, JAMPRO**, MQAJ, MGD, Private sector	On-going
	1.1.1.6 Modernize minerals-related legislation	**MTM**, MGD, AGC, MOJ, CPC, Cabinet, Parliament	Completed by 2030
	1.1.1.7 Recognize exploration in minerals legislation	**MTM**, MGD, AGC, MOJ, CPC, Cabinet, Parliament	Completed by January, 2026
	1.1.1.8 Introduce certification for mineral operations and materials/products	**BSJ, MGD, MTM, NMI,**	Completed by 2030
	1.1.1.9 Review fiscal regime for bauxite/alumina industry	**MTM, MFPS**, NMI, OPM, JBM, CAP	Completed by 2025
	1.1.2.1 Rationalize the incentive regime and treatment of metallic and non-metallic minerals under mining and quarrying legislation (exploration; transferability of	**MTM, MGD**, MFPS, JAMPRO, NMI	Completed by 2026

	licences)		
	1.1.3.1 Educate stakeholders on licensing and regulatory requirements and breaches and international best practices	**MTM, MGD**, NMI	On-going
	1.1.3.2 Promote improved industry self-regulation	**NMI, MQAJ, MGD, MTM**	On-going
	1.1.3.3 Strengthen institutional capacity of regulatory agencies	**MTM, MGD,** NEPA, NWA	Commence by end of 2024
	1.1.3.4 Review and revise penalties for breaches including discrete notices and penalties for operators and individuals	**MGD,** MLSS, NEPA	Commence by 2021
	1.1.3.5 Develop modes of enforcement of penalties for specific breaches on operators and individuals	**MGD,** MLSS, NEPA	Commence by 2021
	1.1.3.6 Create public database of status of operators in breach of licenses and regulations	**MGD**, MLSS, MNS	Completed by 2025
	1.1.3.7 Become ISO Certified and Compliant in all mission-critical operational areas	**BSJ, Private Sector, MQAJ, MGD, JBI**	Completed by 2025
	1.1.4.1 Strengthen collection and use of data on minerals sector	**NMI, MGD, STATIN, MTM**, PIOJ	On-going
	1.1.4.2 Develop monitoring and evaluation framework for development of minerals sector	**MTM, NMI, MGD,** JTI, PIOJ, NEPA, WRA	Completed by 2025
	1.1.4.3 Develop accountability framework and mechanisms for evaluating and monitoring effectiveness of sector agencies	**MTM, CO,** OPM, PIOJ,	Completed by Q2 2023
	1.1.5.1 Create public database of status of licensed and certified operators	**MGD, MTM**	Completed in 2015. On-going
	1.1.5.2 Ensure adequate penalties for operating and /or purchasing from unlicensed operators	**MTM, MGD**, MQAJ	Achieved and on-going
	1.1.5.3 Carry out public education on purchasing only from licensed and certified operators	**MTM, MGD**, MQAJ	On-going
1.2: Long-term	1.2.1.1 Carry out a comparative assessment on the economic extraction potential of reserve base	**NMI, MGD**, JBI, **MTM**	Completed by December 2020

development of minerals sector integrated into the overall land use planning and management objectives of the country ***(Modernized Minerals Sector)***	1.2.1.2	Classify reserve base based on economic potential	**NMI, MGD, MTM**, PIOJ	Completed by December 2020
	1.2.1.3	Provide priority planning approval for the development of mineral reserves	**NEPA, LAs,** CoL, NLA, JBI, MGD	On-going
	1.2.2.1	Introduce framework for use of mineral-bearing lands including sequential land-use	**MTM, OPM**, MGD, RADA, NEPA, LAs, MQAJ, Private sector	On-going
	1.2.2.2	Prevent conflicting land use at pre-mining stage and during mining on lands with priority planning approval for mineral development	**MTM, OPM, NEPA, LAs,** MGD, RADA,	On-going
	1.2.2.3	Support strengthening of capacity of planning agencies and authorities	**OPM, NEPA, LAs, MTM,** MEYI,	On-going. Commenced in 2016
	1.2.2.4	Ensure productive use of un-mined lands including tenant farming	**MICAF, RADA**, Private Sector	On-going. Commenced in 2010
	1.2.2.5	Ensure compliance with end use of land as per terms of approval and rehabilitation plan	**NMI (BCDP), MGD**	On-going. Commenced in 2010
	1.2.2.6	Integrate rehabilitation plans with regional land use plans	**OPM, NEPA, LAs, MTM**, NMI, MGD	Commence by December 2020
	1.2.3.1	Identify all mineral-bearing lands including through non-invasive technological approaches e.g. Ground Penetrating Radar (GPR), infrared satellite imaging and hand drilling	**Private sector, MGD**, NMI	Commenced in 2012. On-going.
	1.2.3.2	Prepare updated geological maps of entire island including location of mineral resources	**MGD, MGI, NLA**	On-going
	1.2.3.3	Register mineral resources and reserves with the Mineral Lands Bank.	**MTM, NLA, NMI, MGD**	Commence by 2021
	1.2.3.4	Integrate mineral resource maps into planning information systems including GIS	**MGD, MGI, OPM, NEPA**, LAs, PIOJ	Commenced in 2015. On-going.
	1.2.3.5	Ensure zoning of lands containing valuable mineral resources (including metallic minerals, dolomite, gypsum, whiting, marble, chemical-	**OPM, NEPA, LAs, MGD, MTM**, NMI	Commenced in 2012. On-going

		grade limestone)		
	1.2.3.6	Update zoning and establish additional zones	MEGJC, NEPA, NLA, LAs, MGD, **MTM**, NMI	On-going
	1.2.3.7	Establish and enforce no go areas for mineral exploitation	**MTM, OPM, NEPA, LAs, MGD,** WRA	Commenced in 2018. On-going
	1.2.4.1	Integrate infrastructural development of mineral bearing lands in parish development and regional plans	**MTM, OPM, NEPA, LAs, MGD, NMI**, MEGJC, NWA, WRA, NWC	Commenced in 2015. On-going
	1.2.4.2	Integrate infrastructure built by mining projects into national and regional plans where possible after mining	**MTM, OPM, NEPA, LAs, MGD,** NMI, MEGJC, NWA, WRA, NWC	On-going
	1.2.4.3	Develop mechanisms for joint development of infrastructure between government and private investors (e.g. roads, ports)	**MTM, MEGJC, JTI, PAJ, Private sector**, MEYI (PetroCaribe Development Fund)	Commence by Q2 2022
	1.2.4.4	Rationalize location of quarries to be consistent with development and maintenance of transport network	**QAC, MQAJ, MEGJC, MGD**	On-going
	1.2.4.5	Identify/rationalize island-wide road network for the transportation of bulk minerals	**MEGJC, NWA, MTM, MGD**	On-going
	1.2.5.1	Establish a National Mineral-Bearing Lands Management Committee	**MTM**, NMI, MGD	Completed in 2015
	1.2.5.2	Establish a National Mineral-Bearing Land Management Bank	**MTM**, NMI, MGD	January 2021
1.3:- Increased value of bauxite extraction and processing (Increased efficiencies and Investments)	1.3.1.1	Provide Accelerated Depreciation Allowance for investment in capacity expansion and dual-feed digester systems	**MFPS**, NMI, JAMPRO, TAAD	
	1.3.1.2	Undertake conversion of energy sources at bauxite / alumina plants to graduate to high-temperature processing format in coordination with national decisions on diversification of fuel supply between coal and natural gas and underlying economics in	**MFPS**, NMI, JAMPRO, TAAD, MOE	Commenced at JAMALCO in 2019

	energy markets		
	1.3.2.1 Allocate bauxite reserves adequate to sustain production for at least 25 years in the case of new plants	**NMI**, OPM, **MTM**, MGD	On-going
	1.3.2.2 Improve monitoring of rate of depletion of allocated reserves and quality of remaining unallocated reserves	**NMI, MTM**	On-going
	1.3.2.3 Provide additional reserves to existing companies as needed to sustain planned levels of production	**NMI**, OPM, **MTM**, MGD	On-going
	1.3.3.1 Identify primary locations for sourcing bauxite based on logistics and material specifications (with particular reference to Haiti and Guyana)	NMI, Private sector, JBM, CAP	December 2022
	1.3.3.2 Develop procurement, transportation and storage policy and arrangements	**NMI, Private sector,** PAJ, JBM	December 2022
	1.3.3.3 Initiate/conduct negotiations to secure stable supplies on a long-term strategic basis	**NMI, Private sector,** PAJ, MFAFT, CAP, JBM	On-going by private companies
1.4:- A developed and economically feasible non-metallic mineral sub-sector **(Increased Efficiencies and Modernized Minerals Sector)**	1.4.1.1 Establish National Minerals Institute (NMI) to spearhead development of limestone and its derivatives and other non-metallic mineral resources	**MTM**, MGD	After Parliament passes the policy. December 2022
	1.4.1.2 Develop long-term strategic plan for integrated non-metallic minerals sub-sector with emphasis on value-added production	**MTM**, MGD, JAMPRO, MQAJ	September 2022
	1.4.2.1 Develop and implement long-term plans for: • Tarentum • Cane River • Lydford • Port Esquivel • Rio Bueno • Bowden	**Private sector, JAMPRO, MTM**, MGD, PAJ, NMI	Commence plan development by 2021
	1.4.3.1 Develop technical assistance programmes to expose	**MGD, NMI, MQAJ, JAMPRO,**	Commenced in July 2019

	industry operations to best practice in: • Management • Resource/reserve management • Drilling and blasting • Extraction • Environmental management and rehabilitation • R&D • Product development	Tertiary institutions	
	1.4.3.2 Encourage consolidation of smaller enterprises	**MTM, MQAJ**, JAMPRO	On-going
	1.4.3.3 Encourage development of strategic alliances with internal and external partners who bring value	**JAMPRO, Private sector, MTM**	On-going
	1.4.4.1 Develop and promote quality assurance standards for non-metallic minerals enterprises	**MQAJ, BSJ, JLI, MTM**	To commence by November 2020
	1.4.4.2 Encourage substitution of local value-added products	**MQAJ, JAMPRO, Private sector, MTM**, MGD	On-going
	1.4.4.3 Promote awareness of range of products, end-uses and profitability of non-metallic minerals	**MQAJ, JAMPRO, Private sector, MTM**, MGD	Commenced in 2012. On-going
	1.4.5.1 Establish and maintain non-metallic minerals as a priority sub-sector for investment promotion	**JAMPRO, MTM**, MGD	On-going
	1.4.5.2 Promote investment opportunities in non-metallic minerals in domestic and international markets	**JAMPRO, MTM, MGD**	On-going
	1.4.5.3 Develop financing mechanisms for exploration and R&D	**JLI, MQAJ, DBJ, Private sector,** MFPS	To commence by November 2021
	1.4.6.1 Establish National Minerals Week as a biennial annual event	**MTM**, MQAJ, NMI, MGD, Private sector	Commenced in 2017
	1.4.6.2 Develop online and hard copy catalogues of available products	**Private sector, MTM, JAMPRO,** MQAJ, JEA	To commence by Q3 2022
	1.4.6.3 Develop market intelligence through networking alliances and conducting market studies	**Private sector, JAMPRO,** MQAJ, JEA	Commenced in 2013. On-going

	1.4.7.1 Strengthen relationships with other sector associations	**MQAJ, JMA, IMBJ**	
	1.4.7.2 Establish appropriate marketing and information systems to bring together producers and purchasers in the mining and quarrying sector and linkage sectors	**MTM, MQAJ, JMA, IMBJ**	Commenced in 2014. On-going
	1.4.8.1 Manage allocation of valuable high-quality non-metallic mineral resources	**MTM, MGD**, MQAJ, Private sector	On-going
1.5:- Provision of competitive infrastructure and technology (Improved Sustainability; Modernized Minerals Sector)	1.5.1.1 Use the annual productivity plan to drive a progressive reduction in the share of energy in the overall bauxite and alumina industry cost structure by increasing energy efficiency and promoting co-generation	**Private sector, NMI, Unions**	On-going
	1.5.1.2 Coordinate conversion of energy sources at bauxite / alumina plants with national decisions on diversification of fuel supply between coal and natural gas and underlying economics in energy markets	**MTM, PCJ,** NMI, JPSCo, Private sector	Commenced in 2018 with JAMALCO. On-going
	1.5.1.3 Promote retooling of non-metallic minerals operations to introduce energy-efficient equipment including variable speed motors	**MTM**, JAMPRO, MQAJ	Commenced in 2015
	1.5.1.4 Promote use of renewable energy sources including wind, solar and hydro-power	**PCJ, MTM,** JAMPRO, MQAJ	Commenced in 2014
	1.5.1.5 Encourage more energy-efficient methods of drilling, blasting, loading, crushing and transport	**MTM, MGD, MQAJ**	Commenced in 2019
	1.5.2.1 Undertake comprehensive port study to identify existing ports including sufferance wharves and develop recommendations for expansion and rationalization of port infrastructure	**PAJ**, MTW, MSTEM	December 2021
	1.5.2.2 Explore potential for consolidation of alumina exports through Port Esquivel and establish Rocky Point as	**MTM, MEGJC, PAJ, Private sector**	On-going

