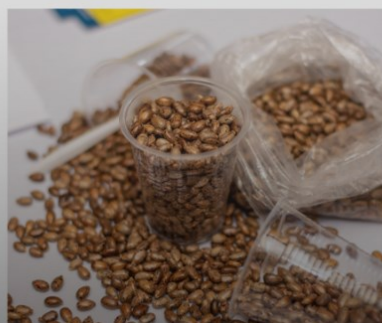




JAMAICA BAUXITE INSTITUTE

Annual Report 2022 - 23



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THE JBI LOGO



The ochre “**J**” represents the influence of the iron mineral goethite in Jamaican bauxite. The behaviour of this mineral during Bayer processing is one of our areas of research.

The reddish “**B**” represents the influence of the iron mineral haematite in our bauxite.

The white “**I**” represents alumina - the end product in Jamaica.

The silver globe indicates aluminium and our world-wide interest in the product.



LIST OF ACRONYMS

Bauxite Community Development Programme (BCDP)
Gross Domestic Product (GDP)
Inductively Coupled Plasma Spectrometer (ICP)
International Monetary Fund (IMF)
London Metal Exchange (LME)
Ministries, Departments & Agencies (MDAs)
Ministry of Transport and Mining (MTM)
Purchasing Managers' Index (PMI)
Public Procurement Commission (PPC)
Reduce emissions from deforestation and forest degradation in developing countries (REDD+)
Rare Earth Elements (REE)
Special Exclusive Prospecting License (SEPL)
Special Mining Lease (SML)
Transformation Implementation Unit (TIU)
United Arab Emirates (UAE)
World Economic Outlook (WEO)
X-ray Diffractometer (XRD)
X-ray Fluorescence Spectrometer (XRF)

THE ORGANISATION

AS OF APRIL 1, 2022, THE BOARD COMPRISED:

Mr. Alston Douglas, O.D., J.P. (Chairman)
Mr. Angus Gordon (Deputy Chairman)
Mrs. Sharon Hay Webster
Rev. Casbert Bryan
Mr. Dameon McNally
Mr. Roy Nicholson
Mrs. Kayon Whyne
Ms. Nyekah Adams
Ms. Shasha Lee
Mr. Yaneke Watson
Ms. Rayharna Wright *until November 2022*

APPOINTED December 2022

Ms. Julliet Mair

PRINCIPAL OFFICERS:

Mr. Stevie Barnett, *General Manager until September 2022*
Miss Yolanda Drakopoulos, *Acting General Manager effective September 2022*
Miss Yolanda Drakopoulos, *Senior Director - Bauxite Reserves until September 2022*
Mr. Kemoy Lindsay, *Director - Bauxite Lands*
Mr. Worrell Lyew-You, *Director - Process Monitoring & Environmental Services*
Mr. Richard Hanson, *Director - Analytical Services*
Mrs. Joan Thomas Levy, *Director - Administration & Finance*

ROLE & FUNCTION



The Jamaica Bauxite Institute was established by the Government of Jamaica in 1975 to, *inter alia*:

- (a) monitor and study the aluminium industry and provide technical advice on, and personnel for, the negotiations of various agreements;
- (b) undertake research and development activities on various problems related to the processing of Jamaican bauxite;
- (c) continually assess and ensure rationalization in the use of Jamaica's bauxite reserves and (bauxite) lands; and
- (d) monitor and make recommendations to ensure adequate pollution controls and other environmental programmes in the industry.

In addition, the Jamaica Bauxite Institute has diversified its laboratory to analyze not only bauxite, its products and by-products, but also a range of industrial and agricultural materials.

Jamaica Bauxite Institute
Hope Gardens
Kingston 6, Jamaica
Telephone: (876) 927-2073
Fax (876) 927-1159
Website: <http://www.jbi.org.jm>
Email: info@jbi.org.jm

CHAIRMAN'S MESSAGE



The Jamaica Bauxite Institute, as the government organization which monitors, evaluates and conducts research on the bauxite/alumina industry, has had an eventful year. Mid-year saw the change of leadership of the organization, with Ms. Yolanda Drakopoulos stepping in as General Manager (Acting).