		a port for export of non-metallic minerals from South-Central Jamaica		
	1.5.2.3	Expand and upgrade gypsum port to accommodate non-metallic minerals exports from South-Eastern Jamaica	**CCC, PAJ**, MTM	Discussions to begin November 2020
	1.5.2.4	Develop suitable port facility for non-metallic minerals exports on the North Coast	**Private sector, PAJ, MTM**	Commenced in 2014
	1.5.2.5	Require multi-use access to new port facilities for non-metallic minerals	**MTM, MEGJC, PAJ, Private sector**	Commenced in 2015
	1.5.2.6	Develop facilities to allow compatible multi-use of existing bauxite ports	**Private sector, PAJ, MTM**	Discussions to commence in September 2020
	1.5.3.1	Include identification of coastal barge system in port study	**PAJ**, MEGJC, MTM	
	1.5.3.2	Undertake dredging and development of port facilities for barge transport as alternate means of transport	**PAJ**, MEGJC, Private sector	On-going
	1.5.3.3	Undertake study of economics of coastal shipping	**PAJ**, MEGJC, MTM	To commence in 2021
	1.5.4.1	Develop point-to-point rail network with adequate load-bearing capacity from major new and existing mining and quarrying operations to ports and land-based customers	**JRC, Private sector,** MEGJC, MTM	2022
	1.5.5.1	Ensure that vehicles used for transporting minerals on public roadways conform with load-carrying and combined weight-bearing restrictions and other regulations of the Road Traffic Act	**MEGJC**, MTM, MGD, JCF, ISCF	On-going
	1.5.5.2	Require inclusion of weigh bridges and scales in quarry operations	**MEGJC**, MTM, MGD	Commenced. On-going
	1.5.5.3	Encourage introduction of vehicles with higher capacity on an Original Equipment Manufacturer (OEM) basis	**MEGJC**, MTM, MGD, MQAJ	To commence by Q3 2022
	1.5.6.1	Encourage use of conveyor and cable belt and pipeline systems as means of transportation from plant to	**NMI,** MTM, MGD, Private sector	Commenced in 2014

		port (e.g. Ocho Rios)		
	1.5.7.1	Leverage the capabilities within the Hope Analytical Laboratories Network (HALN) as a critical underpinning of sector development	**NMI,** SRC, MGD, MICAF, WRA	To commence by Q1 2021
	1.5.7.2	Research the mineralogy and processing of bauxite reserves with a high concentration of goethite and associated phosphates	**Universities, SRC, NMI**, Private sector	Commenced in 2012
	1.5.7.3	Support research into the potentially hazardous effects of beryllium found in alumina	**NMI**, Private sector	2021
	1.5.8.1	Explore alternatives to double-digester for processing high monohydrate bauxite, including pre-treatment and sintering approaches	**NMI, Private sector**	Commence by Q3 2021
	1.5.8.2	Strengthen reserves definition and mine planning to allow appropriate blending of trihydrate and monohydrate bauxite	**NMI, Private sector**	On-going
	1.5.9.1	Investigate the mineralogy and commercial feasibility of isolating and extracting titanium oxide and other materials from red mud residue	**NMI,** SRC, Universities, Private sector	Commenced in 2015
	1.5.9.2	Investigate the mineralogy, identification and commercial feasibility of: • Dolomitic, calcitic and hydrated lime • GCC (packaged to lab-specs) • PCC (packaged) • Specialty lime chemicals (e.g. calcium citrate, calcium propionate) • Stone craft and decorative stone products (including from agates and marble) • Manufactured sand • Clays and ceramics • Construction finishes and plasters (e.g. gypsum ceilings,	**MTM, NMI, Private sector**	Aspects commenced in 2012

	decorative finishes such as stucco and plasters) • Mineral springs		
	1.5.11.1 Encourage use of local limestone in desulphurization operations locally and overseas (with by-product of gypsum)	**MTM, MQAJ**, Private sector	Commenced in 2012
	1.5.12.1 Explore potential for dredging beach sand and aggregate offshore	**Private sector, MGD**	Commenced in 2018
	1.5.12.2 Explore application of seabed mineral exploitation best practice to Jamaica's Exclusive Economic Zone (EEZ)	**MSET**, MGD, NEPA, Private sector	Commenced in 2017
	1.5.13.1 Develop internship programmes and project assignments for engineering students related to the Bayer process	**U-Tech, UWI, NMI, Private sector**	
	1.5.13.2 Develop capacity and opportunities for academic institutions to apply knowledge to industry problems and challenges	**Universities, MTM, NMI, MGD, Private sector**	Commenced in 2014. On-going
	1.5.13.3 Develop relationships with alumni and industry experts through discussion fora, seminars and presentations on topics of mutual interest	**Universities, Private sector**	Commenced in 2015. On-going
	1.5.13.4 Develop strategic alliances and research partnerships between JBI, MGD, NMI, the mining ministry and other entities	**NMI, MTM, JBI, MGD**	Commenced in 2017
	1.5.14.1 Strengthen research capacity of JBI, MGD and NMI	**NMI**, Universities, SRC	Commenced in 2018
	1.5.14.2 Upgrade JBI pilot plant, Rare Earth plant and other facilities for practical training and research	**NMI**	To commence in 2022
	1.5.14.3 Strengthen research and development capacities of mining institutions and enterprises	**NMI, Private sector**	Commence by Q2 2021
1.6:- Adequate supply of human	1.6.1.1 Leverage the skills upgrade model piloted at the Breadnut Valley Training Institute and the ALPART/HEART	**HEART/NTA**	September 2020

resources with internationally competitive levels of labour productivity (Modernized Minerals Sector)		Apprenticeship programme to boost productivity and enhance international competitiveness		
	1.6.1.2	Establish certification programmes for mining and quarrying operatives	**HEART/NTA**	July 2019
	1.6.2.1	Develop tertiary-level training programmes in the Bayer process using the JBI pilot plant	**NMI, Universities**, SRC	To commence by Q2 2021
	1.6.2.2	Introduce applied electives on bauxite and limestone in tertiary geology curricula	**Universities**, NMI, MQAJ, JLI, SRC	
	1.6.3.1	Review and enhance existing 1998 Industry MOU for bauxite industry	**MTM, MFPS, NMI, Private sector, Trade unions**	
	1.6.4.1	Establish benchmarks for internationally competitive levels of labour productivity	**NMI, MQAJ**, JLI, Private sector, Trade unions	Will commence by 2021
	1.6.4.2	Encourage application of performance-based compensation schemes	**Private sector, JEF, Trade unions, MLSS**, NMI, MQAJ, JLI	Commenced in 2009
1.7:- Increased exploitation of other mineral resources (Improved Sustainability; Increased Investments)	1.7.1.1	Package and provide baseline data from existing studies on potential of other metallic minerals resources in Jamaica	**JAMPRO,** PCJ, MGD, NMI, JLI, UWI	On-going
	1.7.1.2	Promote exploration for other metallic minerals	**JAMPRO**, PCJ, MGD, NMI, JLI	Commenced in 2010
	1.7.2.1	Review international programmes and models for exploitation of marine minerals resources to determine suitable model and approach for Jamaica	**MTM, UWI, NMI, PCJ,** JLI, NEPA, PAJ, MGD, ISA	Commence by 2022
	1.7.2.2	Develop zoning and commercial blocks for exploration (see PCJ model)	**MTM**, PCJ UWI, NMI, JLI, NEPA, PAJ, MGD,	Commence by 2022
	1.7.2.3	Package and provide baseline data from existing studies on potential of marine minerals resources	**JAMPRO, PCJ**, MGD, JNM, JLI, UWI	Commence by 2022
	1.7.2.4	Promote exploration for marine minerals resources	**JAMPRO**, PCJ, MGD, NMI, JLI	Commenced in 2017
1.8:- Strengthened hazard mitigation mechanisms in	1.8.1.1	Design and retrofit operational, transportation and storage facilities to meet standards appropriate to natural hazard profile of	**Private sector, ODPEM, MGD,** NMI, MQAJ, PAJ, JLI, NEPA, JIE, LAs	On-going

the sector (Improved Sustainability)	Jamaica including tropical storms, hurricanes, earthquakes and floods		
	1.8.1.2 Ensure hazard preparedness and response plans	**Private sector, ODPEM, MGD,** NMI, MQAJ, PAJ, JLI, NEPA, JIE, LAs	On-going
	1.8.1.3 Ensure maintenance and related training programmes incorporate hazard mitigation system checks	**Private sector, ODPEM, MGD**, NMI, MQAJ, PAJ, JLI, NEPA, JIE, LAs	On-going
	1.8.1.4 Ensure submission of Carbon Management Policy as a part of the licensing regime	**Private sector, MTM,** MGD	2021
	1.8.2.1 Strengthen linkages between umbrella organization and national disaster preparedness and emergency management system, including throughout the prevention, preparation, response and recovery phases	**Private sector, ODPEM, MGD**, NMI, MQAJ, PAJ, JLI, NEPA, LAs	On-going
	1.8.2.2 Encourage collaboration between mining and quarrying enterprises and community-level disaster committees	**Private sector, ODPEM, MGD**, NMI, MQAJ, JLI, NEPA, LAs	On-going
	1.8.2.3 Implement periodic on-site monitoring programmes of mining and quarrying enterprises	**ODPEM**, NEPA, MGD, NMI, private sector, MQAJ, PAJ, JLI, LAs	On-going
2.1:- Sustainable mining communities (Improved Sustainability)	2.1.1.1 Collaborate in the design and implementation of skills training, agro-processing, micro enterprise development initiatives and replacement industries	**HEART/NTA, MICAF, JBDC, NMI,** JAS, Private entities	Commenced in 2014
	2.1.1.2 Maximize the use of tenant farmer programmes in the pre-mining and post-mining stages in order to boost agricultural production in all active mining leases	**MICAF, NMI, JAS, Private entities**	On-going
	2.1.1.3 Encourage corporate social responsibility to develop social infrastructure in mining communities	**MTM,** MEYI, MOH, MICAF, SDC, NMI, Private entities	Commenced in 2015
	2.1.2.1 Ensure effective resettlement plans for communities or residents displaced by mining	**MTM, NMI,** LAs, NEPA, MICAF, MWH, Private entities	On-going

		activities		
	2.1.2.2	Encourage development of subdivision projects for sector employees	**LAs, Private entities,** PDCs, NEPA, NLA	On-going
	2.1.3.1	Strengthen use of Community Development Fund by CBOs in bauxite mining communities	**NMI, Community Councils,** Private entities, MPs	On-going
	2.1.3.2	Deepen collaborative mechanisms with mining and quarrying stakeholders including establishment of community-based monitoring committees, especially in sensitive areas	**MTM, MGD, NMI, Community Councils,** Private entities	Commenced in 2016. On-going
	2.1.3.3	Conduct regular monitoring of aquifers in order to ensure ground water sources are not contaminated by minerals development activities	**JBI, MGD, NEPA, Private sector**	On-going
2.2:- Harmonious relationships between communities and mining and quarrying entities (Stronger community relationships)	2.2.1.1	Strengthen role of Community Councils including capacity development and communications	**Private entities, NMI, SDC, MGD**	Commenced in 2015
	2.2.1.2	Recognize communities as stakeholders in MOUs agreed on by main stakeholders including owners, government and unions	**Private entities, NMI, Unions, Community Councils, MGD**	On-going
	2.2.2.1	Review and update compensation policy to ensure conformity with best practice	**Private entities**, unions, NMI, Community Councils, **MTM**	On-going
	2.2.2.2	Include community representatives in review and development of compensation policies	**Private entities, unions, NMI, Community Councils**	Commence by 2022
2.3:- Adoption of a holistic approach to the wellness of sector employees (Improved Sustainability)	2.3.1.1	Promote and ensure compliance with Personal Protective Equipment (PPE) Guidelines across all operational activities with appropriate equipment	**Private entities, unions, MLSS, MOH, MTM**, NEPA, JBI	On-going
	2.3.1.2	Ensure compliance with provisions of health and safety policy and operating procedures necessary for safe, healthy and injury–free environment	**Private entities, unions, MLSS, MOH, MTM, NEPA, NMI**	On-going
	2.3.1.3	Implement containment and early warning systems	**Private entities, unions, MLSS, MOH, MTM, NMI**	On-going

	2.3.2.2	Ensure establishment, upgrading and maintenance of first-response health and emergency facility in major minerals processing facilities	**Private entities, unions, MLSS, MOH, MTM**, NMI	On-going
	2.3.2.3	Ensure planned access to designated emergency facilities for incidents at all mining, quarrying and processing facilities	**Private entities, unions, MLSS, MOH, MTM**, NMI	On-going
	2.3.3.1	Ensure adherence to legal and international standards through certification (OSHA, ISO, National Safety Council, etc.)	**Private entities, unions, MLSS, MOHE, MTM**, NMI	On-going
	2.3.3.2	Ensure participation of mining and quarrying representatives in on-going review and updates of occupational safety and health legislation and regulations	**Private entities, unions, MLSS, MOH, MTM**,	On-going
	2.3.4.1	Identify and classify major hazardous elements of mining and quarrying sector	**MOH, Private sector, MQAJ, NMI**, JLI, NEPA	On-going
	2.3.4.2	Develop research programmes for each classification and identify funding sources and implementing institutions	**UWI, NEPA, SRC, PIOJ, Private sector**, MQAJ, NMI, JLI	To commence by Q1 2022
	2.3.4.3	Undertake research programmes and disseminate findings	**UWI, NEPA, SRC, PIOJ, Private sector**, MQAJ, NMI, JLI	On-going
3.1:- Effective control of negative environmental occurrences (Improved Sustainability)	3.1.1.1	Ensure that environmental permits are required for new facilities	**NEPA**, MGD, NMI	Will commence in 2021
	3.1.1.2	Ensure that EIAs are required for all mining and quarrying activities beyond an agreed size.	**NEPA**, MGD, NMI	On-going
	3.1.1.3	Ensure that air pollutant discharge licenses are required for air emissions	**NEPA**, MGD, NMI	On-going
	3.1.1.4	Encourage increasing levels of self-monitoring and reporting (on monthly and annual basis) to environmental agency of emissions testing (at the stacks or suspended particulate measurements)	**NEPA**, MGD, NMI, MQAJ, private sector	Commenced in 2011. On-going

	3.1.3.2 Seek to limit dust exposure by actively exploring the prospect of transporting feedstock by pipeline in the form of a treated slurry	**NMI, MQAJ, private sector,** NEPA, LAs	Discussions commenced in 2002. On-going
	3.1.4.1 Encourage development and implementation of pollution prevention strategies in the sector	**NEPA, MTM,** MGD, NMI, JLI, MQAJ, private sector, NSWMA	On-going
	3.1.4.2 Conduct environmental audits of operations	**Private sector, NEPA, NMI,** MQAJ, JLI	On-going
	3.1.4.3 Encourage backward linkages using waste as inputs including waste oil	**Private sector, NEPA, NMI, MQAJ,** JLI, PCJ, NSWMA	On-going
	3.1.4.4 Develop environmental accounting procedures	**Private sector, NEPA,** NMI, MQAJ	Will commence by 2022
	3.1.5.1 Develop and implement training programmes for sector enterprises and employees in environmental best practices and sustainable development	**Private sector, NEPA,** NMI, MQAJ	Commenced in 2010. On-going
	3.1.5.2 Carry out public education to increase environmental awareness of minerals development stakeholders	**NEPA, MTM, MGD,** NMI, MQAJ	On-going
	3.1.6.1 Consolidate environmental regulatory responsibilities for the sector (e.g. along the lines of the US EPA)	**OPM, NEPA,** MGD, NMI	Commence by 2022
	3.1.6.2 Establish clear and consistent framework of environmental standards, regulations and guidelines in collaboration with stakeholders	**OPM, NEPA,** MGD, NMI	Commenced in 2010. On-going
	3.1.6.3 Develop and extend multi-agency model of coordination between environmental regulatory agency and the sector developmental agencies (e.g. MOU between NEPA and JBI) based on capacities and clear lines of authority	**OPM, NEPA, MTM, MGD,** NMI, JLI	Commenced in 1995. On-going
	3.1.6.4 Provide appropriate training for relevant staff in environmental regulatory and developmental agencies	**OPM, NEPA, MGD, NMI,** JLI	On-going

	3.1.6.5	Upgrade and maintain equipment on on-going basis (including dispersal modelling, SO_2 monitors, particulate emissions, gas analysers)	**NEPA, MGD, NMI,** JLI, UWI, SRC, MICAF, private sector	On-going
3.2:- Adequately rehabilitated mined-out mineral bearing lands	3.2.1.1	Integrate use of mined-out sites with sequential land use planning for mineral resources	**Private sector, NEPA, LAs, MGD,** NMI, MQAJ	On-going
	3.2.1.2	Link end use to licensing conditions	**MGD, private sector, NEPA,** LAs, MQAJ	Commenced in 2005. On-going
	3.2.2.1	Establish Restoration Committee for mining and quarrying operations	**MTM, MGD,** Private sector, NEPA, LAs, JBI, MQAJ, MICAF, Forestry Dept., WRA	Commenced in 2013. On-going
	3.2.2.2	Strengthen penalties for non-compliance to encourage self-monitoring	**MGD**	On-going
	3.2.3.1	Fully determine types of dry limestone ecologies	**NEPA, MICAF, Forestry Dept.,** MGD, NMI, JLI, UWI	On-going
	3.2.3.2	Determine types of plant species that can be successfully re-introduced into each type of ecology	**NEPA, MICAF, Forestry Dept.,** MGD, NMI, JLI, UWI	On-going
	3.2.4.1	Determine feasibility of increased use of mined-out sites for non-toxic solid waste disposal, rainwater harvesting, recreation, tourism, real estate development and other uses	**MTM, MGD, Private sector,** NEPA, LAs, NMI, MQAJ, MICAF, Forestry Dept., WRA	Commenced in 2000. On-going
	3.2.5.1	Develop alliances with tertiary and research institutions for student-led research projects on biodiversity surveys in known reserve areas	**NEPA,** UWI, SRC, NMI, MGD, NCU, U-Tech, CASE,	Commence by 2022
	3.2.5.2	Secure technical assistance from international development partners (IDPs) for pre-mining biodiversity surveys and other purposes	**NEPA,** UWI, SRC, NMI, MGD, NCU, U-Tech, CASE, NEPA, PIOJ	On-going

KEY

MGD: Mines and Geology Division	NWA: National Works Agency	MEYI: Ministry of Education, Youth and Information	UWI: University of the West Indies
NMI: National Minerals Institute	MLSS: Ministry of Labour and Social Security	PCJ: Petroleum Corporation of Jamaica	UC RUSAL: United Company RUSAL
MTM: Ministry of Transport and Mining	RADA: Rural Agricultural Development Agency	NWC: National Water Commission	JIE: Jamaica Institute of Engineers
QAC: Quarries Advisory	STATIN: Statistical Institute	TAAD: Tax Administration	JEF: Jamaica Employers

Committee	of Jamaica	Authority Department	Federation
MEGJC: Ministry of Economic Growth and Job Creation	JPSCo: Jamaica Public Service Company Limited	BATCO: Bauxite and Alumina Trading Company of Jamaica Limited	PDC: Parish Development Committees
MNS: Ministry of National Security	NMI: National Minerals Institute	PAJ: Port Authority of Jamaica	SDC: Social Development Commission,
JAMPRO: Jamaica Promotions	CCC: Caribbean Cement Company Limited	MFAFT: Ministry of Foreign Affairs and Foreign Trade	MICAF: Ministry of Industry, Commerce, Agriculture and Fisheries
MQAJ: Mining and Quarrying Association of Jamaica	HEART/NTA: Human Employment and Resource Training/National Training Agency	JEA: Jamaica Exporters Association	MOH: Ministry of Health
BSJ: Bureau of Standards Jamaica	CASE: College of Agriculture Science and Education	NEPA: National Environment and Planning Agency	Forestry Department
MFPS: Ministry of Finance and the Public Service	WRA: Water Resources Authorities	JMA: Jamaica Manufacturers Association	NSWMA: National Solid Waste Management Authority
OPM: Office of the Prime Minister	NCU: Northern Caribbean University	JRC: Jamaica Railway Corporation	JCF: Jamaica Constabulary Force
JBM: Jamaica Bauxite Mining Limited	SRC: Scientific Research Council	JLI: Jamaica Limestone Institute	U-Tech: University of Technology, Jamaica
CAP: Clarendon Alumina Production Limited	PIOJ: Planning Institute of Jamaica	PCJ: Petroleum Corporation of Jamaica	CPC: Office of the Chief Parliamentary Counsel

APPENDIX II -
EXISTING LEGISLATION IMPACTING THE MINERALS SECTOR

The main pieces of legislation governing the minerals sector are the Mining Act, the Quarries Control Act and their Regulations, the Minerals (Vesting) Act, and taxation and incentive legislation for the Bauxite and Alumina Industries. However, there are several other statutes that influence mineral exploitation in Jamaica. The most important of them are listed below.

MINING LEGISLATION	LAND USE LEGISLATION
The Minerals (Vesting) Act	Crown Property (Vesting) Act
The Mining Act	Land Acquisition Act
The Mining Regulations	Land Development and Utilization Act
The Petroleum Act	Local Improvements Act
The Quarries Control Act	Town and Country Planning Act
The Quarries General Regulations	
ENVIRONMENTAL LEGISLATION	**TAXATION LEGISLATION**
Beach Control Act	Customs Act
Endangered Species Act	General Consumption Act
National Solid Waste Management Authority Act	Harbour Fees Act
Natural Resources Conservation Authority Act	Income Tax Act
Air Quality Regulations	Land Taxation (Relief) Act
Public Health Act	Land Valuation Act
The Forest Act	Property Tax Act
The Jamaica National Heritage Trust Act	Stamp Duty Act
Watersheds Protection Act	The Bauxite (Production Levy) Act
Water Resources Act	The Bauxite and Alumina Industries (Encouragement) Act
Wildlife Protection Act	The Bauxite and Alumina Industries (Special Provisions) Act
	The Cement Industry (Encouragement and Control) Act
	Transfer Tax Act
OTHER OPERATING STATUTES	**INTERNATIONAL AGREEMENTS**
Foreign Nationals and Commonwealth Citizens (Employment) Act	Free Trade Area of the Americas (FTAA)
Labour Relations and Industrial Disputes Act	World Trade Organization Agreement
Shipping Act	European Partnership Agreement
Standards Act	CARICOM
The Caribbean Community and Common Market Act	
The Cargo Preference Act	
The Export Industry (Encouragement) Act	
The Free Zone Act	
Wharfage Act	
Gunpowder and Explosives Act	

APPENDIX III -
MINERALS AND MINERAL-BASED PRODUCTS

The Minerals Sector is a conglomeration of activities geared at mining/quarrying mineral resources, and producing raw minerals and value-added mineral products consumed by various sectors of the economy. Jamaica's known mineral resources can be grouped in the following four categories:

- Metallic minerals: copper, gold, silver, etc.
- Industrial minerals: bauxite, clay, dolomite, gypsum, limestones, marble, sand and gravel, shale, silica sand, volcanic rocks, etc.
- Fossil fuels: peat, petroleum, etc.
- Semi-precious minerals.

Common uses of minerals found in Jamaica are shown in the following table.

MINERAL AND MINERAL-BASED PRODUCT	USES
Bauxite	Transportation, Construction; Containers, Consumer durables, Mechanical equipment, Packaging, Pipes and tubes, Refractory and Abrasives, Electrical transmission components, etc.
Gold	Jewellery, Decorative articles, Dentistry, Electronics
Marble	(Geological) Slabs: counter tops, monuments, cladding, furniture, tiles (Commercial) Tiles: flooring, wall
Limestone	(Chemical and Industrial): Lime, Grounded Calcium Carbonate, Fertilizer, Precipitated Calcium Carbonate, Pigmented Lime, Quicklime, PVC pipes, Adhesives, Hydrated Calcium Carbonate (calcium hydroxide)
	(Construction) Aggregates, Construction blocks, Dimension stones
	Refractory, Agriculture, Environmental
Dolomitic Limestone	Refractory blocks, Iron and steel manufacturing, Magnesium metal, Chemicals, Solar photovoltaic panels
Sand and Gravel	Construction, Filtration, Concrete blocks, Ready mix concrete, Glass, Filler, Abrasives
Volcanic Rocks	Cement , Dimension stone, Construction aggregates, Tiles, Slabs, Cladding material
Bonding Agents	Cement, Grout, Thin-set, Lime-based mortar, Dry wall, Ceiling material, Construction-ready cement mix: cement with sand and gravel
Clay	Tiles, Art work, Ceramics, Drillers' mud, Beauty products
Gypsum	Construction, Cement, Agriculture, Filler
Shale	Cement
Semi-precious minerals	Jewellery, Decorative articles

Products produced fromm Various Minerals in Jamaica.





APPENDIX IV -
INDUSTRIAL MINERAL RESOURCES IN JAMAICA

CLAY [7]

DEPOSIT TYPE	DEPOSIT LOCATION	PARISH	ESTIMATED RESOURCE (Million Metric Tonnes)
Alluvial Deposit	Frome Plains	Westmoreland	**152.4**
Alluvial Deposit	Black River Valley	St. Elizabeth	**0.508**
Alluvial Deposit	Holland	St. Elizabeth	**0.254**
Alluvial Deposit	Frenchman's	St. Elizabeth	**0.03**
Alluvial Deposit	Cow Market	St. Elizabeth	**0.304**
Alluvial Deposit	Nassau and Essex Valley	St. Elizabeth	**2.54**
Alluvial Deposit	Bog Walk	St. Catherine	**2.15**
Alluvial Deposit	Cave Valley	St. Ann	**0.762**
Alluvial Deposit	Liguanea	St. Andrew	**UNKNOWN**
Residual Deposit	Above Rocks	St. Andrew	**UNKNOWN**
Residual Deposit	Golden River	St. Andrew	**0.002**
Hydrothermal Deposit	Jobs Hill	St. Mary	**0.007**

GYPSUM

DEPOSIT NAME	90% GYPSUM	80% GYPSUM	70% GYPSUM	ANHYDRITE
Brooks **Av. Grade**	1,299,770 mt 94.29%	1,524,200 mt 92.89%	1,645,100 mt 91.66%	3,097,400 mt 22.55%
Bito **Av. Grade**	1,539,400 mt 93.98%	2,060,700 mt 92.43%	2,229, 900 mt 91.22%	2,154,600 mt 35.79%
Halberstadt **Av. Grade**	3,663,500 mt 93.49%	3,668, 600 mt 93.44%	3,688,600 mt 93.44%	2,366,900 mt 11.97%
TOTAL RESERVES	6,502,600 mt	7,273,500 mt	7,563,600 mt	7,618,900 mt
Wtd. Av. Grade	93.76%	93.03%	92.39%	23.00%
Life (Years)	33	36	38	

[7] Inferred Estimate of Total Clay Resources = 158.9 million metric tonnes. Source: Bailey, B. V. (1970) Jamaican Clay Deposits, Economic Geology Report, Geological Survey Division.

[8] Source: Jamaica Gypsum Ltd (Technical Reports – Mines and Geology Division /Jamaica Bauxite Institute) 1957 – 1980. A 2016 exploration project by a local company has generated information which indicates the presence of a much larger gypsum reserve than stated here.

SKID RESISTANT AGGREGATES

DEPOSIT NAME	DEPOSIT LOCATION	RESERVES
Bito Ramble	St. Andrew/St. Thomas	122 million metric tonnes (Confirmed) Approx. 1 billion metric tonnes (Inferred)
Lottery	St. James	12.6 million metric tonnes
Tom Spring	Hanover	11.5 million metric tonnes
Nutfield	St. Mary	14.64 million metric tonnes

HEAVY METALS/MINERALS/BLACK SANDS

DEPOSIT NAME	TOTAL SAND ESTIMATE	TOTAL IRON	TOTAL TITANIUM OXIDE
Alligator Pond (Western Extension)	3,356,640 mt	241,678 mt (7.2%)	46,267 mt (1.4%)
Alligator Pond (Eastern Extension)	11,249,280 mt	1,723,680 mt (15.3%)	308,448 mt (2.74%)
Sand Hill Deposit	1,767,040 mt	277,213 mt (15.67%)	59,194 mt (3.12%)
TOTAL	16,372,960 mt	2,242,571 mt	413,909 mt

Additionally, there are some 500,000.00 mt of silica sands in the Hodges, Luana and Punches areas of St. Elizabeth.