Mid 2022 saw the restart of production at the Jamalco facility after the fire of August 2021, whilst production at Ewarton Works continued to be challenged by ore quality and mining access. The Nain operations of JISCO Alpart remained shuttered in the period, though the prospect of a future restart has been indicated by the owners.

Additionally, two major issues in the public domain highlighted the need for continued technical attention to the local industry: the lawsuit against

Noranda and the GOJ regarding impacts related to bauxite mining and, the public concerns in relation to the impacts of Ewarton Works on the Rio Cobre. In the midst of both of these issues, the JBI played a central role in the conversations to develop solutions and craft the way forward, a role the Institute continues to play in a very robust way.

With regard to the important work being executed by the Bauxite Community Development Programme (BCDP), the post-pandemic focus of the programme has sought to bring tangible improvements to the health sector, education and the economic empowerment of bauxite communities. The renovation of the frontage of the Black River Hospital, on time and within budget was a highlight of the year. It is an investment that will positively impact the lives of thousands of Jamaicans for years to come.



The industry continues to play its part in employment and earnings for the nation. The mining of bauxite remains the primary exploitation of the minerals sector. As we look to the future of the industry, mining and the opportunities therein, the JBI will continue to place priority on research relating to bauxite residues, alternate revenue earning opportunities and the imperative of 'Life After Bauxite'.

I express my thanks to the staff of the JBI, our partners in the bauxite and alumina companies, our

colleague government agencies, the communities (and their Community Councils) and all other partner stakeholders we would have worked with over the year in ensuring the growth and management of the bauxite industry in Jamaica.

Alston Douglas

Alston Douglas, O.D., J.P.

GENERAL MANAGER'S MESSAGE



Jamaica's bauxite industry has long been a pillar of our nation's economy, contributing significantly to our GDP and providing countless employment opportunities for our people. Over the years, we have witnessed its resilience and adaptability, navigating through challenges and remaining the highest performing non-service sector.

Looking ahead, the forecast for Jamaica's bauxite industry is promising. The global demand for aluminum continues to rise, driven by factors such as population growth, urbanization, and the expansion of infrastructure projects. As vanguards of the industry, we are well-positioned to capitalize on these opportunities whilst we also contribute to the sustainable development of our country.

In recent times, massive changes have further turned the eyes of Jamaica and the world on the Bauxite sector. Many have dubbed the GOJ's recent decision of recoupling mining with Agriculture

as absurd. Mining operations have traditionally been seen as separate from the agricultural sector, but it behooves me to highlight the Bauxite sector's contribution to agriculture. Through the Bauxite Community Development Programme (BCDP), the Institute has worked towards a harmonious coexistence.

The industry has also directly contributed to agriculture by providing resources, infrastructure, and expertise to our farmers and agricultural communities. This evidenced by our collaborations with HEART, Rural Agricultural Development Authority, Jamaica Social Investment Fund, Inter-American Institute for Cooperation on Agriculture. Furthermore, true to our mandate of *"ensuring that operations are conducted with minimal impact on the environment"*, the Institute has been judicious in ensuring that mined-out lands have been reclaimed, rehabilitated and returned to productive use.



As we continue to maintain active dialogue and collaboration with our farmers and agricultural communities, we can ensure the preservation of our agricultural heritage, strengthen food security while also maximizing the benefits of mining.

To achieve these objectives, it is essential that we prioritize collaboration, transparency, and continuous improvement. The future of Jamaica's bauxite industry holds great promise, however we must redouble our efforts to achieve it. We must work hand in hand with government agencies, local communities, and environmental organizations to develop strategies that balance the needs of all industries.

Activities in the local bauxite and alumina sector have reiterated once more, that the sector remains a key figure in the global alumina industry and a valuable asset locally. The domestic industry's performance was commendable. According to the Statistical Institute (STATIN) of Jamaica, May 2023, the Goods Producing Industries, which includes Mining and Quarrying, grew by 1.0%. This was

primarily due to the 114.7% growth in the Mining and Quarrying sector, which was contributed to by the recently reopened JAMALCO's output.