CALCAREOUS DOLOMITE/DOLOMITIC LIMESTONE

Known Dolomitic Limestone Resources

DEPOSIT NAME	PARISH	MgO RANGE	CaCO3 RANGE	ESTIMATED RESOURCE
Stewart Bay/White Bay	Trelawny	0.49% - 19.64%	58.94% - 99.33%	**2.632 billion mt**
Port Henderson	St. Catherine	17.99% - 21.7%	32.16% - 35.04	**150 million mt**

LIMESTONE (CALCIUM CARBONATE - WHITING GRADE)

Total reserves of whiting grade limestone deposits are yet to be completely quantified. An inferred resource estimate of 11.15 billion tonnes of high quality whiting grade limestone is theorized to exist within the island.

LIMESTONE (CALCIUM CARBONATE – CHEMICAL, INDUSTRIAL, METALLURGICAL GRADE)

Total reserves of industrial, chemical and metallurgical grade limestone deposits are yet to be quantified. An inferred resource estimate of 57.5 billion metric tonnes of high quality limestone for chemical, industrial and metallurgical applications is theorized to exist within the island.

[9] Source: Phase 1- Skid Resistant Aggregates of Jamaica, Bulletin No. 13, Economic Minerals Unit, Mines and Geology Division, Kingston. Total known reserves currently approximately 160 million metric tonnes. N.B: Project on-going with two other potential reserves being evaluated.

[10] Source: Geddes, A.J.S. (1975) Preliminary Study on Black Sands Deposits of Southern Manchester, Mines and Geology Division, Kingston.

[11] Source: Mineral Resources of Jamaica, Bulletin No. 8, 1981, Mines and Geology Division, Kingston. NB: Total dolomite reserves currently unknown.

ALLUVIAL SAND AND GRAVEL

DEPOSIT NAME	DEPOSIT LOCATION	ESTIMATED REPLENISHMENT RATE	EXTRACTION RATE (2004)
Rio Minho	Clarendon	24 million mt (extreme flood events) 29.8 million mt (small flood events)	**352,272 mt**
Yallahs10	St. Thomas	17.1 million mt (extreme flood events) 24 million mt (small flood events)	**915,002 mt**
Rio Grande	Portland	Unknown	**14,348 mt**
Morant River	St. Thomas	Unknown	**13,446 mt**
Wag Water River	St. Mary/St. Andrew	Unknown	**215,167 mt**
Rio D'Oro	St. Catherine	Unknown	**4,334 mt**
Dry River	St. Mary	Unknown	**17,796 mt**
Rio Pedro	St. Catherine	Unknown	**3,922 mt**
Flint River	St. Mary	Unknown	**1,011 mt**

MARBLE DEPOSITS

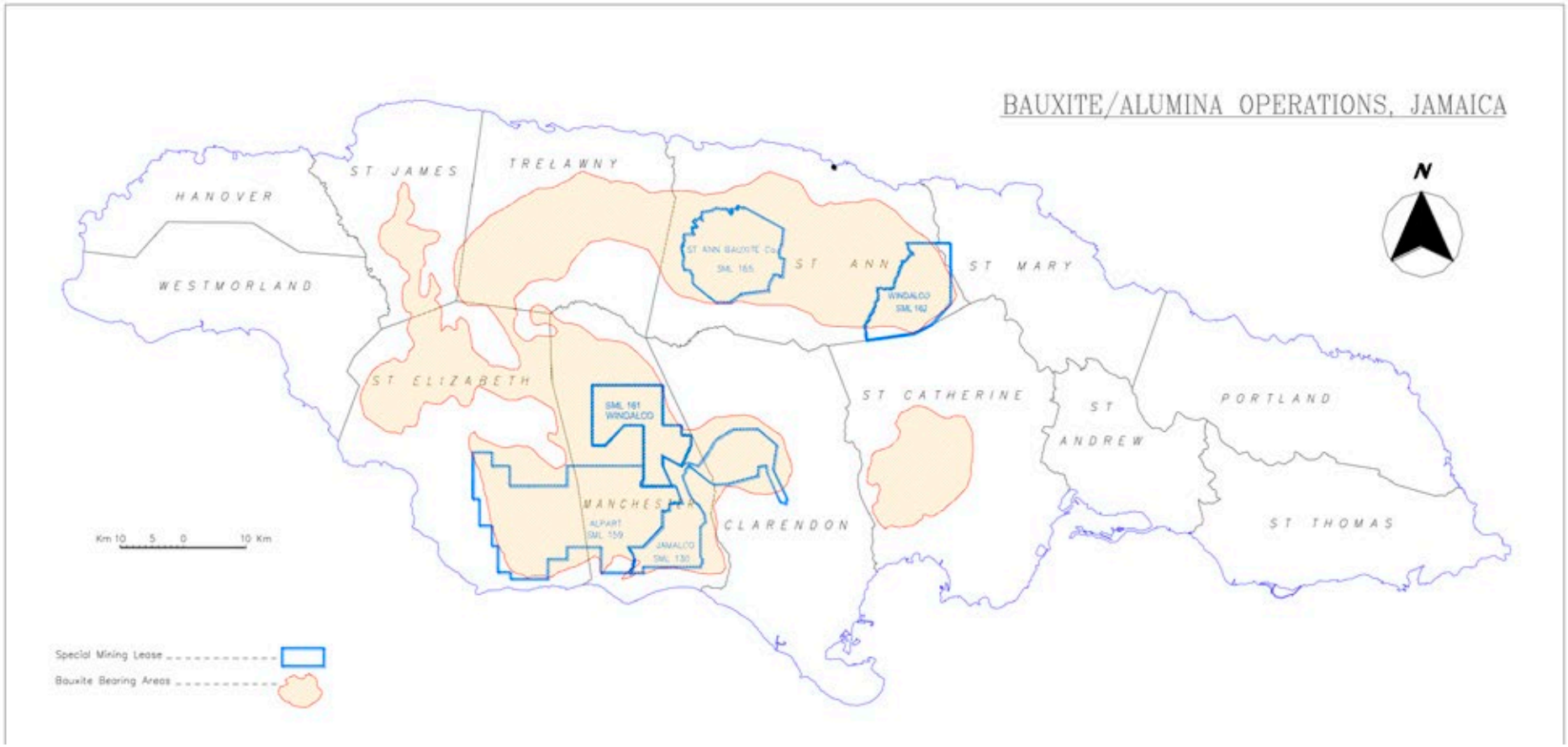
LOCATION	PARISH	COLOUR	ESTIMATED RESOURCE (mt)
Braziletto	Clarendon	off-white, beige	**50**
Rodon Store	Clarendon	variety of brown, beige	**20**
Thatch Pen	Clarendon	off-white, beige	**4**
Cave Valley	Hanover	off-white, beige, variety of brown	**-**
Cuckold Point	Manchester	cream-beige to brown, pink	**50**
Troy	Manchester	cream-beige, pink, brown	**50**
Chepstowe	Portland	grey and black	**10**
Mavis Bank	St. Andrew	white, grey and black	**10**
Lumsden	St. Ann	variety of brown, pink	**5**
Above Rocks	St. Catherine	black and pink "granite"	**-**
Colbeck	St. Catherine	off-white, beige, pink	**20**
Fort Clarence	St. Catherine	off-white, beige	**20**
Hellshire	St. Catherine	off-white, pink, variety of brown	**50**
Paul Mountain	St. Catherine	cream, pink	**10**
Point Hill	St. Catherine	off-white, beige, pink, variety of brown, yellow	**20**
Redground	St. Catherine	variety of brown, yellow, pink	**5**
Flower Hill	St. James	off-white, pink	**5**
Garbrand Hall	St. Thomas	grey, black and green	**10**
Greenfields	St. Thomas	Green	**-**
Serge Island	St. Thomas	red and white, green and maroon	**3.5**
Stewart Bay	Trelawny	white and off-white	**8**

[12] Estimated replenishment rate over a ten year period.

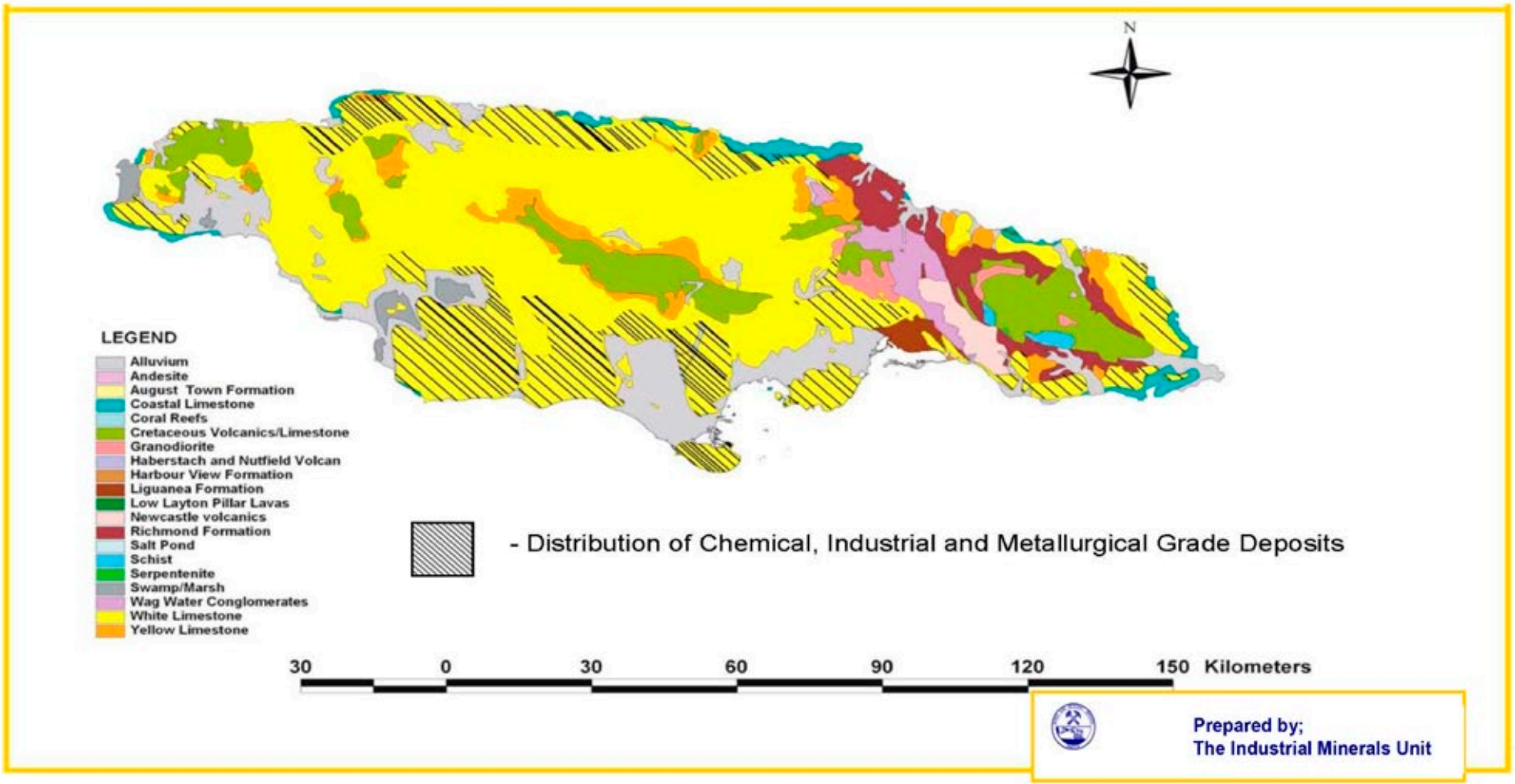
[13] Sediment Budget Resource Estimate (SEBRA) Project, Technical Report, N. Miller, 2004. Source: Mines and Geology Division.

[14] Source: Jamaica Marble, Bulletin No. 12, Mines and Geology Division, 1998.