Whilst we continue to meet the demands of an ever-evolving landscape, the JBI will increase and bolster its capacity to meet international partners. This includes outfitting the laboratory with cutting edge technology, an expansion of analytical services and laboratory ISO 17025 accreditation. These efforts will position the JBI to see an increase in earning potential.

I take this opportunity to express sincere appreciation to the Chairman of the Board, members of the Board of Directors, the JBI team, stakeholders in the bauxite sector and our partners for their support.

Yolanda Drakapoulos (Acting)

BOARD OF DIRECTORS' REPORT

In an effort to revitalize productivity in the bauxite and alumina industry, The Board continued to place emphasis on enhancing the core function of the Jamaica Bauxite Institute. Throughout the reporting period, the Board placed heavy emphasis on accountability, staff welfare, research, revising the organizational structure and outreach. In addition to the monthly reports from the General Manager, the Board periodically heard reports from each committee of the Board in an effort to maintain accountability and efficiency. By way of the General Manager's Report, the Board was given insight with respect to the Institutes finances, divisional reports, initiatives being undertaken by the Institute, among other things. Board meetings continued on a monthly basis where pertinent matters were discussed and where actions requiring an update were followed-up on.

The Board discussed a number of initiatives, some of which were geared towards providing support to communities within the bauxite areas; others were geared towards improving the public profile of the Institute, while others were being discussed in an effort to generate income for the Institute. Some of these initiatives are summarized as follows:

- I. **Business Development** – with respect to a possible partnership between CEMEX and JBI, CEMEX is exploring the possibility of using red mud in the manufacture of Portland Cement.
- II. **Rio Tinto Scholarship** - Three recipients benefitted from the Rio Tinto Scholarship. A total of Two Million, Seven Hundred and Twenty-Nine Thousand, Two Hundred and Fifty-Six Dollars (2,729,256.00) were given in scholarships to the College of Agriculture, Science and Education (CASE). The Board was informed that these three recipients will be required to do an internship with the BCDP.
- III. **The Broadleaf Clinic** - The first 50% of the total funding to complete the project has been transferred to the Southern Regional Health Authority. The SRHA indicated that they are still in the procurement process. This phase should commence in March 2022 and be concluded by the end of February 2023.
- IV. **Black River Hospital** - The Black River Hospital opening was a success. The Minister of Transport and Mining, the Hon. Audley Shaw, Minister of Health and Wellness, the Hon. Christopher Tufton and Member of Parliament, Floyd Green attended and spoke at the event which culminated in a well-executed ribbon cutting and ceremonial gate walk through.
- V. **Alexandria Hospital Project**- With respect to the Alexandria Hospital project, 50% of the funds have been disbursed to the Northeast Regional Health Authority and they are now in the process of procurement.
- VI. **Castor Bean Project**- JBI will provide the space for farmers to process the plant; they would then receive assistance from JAMPRO and JCIA to market the product. The Institute will be processing castor oil and producing black castor oil as a result of the process through which it goes. JBI will remain the owners of the Project and will be in charge of all the activities. JBI will manage the process but will not be involved with the actual processing. Individuals with expertise in the field are to be employed and JBI will focus on the research component that UWI is working on.
- VII. **JBI LAB ISO Certification** – The Institute has taken steps to earn ISO certification for the Laboratory. A Meeting was held to discuss the matters outstanding in pursuance of accreditation. These were identified as:



Management Review, Internal Audit Gap Analysis, and completion of two (2) validation procedures. The accreditation process is still ongoing.

VIII.A major project going forward from the environmental division is the AERMOD Dispersion Modelling Software online training.

The Board took a keen interest in staff retention and staff morale at the Institute. In an effort to boost staff morale, there were a number of activities put in place for staff members. There was a staff party in December 2022, there is a walking/weight loss exercise programme in place which is done on Fridays, there is a proposal to have a motivational speaker visit the Institute once an affordable cost is agreed. Additionally, a Staff Satisfaction Survey was developed and administered at the Institute with the findings being carefully analyzed in an effort to improve staff satisfaction and by extension its morale.

In addition, there were motivational sessions – four workshops in March geared towards staff health and wellness issues. These initiatives were put in place to reduce the burden and stress and any other workplace health and wellbeing issues thereby increasing productivity, lowering staff turnover and attracting and retaining talent.