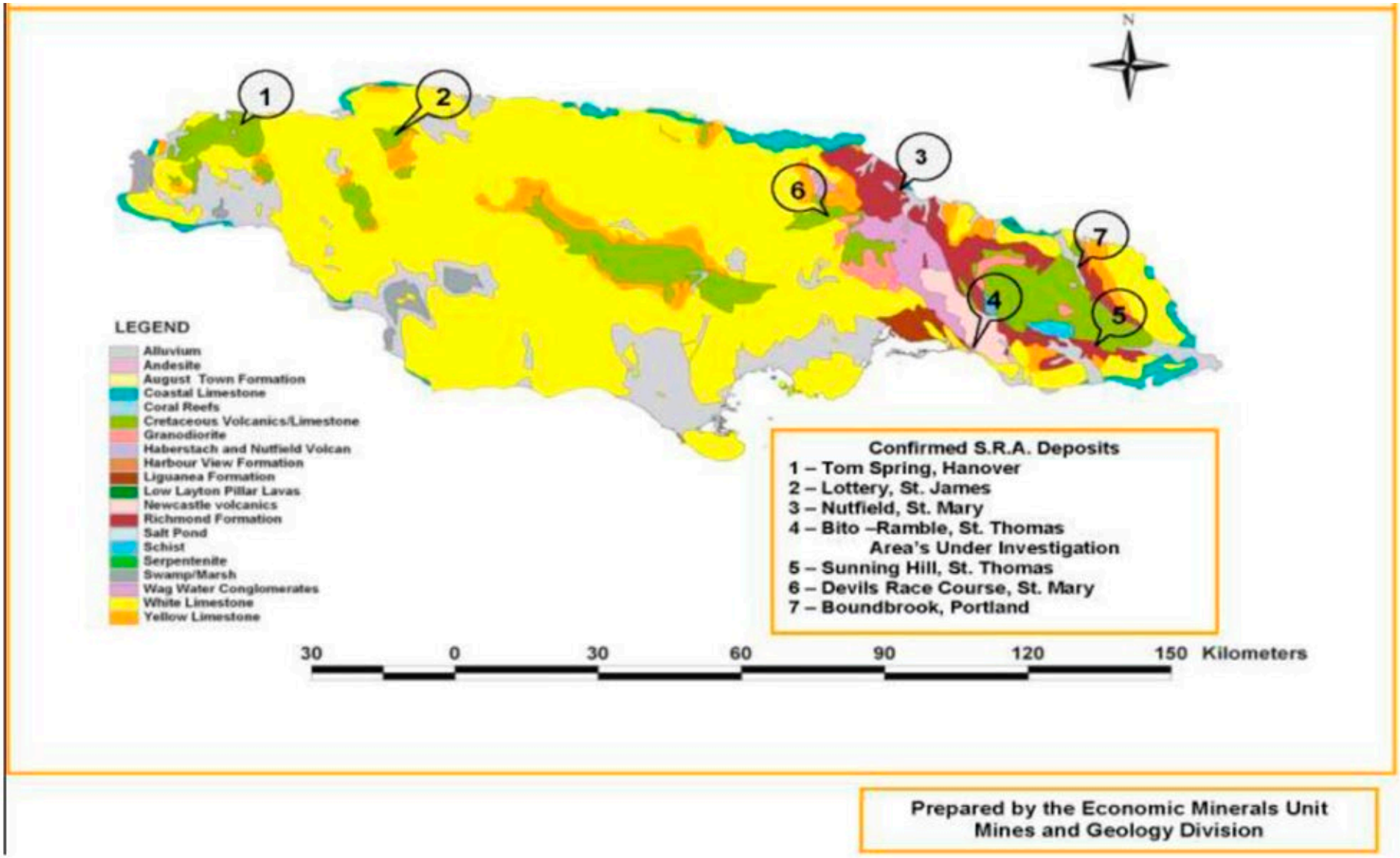
APPENDIX V - DISTRIBUTION OF MAJOR MINERAL RESOURCES IN JAMAICA



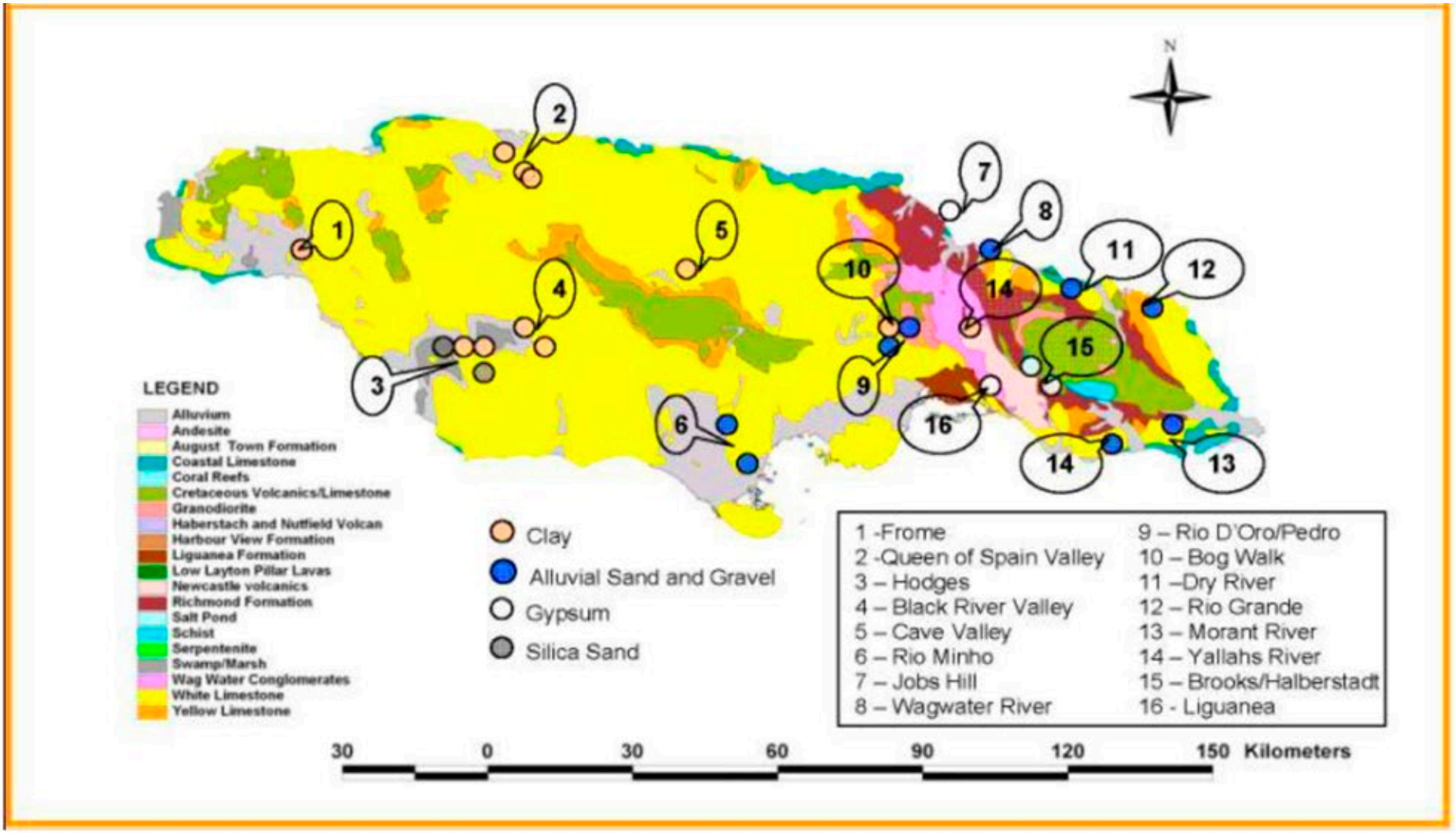
Chemical, Industrial, Metallurgical, Grade Limestone, Deposits

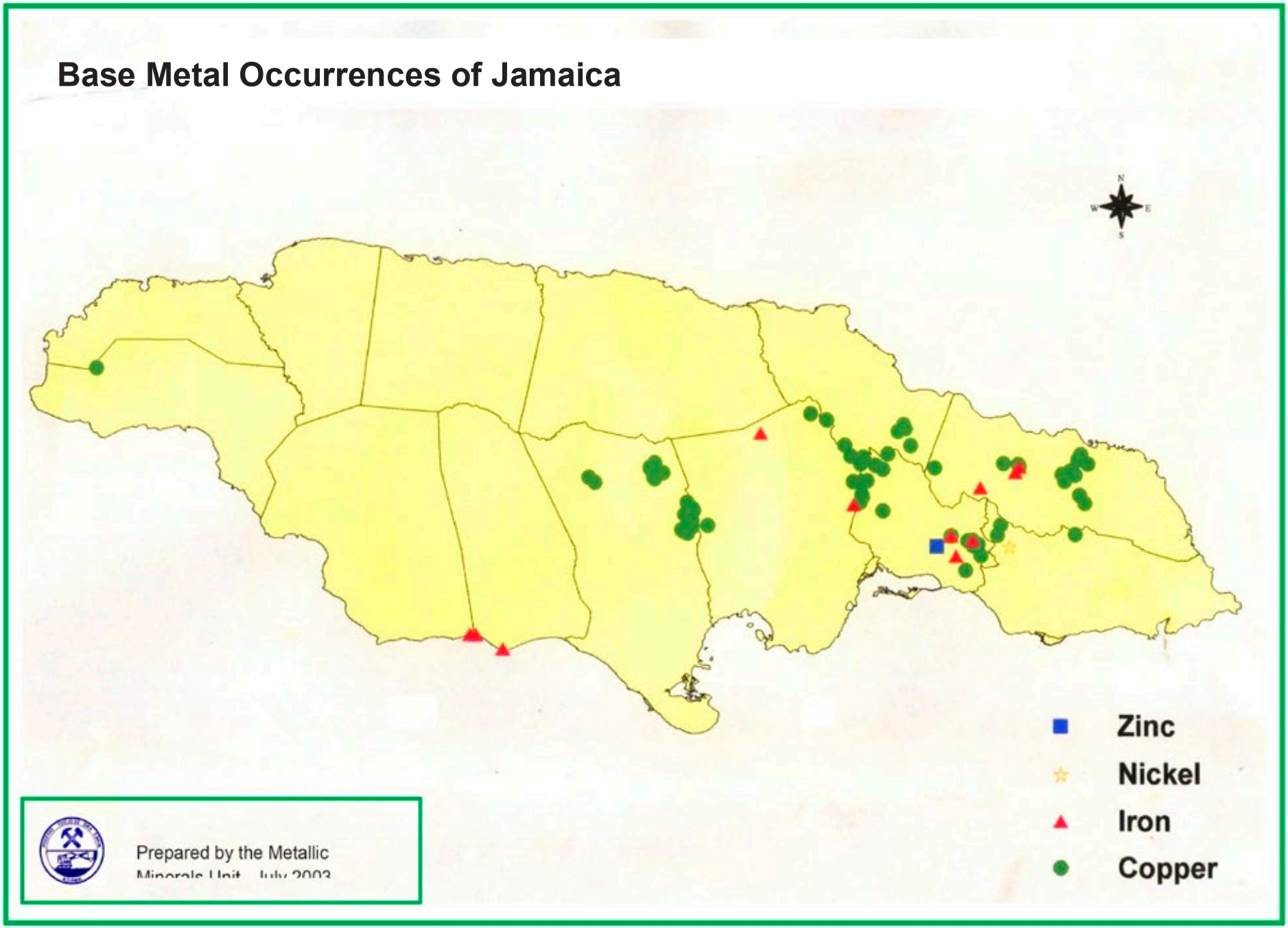


Skid Resistant Aggregate Deposits in Jamaica

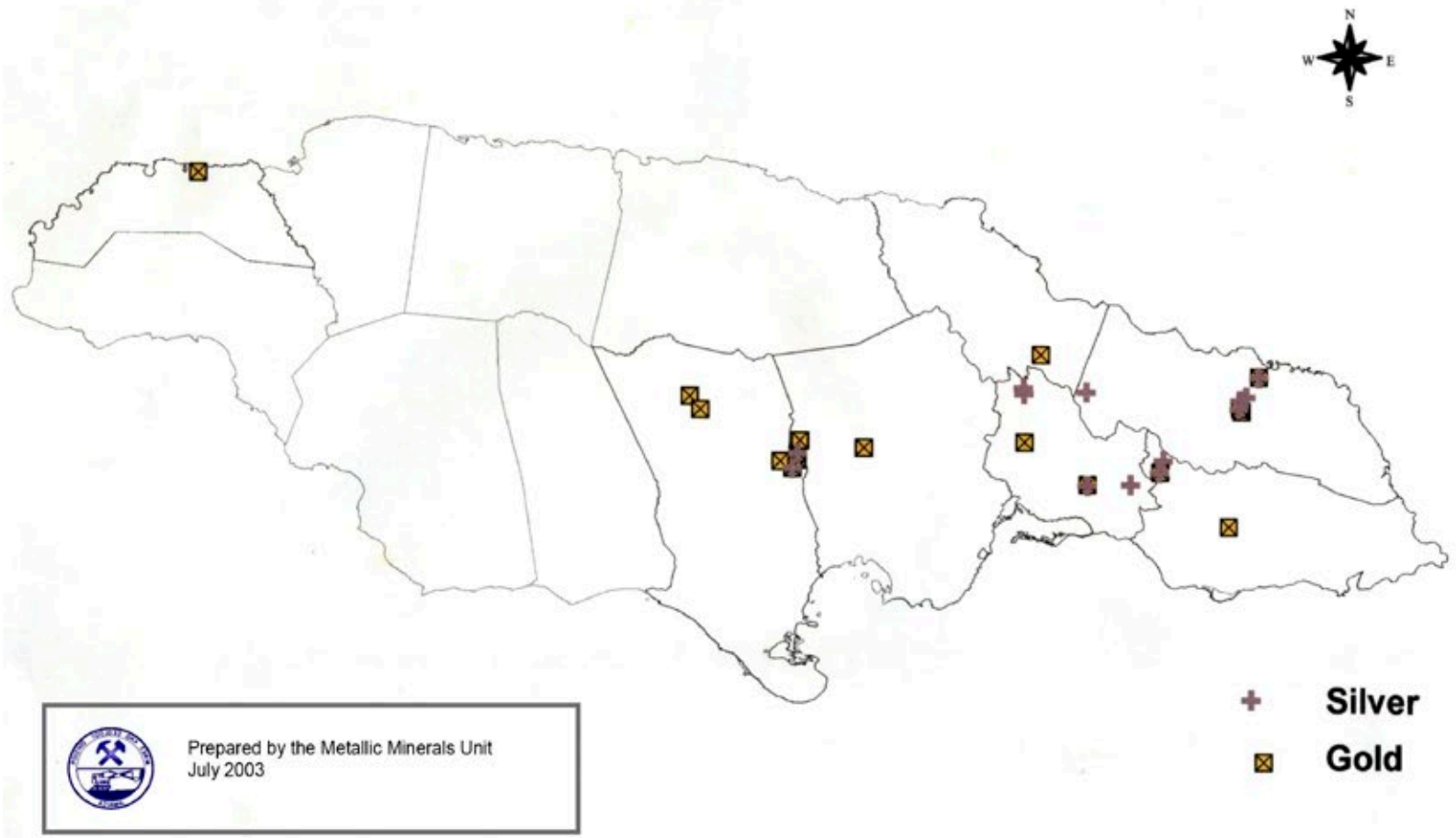


Other Major Industrial Mineral Deposits




Base Metal Occurrences of Jamaica
N
W
E
S
Zinc
Nickel
Iron
Copper
Prepared by the Metallic
Minerals Unit July 2003

Precious Metal Occurences of Jamaica



Jamaica's Mineral Springs

1) Bath Spring
2) Mount Felix Spring
3) Garbrand Hall Spring
4) Johnson's River Spring
5) Banana River Spring
6) Moffat Spring
7) Salt Spring Llandewey *
8) Spring, Cold Ridge *
9) Frenchman's Cove Spring
10) Blue Hole Spring
11) Guava River Spring
12) Corn Hush River Spring
13) Quebec Spring
14) Sans Souci Springs
15) Carib Ocho Rios
16) Plantation Inn
17) Winsor Spring
18) Blue Hole Spring, Bengal
19) Yankee River Spring
20) Spring Garden
21) Buxton Spring
22) Spring, Ricketts Savannah *
23) Black River Spring
24) Milk River Spring
25) Salt River Spring
26) Spring, Cane Valley *
27) Old Woman's Spring
28) Three Spring, Spring Garden *
29) Spring, Manatee Bay *
30) Spring, Wreck Bay *
31) Spring, St. John's *
32) Port Henderson Springs
33) Ferry Hill Springs
34) Rock Fort Mineral Spring
35) Spring, Silver Hill
33) Ferry Hill Springs

◉ Location of Spring
* Spring's exact location unknown
● Major Town
— Rivers
- - Parish Boundary

Source: Mines and Geology Division: The Minerals Springs of Jamaica. Bulletin No. 11, April 1987

APPENDIX VI - SUSTAINABLE DEVELOPMENT AND THE MINERALS SECTOR

Sustainable development is one of a range of ideas about how humans should best interact with each other and the biosphere. Considering its importance in modern society and its possible impact on the environment, the minerals industry internationally has adopted the **Brundtland** definition of sustainable development: "…development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

To harness this commitment within a strategic framework, the **International Council on Mining and Metals** (ICMM) adopted a set of **sustainable development principles** in May 2003 which pledged the international industry, including the industry in Jamaica, to:

1. Implement and maintain ethical business practices and sound systems of corporate governance.
2. Integrate sustainable development considerations within the corporate decision-making process.
3. Uphold fundamental human rights and respect cultures, customs and values in dealings with employees and others who are affected by our activities.
4. Implement risk management strategies based on valid data and sound science.
5. Seek continual improvement of our health and safety performance.
6. Seek continual improvement of our environmental performance.
7. Contribute to conservation of biodiversity and integrated approaches to land use planning.
8. Facilitate and encourage responsible product design, use, re-use, recycling and disposal.
9. Contribute to the socio- economic and institutional development of host communities.
10. Implement effective and transparent engagement, communication and independently verified reporting arrangements with our stakeholders.

Viability of the Minerals Industry

The minerals industry cannot contribute to sustainable development if companies cannot survive and succeed. This requires a safe, healthy, educated, and committed work force; access to capital; a social licence to operate; the ability to attract and maintain good managerial talent; and the opportunity for a return on investment.

The Control, Use and Management of Land

Mineral development is one of a number of often competing land uses. There is frequently a lack of planning or other frameworks to balance and manage possible uses. As a result, there are often problems and disagreement around issues such as compensation, resettlement, land claims of indigenous peoples, and protected areas.

Minerals and Economic Development

Minerals have the potential to contribute to poverty alleviation and broader economic development at the national level. Countries have realized this with mixed success. For this to be achieved, appropriate frameworks for the creation and management of mineral wealth must be in place. Additional challenges include corruption and determining the balance between local and national benefits.

Local Communities and Mines

Minerals development can also bring benefits at the local level. Recent trends towards, for example, smaller work forces and outsourcing affect communities adversely, however. The social upheaval and inequitable distribution of benefits and costs within communities can also create social tension. Ensuring that improved health and education or economic activity will endure after mines close requires a level of planning that has too often not been achieved.

Mining, Minerals and the Environment

Minerals activities have a significant environmental impact. Managing these impacts more effectively requires dealing with unresolved issues of handling immense quantities of waste, developing ways of internalizing the costs of acid drainage, improving both impact assessment and environmental management systems, and doing effective planning for mine closure.

An Integrated Approach to Using Minerals

The use of minerals is essential for modern living. Yet current patterns of use face a growing number of challenges, ranging from concerns about efficiency and waste minimization to the risks associated with the use of certain minerals. Companies at different stages in the minerals chain can benefit from learning to work together

Corporate Social Responsibility in the Minerals Industry

The greatest challenge to embedding sustainable development in minerals companies is the difficulty of linking the concept to financial success. Most companies are struggling to establish a clear business case for pursuing this path. There is indeed a business case for addressing sustainable development concerns: lower labour and health costs, improved access to lenders and insurers, lower post-closure costs, and often reputational and market advantage.

Some companies are undertaking specific measures to integrate the principles of sustainable development into corporate practice, but most are far from developing a detailed vision. Several tools are commonly used, including corporate strategy and policy, change management programmes, formal risk management procedures, implementation and auditing of internal objectives and targets, project appraisals, and core staff

Minerals and Economic Development

Minerals development is hard to justify if it does not bring economic benefits, particularly to countries and regions that lack alternative sources of development and are otherwise unattractive to foreign investors. In addition to gaining hard currency from taxes and royalties, benefits from mineral development should include employment, infrastructure such as roads and hospitals, linkages upstream to industries that supply goods and services or downstream to industries that process mineral outputs, and technology transfer.

In some countries, however, mineral activities have not brought sustained economic development. Sudden wealth may have detrimental effects on social and political life, leading to or supporting corruption, authoritarian government, human rights abuse, or armed conflict.

Source:
International Institute for Environment and Development and World Business Council for Sustainable Development. 2002. Breaking New Ground- The Report of the Mining, Minerals and Sustainable Development Project. London: Earthscan Publications Limited

APPENDIX VII - GLOSSARY

Beneficiation

A variety of processes whereby extracted ore from mining is reduced to particles that can be separated into mineral and waste, the former suitable for further processing or direct use.

Ecosystem approach

The integrated management of natural and manmade landscapes, ecological processes, physical and biological components, and human activities, designed to maintain the integrity of our ecosystem (Natural Resources of Canada, 1995).

Extractive metallurgy

The practice of extracting metal from ore, purifying it, and recycling it.

Host community

The location in which mineral exploitation activities occur.

Metallogeny

The study of the genesis of mineral deposits, with emphasis on their relationship in space and time to regional petrographic and tectonic features of the earth's crust.

Metallurgy

A domain of materials science of materials engineering that studies the physical and chemical behaviour of metals, their inter-metallic compounds, and their alloys.

Mineral

An element or chemical compound that is normally crystalline and that has been formed as a result of geological processes.

Mineral-bearing lands

Lands, including areas covered by water, containing mineral resources of commercial value or which in future will have commercial value.

Mineral deposit

A geologic occurrence of minerals in relatively concentrated form.

Mineral Development Zone

A declared area set aside for the concentration of mineral exploiting operations.

Mineral exploitation

The systems, processes and techniques through which mineral deposits are transformed into usable mineral commodities. It includes mineral extraction, processing (raw minerals or high value value-added products), transportation and sale for commercial purposes. It also includes recycling and rehabilitation of mined areas.

Mining

The extraction of valuable minerals or other geological materials from the earth, usually, but not always, from an ore body, vein, or seam. In a wider sense, it can also include the extraction of petroleum, natural gas and water, and may be defined as the activity, occupation, and industry concerned with the extraction of minerals.

Quarrying

A form of mining that is generally centred on the extraction of rocks or minerals at the Earth's surface. Quarries are generally used for extracting building materials, including sand and gravel, limestone and dimension stone, and other relatively cheap and bulky minerals such as salt. They are usually shallower than other types of open-pit mines. However, there are instances in which a part of a quarry or an entire quarry is located underground.

Sequential land-use

The series of processes, planning and management systems which facilitate the orderly use of land for different purposes at different times.

Sustainable development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland Report, 1987).

Sustainable mining development

Financially viable mining development that takes place in an environmentally and socially responsible manner with sound governance that provides benefits that last beyond the life of the mine to the communities where mineral development, production and transportation take place (World Bank).

APPENDIX VIII

MEMBERS OF THE NATIONAL MINERALS POLICY DEVELOPMENT COMMITTEE

PUBLIC SECTOR ENTITIES	
Ministry of Transport and Mining	Oral Rainford **(Committee Chairman)**
Ministry of Science, Technology, Energy and Mining	Oral Rainford **(Committee Chairman)**
Ministry of Energy and Mining	Oral Rainford **(Committee Chairman)**
Ministry of Mining and Telecommunications	Oral Rainford **(Committee Chairman)**
Ministry of Agriculture & Lands	Oral Rainford **(Committee Chairman)** Rohan Richards, Delroy Coley, Cecille Blake, Mohini Kiswani, Claudette Hall
Ministry of Local Government & Environment	Rollin Alveranga, Leonie Barnaby, Lorna Perkins, Donna Blake
Ministry of Industry, Technology, Energy and Commerce	Conroy Watson
Ministry of Tourism, Entertainment and Culture	Althea Johnson
Ministry of Housing, Transport, Water and Works	Melissa Nangle, Doreen Prendergast, Shernette Simpson, Paula Parkes
Ministry of Finance and Planning	Pauline Gregory-Lewis, Richard Murray, Shauna Trowers, Verdayne Wallace
National Environment and Planning Agency	Betsy Bandy, Vivian Blake, Khalice Bradshaw, Tameka Clough, Gilroy English, Kirk Haughton, Andrea Jones, Gina Sanguinetti-Phillips, Agostinho Pinnock
Mines and Geology Division	Clinton Thompson, Leighton Williams, Trevor MaCain, Ronald Edwards
Jamaica Bauxite Institute	Yolanda Drakapoulos, Sonia Mitchell, Dianne Gordon, Ciaron Walker, Shanti Persaud
Petroleum Corporation of Jamaica	Gavin Gunter
Forestry Department	Owen Evelyn, Susan Watson
Rural Physical Planning Division	Vincent Campbell, Marvell Gray
Office of the Cabinet	Peter Myers, Jacqueline daCosta, Ann-Marie Bonner
Office of the Prime Minister (Ministry of Development)	Arlene Nelson, Joy Douglas (Highway 2000 Development Project)
Planning Institute of Jamaica	Peter-Anne Donaldson, Christine Duncan
Water Resources Authority	Basil Fernandez, Lawrence Barrett
Statistical Institute of Jamaica	Janet Geoghagan-Martin, Philone Mantock
National Investment Bank of Jamaica	Beverley Robinson
Jamaica Trade and Invest (JAMPRO)	Ruth Crooks, Robert Kerr
National Land Agency	Donovan Hayden
National Works Agency	Errol Mortley
Jamaica Constabulary Force	Keith Gardner, Charles Simpson
Jamaica Bauxite Mining Limited	Coy Roache, Bridget Spaulding
Bureau of Standards Jamaica	Hopeton Brown

APPENDIX VIII (Continued)

MEMBERS OF THE NATIONAL MINERALS POLICY DEVELOPMENT COMMITTEE

PRIVATE SECTOR AND PROFESSIONAL ASSOCIATIONS	
Rugby Jamaica Lime & Minerals Limited	Norman Davis
Private Sector Organisation of Jamaica	Eleanor Jones
Mining and Quarrying Association of Jamaica	Anthony Morgan, Godfery Perkins
Incorporated Master Builders Association	Patrick Gordon
Alpart Mining Venture	Glen Lynagh, Frank Ross
Mining Engineering Associates	Audley Roberts
Quarries Advisory Committee	Carl Thomas, Godfrey Perkins
JAMALCO	Christopher D. R. Bovell, Timothy O'Driscoll, Candice Stewart
Jamaica Premix	Donovan Matthews
Silica Mining and Engineering Limited	Harry Ince, Jennifer Ince
West Indies Alumina Company	Locksley Allen
Jamaica Institute of Environmental Professionals	Denise Forrest
Somerset Enterprises Limited	William W. Powell, Albert Powell
Michael Black Limited	Marjorie Paul
Shaw's Quarry	Michelle Shaw
Consultant / Graduate Student	Thera Edwards
UGI Group	Beverly Robinson

NATIONAL MINERALS POLICY WORKING GROUP 2010-2011

(ALIGNED NATIONAL MINERALS POLICY)

NAME OF INSTITUTION	NAME OF REPRESENTATIVE
Ministry of Energy and Mining	Oral Rainford (Committee Chairman), Julette Wilson, Taniquea Callam, Denis Miller
Ministry of Agriculture & Fisheries	Tasha Nembhard
Forestry Department	Marilyn Headley, Owen Evelyn, Susan Watson
Ministry of Environment (OPM)	Leonie Barnaby, Gillian Gutherie
Ministry of Tourism, Entertainment and Culture	Althea Johnson, Tina Williams
Ministry of Transport and Works	Melissa Nangle, Doreen Prendergast, Shernette Sampson
Ministry of Finance and the Public Service	Sophia Lindsay, Pauline Gregory-Lewis, Richard Murray,
National Environment and Planning Agency	Anthony McKenzie, Khalice Bradshaw, Tameka Clough, Andrea Jones-Bennett
Mines and Geology Division	Clinton Thompson, Leighton Williams, Ronald Edwards, Laurence Henry
Jamaica Bauxite Institute	Dianne Gordon, Ciaron Walker, Shanti Persaud, Dr. Phillip Baker
Petroleum Corporation of Jamaica	Gavin Gunter
Ministry of Transport and Works	Shernette Sampson
Ministry of Health	A. Graham
Ministry of Foreign Affairs and Foreign Trade	Deon Williams, Lisa Bryan-Smart
Rural Physical Planning Division	Vincent Campbell, Marvell Gray
Office of the Cabinet	Peter Myers
Office of the Prime Minister	Sonia Hyman, Wayne Robertson
Planning Institute of Jamaica	Peter-Anne Donaldson, Richard Kelly