In keeping with the Institute's core function, the Board encouraged the undertaking of research. These projects were carried forward from the previous reporting period. The research undertaken by the Institute included:

- Rare Earth Element Project;
- Socio-economic impact of bauxite;
- Creation of Bricks through the combination of high silica bauxite and cement;
- Research on feasibility of Gallium extraction
- Viability of large-scale castor production on mined out lands

The Board remained focused on the mandate of the Institute which is to act as a repository of knowledge in the Bauxite Industry.

In summary, the following activities were also undertaken during the financial year 2022/2023:

1. In an effort to strengthen the relationship with bauxite companies, there was increased routine monitoring, visits to Jamalco and certification exercises for Jamalco and Discovery Bauxite.
2. Two submissions were made to the International Committee for Study of Bauxite, Alumina & Aluminium (ICSOBA) to present papers at their conference in October 2022 in Greece, and the paper was accepted, therefore a team of Shanti Persaud and Ms. Drakapoulos attended the conference in Greece from October 9 – 14, 2022.
3. Revision of Policies
The policies revised were:
 - Recruitment and Selection Policy
 - Grievance Policy (to be completed)
 - Compensation Policy
 - Sexual Harassment Policy (to be completed)
 - Bereavement Policy
 - Staff Loan Policy
 - Investment Policy
4. The JBI Staff Loan Policy was approved in November 2022.
5. The Bauxite Reserves Division continued participation in International Alumina Institute (IAI) on the use of Bauxite residue in cement across the world. There was also the engagement of consultant geologist, Anthony Porter, for a contracted period of twenty days, for knowledge and data transfer in the Division.
6. On the 6th of January 2023, the BCDP team participated in a training exercise conducted by a representative from the Citrus Unit of the Ministry of Agriculture & Fisheries. The process to obtain certification to graft buds and grow citrus was explained and will be used in collaboration with the Citrus Growers Association to get planting material for Manchester as well as for sales at the JBI Nursery. The team got information on



what improvements are needed at the Nursery for its development. The Institute is currently in the process of putting together a full costing for the endeavor to get a better understanding of the cost benefit situation.

- 7. The Board monitored and obtained periodic reports on environmental disruptions, which included two spills at Jamalco in the month of March 2023, both of which were contained internally.
- 8. The lab upgrade project is ongoing. Hazards identified in the process lab from safety inspection were corrected.
- 9. The Human Resource and Corporate Governance Committee met on March 24, 2023 in the format of a Retreat. The Retreat was attended by Committee Members, Management and Board of Directors. The Agenda centered around the restructuring of the Organization and was particularly critical due to the compensation review for Ministries, Departments & Agencies (MDAs) of Government.

Matters Discussed included:

- Examination of the Revised structure
- Departmental Organizational Structure
- Revision of existing Job Descriptions
- The second half of the programme saw the discussions surrounding the conversations with the Transformation Implementation Unit, the discussions included:
 - Job Evaluation of Non-Senior Management Positions
 - Grading Structure for the Organization
 - Compensation Survey

After robust and an inclusive discussion, the decisions made were as follows:

- Revised Organizational structure relying on the finding of the Lewars Report 2018, management's current wish list, as well as the proposed structure being developed for the merger of the JBI with the Mines and Geology Department.

- It was decided to formally present the reorganized structure to the Ministry, to revise the Job Descriptions to make them more substantial and present them to the Transformation Implementation Unit (TIU). The decision was also taken to simultaneously meet with the TIU with the intention of negotiating to ensure that the entity attracts and retains its brightest and best persons.
- 10. The Board supported a decision to establish a Risk Enterprise Committee within JBI, to include all Heads of Department, with a separate group assigned within the Board to enable reporting to the Board. It was suggested that this Committee could meet quarterly. This decision was taken after the Board discussed the risk assessment done by the Internal Auditor.
- 11. The Board is working towards having the outstanding seniority allowance paid to members of staff.
 - The Board closely monitored succession planning activities, especially in light of those senior members of staff whose retirement was approaching.
 - The Director of Administration and Finance was confirmed in the post in November 2022.