NATIONAL MINERALS POLICY WORKING GROUP 2010-2011 (Continued)

(ALIGNED NATIONAL MINERALS POLICY)

NAME OF INSTITUTION	NAME OF REPRESENTATIVE
Water Resources Authority	Basil Fernandez, Lawrence Barrett
Statistical Institute of Jamaica	Janet Geoghagan-Martin, Philone Mantock
Jamaica Trade and Invest (JAMPRO)	Camille Savage, Ricardo Durrant
National Land Agency	Donovan Hayden
National Works Agency	Roger Smith, Errol Mortley
Jamaica Bauxite Mining Limited	Coy Roache, Bridget Spaulding
Bureau of Standards Jamaica	Hopeton Brown
Quarries Advisory Committee	Carl Thomas, Arthur Geddes
Ministry of Investment, Industry and Commerce	M. Frater, Donovan Diaz
Jamaica National Housing Trust	Dorrick Grey, Andene Brooks
Consultants	Elizabeth Emanuel, Gina Sanguinetti

APPENDIX IX

2008 ISLAND-WIDE PUBLIC CONSULTATIONS ON THE DRAFT NATIONAL MINERALS POLICY

PARISH	VENUE	LOCATION	DATE	TIME
ST. THOMAS	Yallahs Baptist Church	Yallahs	Oct. 2, 2008	4:00 p.m.
ST. ELIZABETH	St. Elizabeth Technical High School	Santa Cruz	Oct. 30, 2008	5:00 p.m.
	ALPART Sports Club	Nain	Nov. 27, 2008	10:00 a.m.
MANCHESTER Central Manchester	Ridgemount United Church	Mandeville	Nov. 3, 2008	5:00 p.m.
South Manchester	Porus Community Centre	Porus	Nov. 27, 2008	5:00 p.m.
CLARENDON Hayes	Vere Technical High School	Hayes	Nov. 12, 2008	5:00 p.m.
Mocho Area	Lennon High School	Mocho	Nov. 13, 2008	5:00 p.m.
KINGSTON	Hilton Hotel Ballroom	New Kingston	Dec. 4, 2008	5:00 p.m.
ST. ANN	Brown's Town Anglican Church	Brown's Town	Nov. 26, 2008	5:00 p.m.
ST. CATHERINE	Ewarton Community Centre	Ewarton	Dec. 3, 2008	5:00 p.m.
ST. MARY	St. Theresa Catholic Church Hall	Annotto Bay	Dec. 8, 2008	5:00 p.m.
WESTMORELAND	Wesley Methodist Church	Savanna-La-Mar	Dec. 11, 2008	5:00 p.m.

REPRESENTATIVES OF THE FOLLOWING ENTITIES PARTICIPATED IN THE ISLAND-WIDE PUBLIC CONSULTATIONS IN 2008

1. Ministry of Mining and Telecommunications
   i. Hon. Laurence Broderick, Minister of State
   ii. Jamaica Bauxite Institute Limited (JBI)
   iii. Jamaica Bauxite Mining Limited / Bauxite and Alumina Trading Company (JBM/BATCO)
   iv. Mines and Geology Division (MGD)
2. National Environment and Planning Agency (NEPA)
3. Forestry Department
4. JAMALCO Bauxite Company and Alumina Refinery
5. Mining and Quarrying Association of Jamaica (MAQJ)
6. Northern Jamaica Conservation Association (NJCA)
7. Manchester Parish Development Committee
8. St. Ann Parish Council
9. Westmoreland Chamber of Commerce
10. Social Development Commission
11. Mocho Citizens Association
12. St. Thomas Parish Development Committee
13. Windsor Research Centre
14. ALPART Council of Community Councils
15. ALPART
16. Petroleum Corporation of Jamaica
17. Jamaica Trade and Invest / JAMPRO
18. Thompson Town Anglican Church
19. Lennon High School
20. Mocho Tourism Committee
21. Osbourne Store Primary School
22. Mocho Community Development Council
23. Porus Community Development Council
24. Rocky Point Citizens Association
25. Corn Piece Citizens Association
26. E. B. Singh and Sons Limited
27. Sha-Gore Aggregates Limited
28. Maston Company Limited
29. Salt River Citizens Association, Clarendon
30. Chemical Lime Quarry
31. Jamaica Information Service
32. Clarendon Parish Development Committee
33. Mr. Winston Maragh – Councillor, Rocky Point Division
34. Island Special Constabulary Force
35. Mr. Luther Buchanan- Member of Parliament, Eastern Westmoreland
36. Jamaica Red Cross
37. Wesley Methodist Church
38. Green Produce Farm Limited
39. Clarke's Quarry
40. Brown's Town Primary School
41. St. Mark's Church
42. Midland Ranch
43. Marcus and Bob Community League
44. Explosives Sales and Services Limited
45. The Gleaner Company Limited
46. CEMEX Jamaica Limited
47. Jamaica Environment Trust
48. St. Thomas Environmental Protection Agency
49. Michael Black Limited
50. Mincenco Limited
51. Irie FM
52. Caribbean Cement Company Limited
53. Carib Stone Industry Limited
54. Paul Mountain Quarry
55. PowerGen Limited
56. Office of the Prime Minister
57. Optimist Club of Cane River
58. National Water Commission
59. Environmental Solution Limited
60. Sunbeam Basic School
61. Llandewey Community Development Council
62. Excel Youth Club
63. Yallahs Primary School
64. Aeolus Valley All Age School Parent Teacher Association
65. Ogilvie's Quarry
66. Southhaven Citizens Association
67. Scott's Pass Development Committee
68. Porus Craft and Agriculture Association
69. Spring Grove United Youth Club
70. Porus Community Development Council
71. Restaurant Owken
72. Ewarton Community Committee
73. Cross Roads Citizen Association
74. US Peace Corps / ECOPAC
75. Mrs. Beverly R. Jobson – Councillor, Ewarton Division
76. Whitehouse Citizens Association
77. Jamaica Aggregates Limited
78. Annotto Bay Health and Environmental Association
79. Annotto Bay Baptist Church
80. Mr. Tarn Peralto – Member of Parliament, South East St. Mary
81. Dr. Maurice Guy- Member of Parliament, Central St. Mary
82. Enfield Citizens Association
83. Jamaica National Building Society
84. Cameron Quarry
85. Santa Cruz Police Youth Club
86. St. Elizabeth Technical High School
87. St. Elizabeth Community Development Fun
88. Manchester Environment Protection Association
89. Mr. Goyfield Harrison – Councillor, Knockpatrick Division
90. Manchester High School
91. Mandeville Police Youth Club
92. Manchester Development Area Committee
93. Asia Development Committee

94. Central Manchester Retirement Citizens Association
95. Trevor Dunkley & Company
96. Sangster and Walter Mining Company
97. Knox Community College
98. Java District Citizens Association

Written comments were also received from the following persons who were unable to attend the consultations:

1. Mr. Learie Miller, Planning & Urban Design Dept., Town of Markham, Ontario, Canada
2. Mr. Craig Foreman
3. Ms. Claudette Hall, Land Administration and Management Division, Office of the Prime Minister.
4. Mrs. Eleanor Jones, Private Sector Organisation of Jamaica

The following entities were also represented at a high-level inter-government agency 'after public consultations' consultation on April 2, 2009:

1. Ministry of Mining and Telecommunications: Mrs. Marcia Forbes (Permanent Secretary), Mr. Oral Rainford, Mr. Clinton Thompson, Mr. Robert Royer
2. Port Authority of Jamaica: Captain Hopeton Delisser and Mr. E. Marsh
3. National Works Agency: Mr. Roger Smith, Mr. Mark Richards
4. Ministry of Industry, Investment and Commerce: Mr. Douglas Webster, Ms. Deirdre Salmon
5. Cabinet Office: Mr. Peter Myers
6. Jamaica Bauxite Institute: Mr. Parris Lyew-Ayee, Dr. Phillip Baker, Mrs. Sonia Mitchell, Mrs. Dianne Gordon,
7. Jamaica Bauxite Mining Limited: Mr. Coy Roache
8. Quarries Advisory Committee: Mr. Harold Brady (Chairman)
9. Ministry of Water and Housing: Ms. Melissa Nangle
10. Ministry of Finance and the Public Service: Ms. Rose-Marie Smith
11. Office of the Prime Minister: Mr. Orlan Simpson
12. Ministry of Tourism: Mr. Osbourne Chin, Ms. Tina Williams
13. Planning Institute of Jamaica: Mr. Richard Kelly
14. Ministry of Agriculture and Fisheries: Ms. Stacy Rose
15. Ministry of Transport and Works: Ms. Monifa Blake

APPENDIX X

2011 PUBLIC CONSULTATIONS ON THE DRAFT NATIONAL MINERALS POLICY

DATE AND VENUE OF CONSULTATION	NAME OF PERSONS	ORGANISATIONS
October 26, 2011	Dudley Fyfer	
Yallahs Baptist Church, Yallahs, St. Thomas	Winston Lamont	
	Irene Gillings	
	Vivine Phinn	
	Michael Lane	
	Ceceile Downer	Jamaica Constabulary Force / CSS
	Ian Lubsey	Yallahs
	Devon Bell	
	Dudley Christopher	
	Keto James	Parish Development Committee
	Jason Brown	
	Lenford Belle	
	Deverell Dwyer	
	Oral Rainford	Ministry of Energy and Mining
	Clayton Cameron	ISCF
	Derick Clarke	JCF
	Joseph Lue	J & M Quarry
	Carol Young	
	Constantine Bogle	Paul Bogle Foundation
	Newton Williams	
	Donald Graham	
	Nimette Ford	
	Julette Wilson	Ministry of Energy and Mining
	Ludlow Rennicks	Quarry Operator
	Nermar Ogilve	
	Colta Ogilvie	
	Rupert McFarlene	
	J. Tucker	
	James Robertson	Member of Parliament
	Cleon Fagan	Public Relations Officer, WAC
October 31, 2011	Paul Chin	Quarry Operator
Vere Technical High School, Vere, Clarendon	J. Bailey	Quarry Operator
	Tim Manis	CPC
	Sadie Lewis	Vere Technical High
	Sashagaye Gentles	Vere Technical High
	Dawnalee Williams	Vere Technical High
	Noel Arscott	MP, Opposition Spokesman on Mining
	Leitha Lacy	Quarry Operator
	Ernest Graham	Corn Piece Citizens' Association
	Paulette Atkinson	Ministry of Energy & Mining
	Taniquea Callam	Ministry of Energy & Mining
	Phillip Biggs	JAMALCO
	Stacy-Ann Wallace	Vere Technical High CAP
	Chavel Hackett	

APPENDIX X (Continued)

2011 PUBLIC CONSULTATIONS ON THE DRAFT NATIONAL MINERALS POLICY

DATE AND VENUE OF CONSULTATION	NAME OF PERSONS	ORGANISATIONS
	Moya Blackwood	
	Sherida Cephas	
	Annakay Anderson	
	Yanique Stewart	
	Akelia Sweeney	
	Annette Hunt	
	Aisha Anderson	
	Chemar Douglas	
	Nadesha Smith	
	Sherika Moodie	
	Dwayne Madden	
	Calvin Bramwell	Newton Community Association
	Anthony Masters	T & T Haulage & General
	Ruth Chambers-Maragh	
	Sonia Forbes	Vere Technical High
	Kamilah Moncrieffe	Vere Technical High
	Milton Brown	Clarendon Parish Council (CPC)
	Winston Maragh	CPC
	Kerine Page	CAP
	Linda Reid	CAP
	Donya Brown	CAP
	Sanya Brown	CAP
	P. Kayon Pyne	CAP
	Merrissa Crooks	CAP
	Venisha Simpson	CAP
	Peter Henry	CAP
	Seaford Gallimore	CAP
	Doreen King	
	Victor Johnson	Jamaica Information Service
	Ian Morris	
	Delroy Mckenzie	
	Oral Rainford	Ministry of Energy and Mining (MEM)
	Hector Beckford	
November 2, 2011	Julette Wilson	Ministry of Energy & Mining
Ridgemount United Church, Mandeville, Manchester	Carsin S. Lyn	Acting Custos, Manchester
	Carlton Morris	Quarry Operator
	Malonia Morris Harper	Morris Quarry
	Eroct Smith	Morris Quarry
	Garmeld Barham	Farmers Road
	Stanley C. Skeen	May Day JAS & Citizens Association
	Attic Owen	
	Taniquea Callam	Ministry of Energy & Mining
	Wendy Freckleton	Manchester Chamber of Commerce
	Tony Freckleton	Manchester Chamber of Commerce
	Errol Cunningham	Social Development Commission
	Stanford Wright	Jamaica Agricultural Society (JAS)

DATE AND VENUE OF CONSULTATION	NAME OF PERSONS	ORGANISATIONS
	Condell Morgan	JAS
	Bernard Edwards	JAS
	Earton Hutchinson	JAS
	Derrick Turner	
	Tracey-Ann Anderson	NEPA
	Sydney Erwin	MGD
	Andre Williams	MGD
	Victor Johnson	JIS
	Claude Smith	JCA
	Ernie Brown	
	Walford Goodison	JAS
	Mario Brown Davis	
	Violet Robinson	SDC Youth Club
	Dean Osbourne	SDC
	Rennae Fogah	Ministry of Energy & Mining
	Paulette Atkinson	Ministry of Energy & Mining
	Oral Rainford	Ministry of Energy & Mining
	Filmore Jonas	Ministry of Energy & Mining
	Denis Miller	Ministry of Energy & Mining
November 9, 2011	Kaydove2005@yahoo.com	CAD's Inc Limited
St. Elizabeth Technical High School, Santa Cruz, St. Elizabeth	Risdens Trucking	Risdens Trucking
	Kingsley Harris	Independent
	Vick McNaughton	Independent
	Rennae Fogah	Ministry of Energy & Mining
	Denis Miller	Ministry of Energy & Mining
	Rhaines Muir	BDA
	Heidi-Ann Nemard	Social Development Commission
	Jennifer Simpson	Social Development Commission
	Rescington Whyte	Precision Block Factory
	Rhamana Dennis	Independent
	Sharon Hylton	Independent
	Camile Reynolds	Independent
	Eldon Dennis	Independent
	Keim Glaves	Independent
	Steve Thomas	Independent
	Michael Mclean	Independent
	Mario Harris	Independent
	Mitsie Smith	South Coast Aggregate
	Oral Rainford	Ministry of Energy and Mining
November 10, 2011	Valdene Gifford	Westmoreland Parish Council
Weslan Methodist Church Hall, Savanna-la-mar, Westmoreland	Molyn Crooks	Chantilly Primary
	Lelica Wallace	Grange Hill High School
	Adrian Blake	Grange Hill High School

DATE AND VENUE OF CONSULTATION	NAME OF PERSONS	ORGANISATIONS
	Trician Smith-Difon	Grange Hill High school
	Morine Thompson	Jamaica Fire Brigade
	Patsy Madden	Westmoreland Parish Council Poor Relief Dept.
	Janet Carrol	Westmoreland Parish Council Infirmary
	Mangman James	Negril All Age School
	Lawton Mckenzie	Westmoreland Parish Council
	Steve Morris	Westmoreland Health Department
	Albert Brown	National Works Agency
	Natalee Mckenzie	Maud McLeod High School
	Marine Thompson	Fire Brigade Department
	Camile Bolton	Local Govt. & Community Development Task Force
	Marlene Chambers	Blauwearie Primary School
	Andrene Spence	Westmoreland Parish Council
	Jaycinth Thomas	Westmoreland Parish Council
	Sonia Glaze	Westmoreland Parish Council
	Wint White	Westmoreland Parish Council
	Margret Thompson	Godfrey Stewart High
	Hilma Tate	Westmoreland Parish Council
	Ezekiel Clarke	Westmoreland Parish Council
	Omar Palmer	Westmoreland Parish Council
	Jermaine Medley	Westmoreland Parish Council
	Oliver Patterson	Social Development Commission
	Paulette Dryden-Smith	Social Development Commission
	Ron Daley	Social Development Commission
	Ivette Ferguson	Social Development Commission
	Marcia Ambersley	Bethel Town Community Development Council
	Clinton Russell	Jamaica Constabulary Force
	Maurice Stone-Barrett	Kiwanis Club & Llandilo Citizens' Association
	Faye Bryant-Cupioh	Llandilo Citizens' Association
	Joan Williams	Sabayas Quarry
	Desmond Williams	Sabayas Quarry
	Denis Miller	Ministry of Energy & Mining
	Nigel Myrie	Westmoreland Chamber of Commerce & Parish Development Committee
	Oral Rainford	Ministry of Energy & Mining
	Ronald Edwards	Mines and Geology Division
November 16, 2011	Delores Hill	SCOPE
St. Marks Anglican Church, Brown's Town, St. Ann	A. Brown	SCOPE
	Heather Gardner	SCOPE
	Donna Howard	SCOPE
	Winston Ruel	Harmony Vale United
	Stacey Plummer	Mines & Geology Division
	Oraine Hepson	Mines & Geology Division

DATE AND VENUE OF CONSULTATION	NAME OF PERSONS	ORGANISATIONS
	Duane Edwards	NWO (Mining Engineer)
	Kent Skyers	NJBP
	Prince Brown	Quarry Operator
	D. Simon	
	C. Thompson-Chin	C & T Quarry
	Denis Miller	Ministry of Energy & Mining
	Oral Rainford	Ministry of Energy & Mining
November 17, 2011	Michael Webb	PCFS
Ewarton Community Centre, Ewarton, St. Catherine	Ruby Tenn	Linstead CDC
	L. Lewis	Linstead CDC
	T. Wright	Linstead CDC
	Mario Clarke	D.C.F.S
	P. Barrett-Thomas	P & D Document Services
	Carlton Laz	Quarry Operator
	David Balfour	Balrock Education Centre
	Bryan Perry	Farmer's Group
	Beatrice Collins	ECODAC
	Alton Wright	
	Collington Powell	
	Mark Bryson	EOCDAC
	Ivyrena Dawkins	MTN Pass
	Davene Howell	Wakefield United
	Sophie Hamilton	
	Erwin June	
	Sydney Rase	
	K. Mckenzie-Polson	
	Lancelot Winter	
	Lloyd Green	
	Albert Cogbiel	
	Ecinaj Cogbiel	
	Samuel Cameron	
	Ronald Cameron	
	E. Ferron	
	Jessie Barrett	
	Valentine Glove	
	Beverley Jobson-Grant	Councillor
	Ismania Tucker	
	Robert Pickersgill	Member of Parliament
	Charmane Scott	
	Dwayne Howell	
	Claude Steele	
	Bernard Taylor	
	Starrette Dobson	
	Dwayne Anderson	
	Rohan Jobson	
	Osaine Hepbon	

DATE AND VENUE OF CONSULTATION	NAME OF PERSONS	ORGANISATIONS
	Petal Amos	Ewarton Police Youth Club
	Mavis Hall	
	Ann Marie Slew	
	Mirriam Davis	
	Denis Miller	Ministry of Energy & Mining
	Oral Rainford	Ministry of Energy & Mining
November 23, 2011		
St. Theresa Catholic Church, Annotto Bay, St. Mary	Marcia Anderson	Ministry of Energy & Mining
	Ruel Francis	Annotto Bay Health and Environmental Association
	Steadman Lowe	St. Mary PDC
	Taniquea Callam	Ministry of Energy & Mining
	Noel McKenzie	Three Rivers Aggregates
	Denis Miller	Ministry of Energy & Mining
	Andrea Tenn	Enfield Citizens Association
	Jineannette Rose-Bryan	Social Development Commission
	Jamie Davis	Peace Corps
	Beatrice Smikle	Annotto Bay All Age School
	Peter Chambers	
	Althea Chambers	
	E. Bennett	
	J. Bathein	Annotto Bay Health and Environmental Ass.
	Winston Williamson	Quarry Operator
	Errol Gordon	
	Avril Shaw	Fort George
	Joel Gayle	Annotto Bay Police Youth Club
	Janice Browne	
	Roy Nicholson	Mines and Geology Division
	Pavel Green	Visitor
	Juelett Rowe	Annotto Bay High School
	Rupert Miller	Quarry Operator
	Newton Nerdon	Fort George
	Oral Rainford	Ministry of Energy and Mining
November 30, 2011	Antonette Brown	Independent
PCJ Auditorium, Kingston	Audley Roberts	Mining Development Trading
	A.S. Levy	Independent
	Kathy Chambers-Adman	Ministry of Energy & Mining
	Coy Roache	BATCO/JBM
	Trevor Reynolds	Ministry of Energy & Mining
	Mark Richards	National Works Agency
	Betsy Bandy	Ministry of Energy & Mining
	Douglas McIntosh	Jamaica Information Service
	Marcia Anderson	Ministry of Energy & Mining
	Donovan Easy	Ministry of Energy & Mining
	Clinton Thompson	Commissioner of Mines

DATE AND VENUE OF CONSULTATION	NAME OF PERSONS	ORGANISATIONS
	Michael Schwartz	Windsor Research Centre
	Danielle Andrade	Jamaica Environment Trust
	Margaret Aratram	Mines & Geology Division
	Locksley Allen	Noranda Jamaica
	Hugh Elliston	Chemical Lime Company
	Delores Drummond	St. Benedicts Heights Citizens' Organization
	Llyn Thompson	Bayrose Citizens' Association
	Norman Davis	PowerGen Limited
	Carver Chen	Noranda Bauxite
	Talbert White	Wickie Wackie Citizens' Association
	Henry Rainford	Jamaica Livestock Association
	Sandra Williams	JAMPRO
	Ricardo Durrant	JAMPRO
	Douet Stennett	Ministry of Energy & Mining
	Denis Miller	Ministry of Energy & Mining
	Oral Rainford	Ministry of Energy & Mining

INTER-AMERICAN DEVELOPMENT BANK

The Inter-American Development Bank (IDB) provided grant funding, which provided for the employment of a consultant, Prof. Magnus Ericson, who helped to reformat the draft National Minerals Policy in 2014.

THE COMMONWEALTH SECRETARIAT

Comments on the draft policy were received from the Commonwealth Secretariat in July 2016.

PRESENTATIONS TO THE CABINET, GOVERNMENT OF JAMAICA

November 2017 and July 2019.

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APPENDIX XI

COMMERCIAL DEVELOPMENT OPPORTUNITIES WITHIN THE MINERALS SECTOR

Significant investment possibilities exist in all segments of Jamaica's Minerals Sector.

BAUXITE AND ALUMINA

Should a cheap and plentiful supply of environmentally benign energy be found, aluminium production with allied fabrication and other manufacturing activities would become financially viable in Jamaica.

The GOJ is yet to divest its holdings in the Bauxite and Alumina Industry.

Investors should consider providing engineering and other services to the alumina companies and port and port facilities to the Industrial Minerals Industry.

INDUSTRIAL MINERALS

LIMESTONE

Owing to its varied applications, the development of this mineral, which includes dolomitic limestone, offers Jamaica the possibility to reshape and reposition its Mining Sector.

Areas of meaningful commercial possibilities include limestone's application in the following areas:

Construction

- Fine and coarse aggregates. These materials find application in numerous areas and are particularly tied to the construction industry. Manufactured limestone sand finds application in construction, beach nourishment, golf courses and other areas. Manufactured limestone sand is being exported.
- Concrete, Roadstone, Rail-line Ballast, and Boulders (Rip Rap) for coastal defence. The latter is likely to become increasingly important as the impacts of climate change, including sea level rise, begin to be more widely pronounced.
- Slabs for use as counter tops, furniture, cladding materials and flooring.
- Stone craft, including monuments.
- Portland cement and other bonding agents and finishes.
- Construction, including ornamental construction, decorative blocks and masonry units.
- Garden tiles.
- Fill.
- Roofing Granules.

Agricultural Applications

- Animal feed
- Soil additive
- Disease and odour control (environmental control)

Industrial Applications

- Industrial Lime (Quicklime). This product is necessary for alumina manufacturing during the Bayer Process.
- Filler (plastics, detergents and bathsoap, carpet backing, etc.) and abrasives.
- Refractory
- Hydrated Lime

- Ground Calcium Carbonate (GCC)
- Precipitated Calcium Carbonate (PCC)
- Glass, Paper, Steel, Alumina Manufacturing
- Fluxstone

The manufacturing of Industrial Lime, GCC, PCC and Hydrated Lime provide for the development of an integrated limestone-based chemical industrial complex. These products can be utilized in various segments of the economy. Purposeful changes to GOJ policies to facilitate the development of this chemical industrial complex will, where necessary, be considered.

A significant local market will be necessary to effect the proposed development. Exportation would be secondary, but compulsory to achieve profitability and to benefit from economies of scale.

Chemical and Miscellaneous Applications

- Sulphur Dioxide Control
- Paper
- Ferrosilicon
- Dolomitic limestone finds ready application in glass and steel manufacturing.

Limestone's primary chemical application derives from its ability to neutralize acids.

Food and Pharmaceutical Applications

- Calcium supplements
- Antacid
- Anticaking agent in flour
- Cosmetics

HARD VOLCANIC ROCKS

These include locally available andesite, granodiorite and basalt, which can produce excellent quality fine and coarse aggregates for the construction industry. These rocks' permeability and compressive strength, among other characteristics, make them excellent candidates for use in construction. This is especially the case in heavily trafficked areas such as airport runways, major intersections and high performance structures, including multi-storey buildings, dams and highways.

Possible Manufacturing Opportunities

- Construction and decorative blocks
- Cobble stones
- Pavers
- Abrasives and grind stones
- Slabs for use as counter tops, furniture, cladding materials and flooring
- Monuments, craft and household items
- Boulders for coastal protection

EXPLORATION FOR METALLIC MINERALS

The uncovering of a gold and silver (Au – Ag) deposit, copper, gold and silver (Cu, Au, Ag) deposit or some other deposit with a different combination of precious and base metals has the potential to help improve the country's economic fortunes. This is especially the case should precious metals such as gold (Au) and silver (Ag) dominate the deposit.

The volcanic rocks, which are also the oldest rocks in the country, have been shown to be the host of these metals. These rocks are found at the surface in several inliers, which form an east- west spine across the island. The largest outcrop of these rocks is in the east of the island within the Blue and John Crow Mountains that cover sections of Portland, St. Thomas, St. Andrew and St. Mary. The Central Inlier, which covers sections of northern Clarendon and northern St. Catherine, is the second largest, with those in St. James and Hanover being the smallest by area covered.

PRIMARY MARKETS

- Jamaica and other Caribbean territories
- United States of America (particularly the Southern USA)
- South America (areas south of the USA)

CAPITAL REQUIREMENTS

The quantum of investment capital required will be dictated by the scale of operation, area of commercial activity (industry, construction, food and pharmaceutical, chemical application, etc.), type and cost of equipment, geographical location of the mineral resource / reserves, availability and access to port and required port facilities, among other amenities and requirement issues.

LIME PLANT

The construction of a lime plant, capital requirement of approximately US$25 million – US$30 million, is generally the single largest capital investment in a limestone processing complex.

QUARRY

A properly developed and resourced quarry (influenced by size of annual output, geographical location and its development needs to ensure operational efficiency, type, age and size of equipment and machinery, characteristics of the mineral deposit, and access to port and port facilities, etc.) will require a capital outlay of US$3 million – US$12 million.

Jamaica's Minerals Sector

will be "a primary contributor to sustainability, globally competitive and co-existing with competing interests in the wider economy"

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