As of March 2023, the BCDP funds stood at Two Hundred and One Million Dollars (\$181,905,713.00) and the JBI funds stand at Two Hundred and Fifty-Four Million Dollars (\$183,867,489.00). The following lists all investments as at March 30, 2023:

National Commercial Bank Capital	J\$97,751,743.80
Victoria Mutual Building Society (VMBS)	J\$72,117,878.22
Sagicor	J\$117,380,761.43
Jamaica Money Market Brokers (JMMB)	J\$78,522,824.16



THE BAUXITE COMMUNITY DEVELOPMENT PROGRAMME (BCDP)

The Bauxite Community Development Programme is a programme of special funding for communities impacted by bauxite and alumina operations. The programme was established in October 1996, by the Government of Jamaica which designated the Jamaica Bauxite Institute (JBI) the agency responsible for its management. The main goal of the programme is to reinvest earnings from the bauxite/alumina industry by implementing long-term sustainable projects in communities affected by bauxite operations, ultimately leading to improvements in socio-economic conditions in the affected communities and “Life after Bauxite”.

The programme is currently in its seventh (VII) phase which was launched officially in September, 2020. As at March 2023, the BCDP Phase VII has expended close to J\$90M on projects in all 5

bauxite parishes. Since its inception in 1996, the BCDP has expended over J\$885M towards the execution of its mandate and the implementation of projects across the bauxite parishes. Of that sum over 350 projects have been completed in the areas of agriculture, sports, skills training, community infrastructure development and road rehabilitation in over 300 bauxite communities.

Figure 1 shows that, of the total expenditure, administration accounts for the largest single BCDP expense at J\$279.8M. This figure includes all administrative expenses including staff salaries for all BCDP team members as well as management fees collected by the JBI. Agriculture projects continue to account for the largest share of projects executed under the BCDP with total expenditure at over J\$227M. Community infrastructure accounted for J\$176M. These projects include rehabilitation of community centres, recreational areas as well as support given to schools. Road repair expense

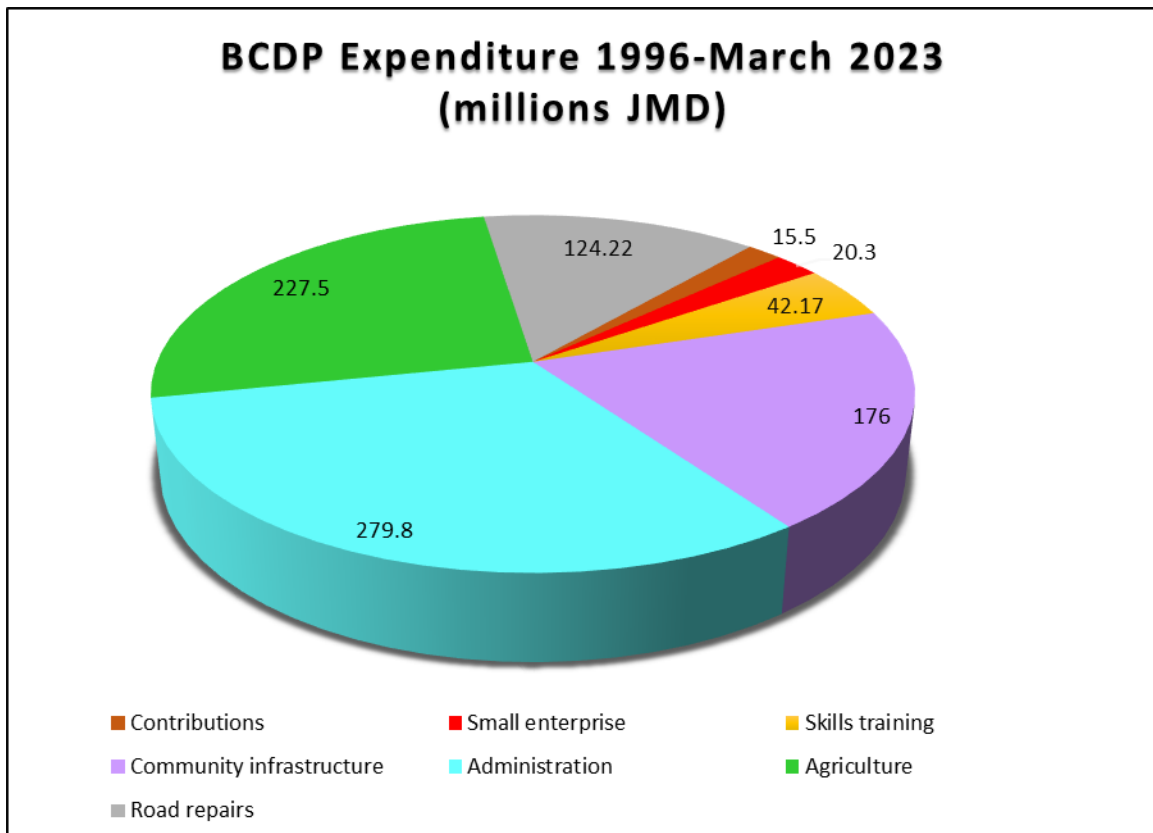


Figure 1: Expenditure by Project Type



stands at J\$124.2M and total expended on capacity building and skills training stands at J\$42.17M.

Among the major projects executed for the year were:

- The Black River Hospital Frontage expansion executed at a cost of over J\$18M. The project expanded the entrance of the hospital and constructed lay-bys for vehicular traffic. Since completion, the new infrastructure has assisted in relieving traffic congestion on the main thoroughfare in front the hospital as well as allowing emergency vehicles to enter and exit the hospital with greater ease.
- Finalized Land Titling support through Jamalco. Up to 35 residents of Clarendon and Manchester will be receiving titles that remained undelivered to them as a result of estate issues. The support is to provide financial assistance to these residents, through Jamalco, for them to secure legal representation to have these issues resolved.
- Approximately 100 chicken farmers were assisted with chickens, feed and training in the parishes of St. Elizabeth and Clarendon, in partnership with RADA.

Community Councils

Additionally, over the fiscal year, all community councils were audited and the BCDP team continued to conduct socio-economic surveys of the councils to advise on the implementation of projects.

Partnerships

The JBI/BCDP team has partnered with several public and private entities towards the advancement of projects across all bauxite parishes. Some of the partnerships realized over the year include:

- Regional Health Authorities - to negotiate the renovation and rehabilitation of the Black River Hospital and the Broadleaf Clinic
- National Land Agency - in the finalizing of lease agreements for agricultural projects as well as in support of the land titling activities being undertaken by the JBI/BCDP

- Bauxite Companies - to finalize support to be given to their land titling activities
- Rural Agricultural Development Authority - to train and implement poultry farmers in St. Elizabeth and Clarendon
- Jamaica Social Investment Fund - To advance Greenhouse projects under the Rural Economic Development Initiative (REDI)
- Citrus Growers Association - To finalize plans for a Citrus revitalization Project in Manchester
- Jamaica 4-H Clubs- supported expositions in St. Mary, St. Catherine, St. Andrew and Clarendon.

The BCDP under its mantra “Life After Bauxite” also continues to provide support for the 14 active joint bauxite community councils located in areas impacted by bauxite/alumina operations in close proximity to the mines, railways, ports and refineries. With its focus on sustainability, the programme will continue to implement projects that positively impact the lives of Jamaicans residing in bauxite bearing areas by utilizing methods that are environmentally sustainable and socially responsible.

Castor Forum

The JBI/BCDP hosted a Castor Bean forum in March 2023, with the following objectives:

- To bring the stakeholders in the industry together in order to reduce the level of industry fragmentation
- To share technical information regarding the marketing, cultivation and land access to small farmers and members of the cottage industry
- To collect information to guide the implementation of the JBI's Castor Industry Development Programme.

The forum was a resounding success and one of the highlights of the Institute's year having attracted over 300 participants of which over 200 were in person attendees. The forum was a partnership with the International Institute for cooperation on Agriculture (IICA), Compete Caribbean, Jamaica 4H Clubs, Agro-Investment Corporation, RADA and the Scientific Research Council (SRC).



HIGHLIGHTS OF ACTIVITIES

BAUXITE LANDS

The Bauxite Lands Division has overall responsibility for ensuring that bauxite lands are prudently managed and protected as part of Jamaica's overall reserves management programme. The protection of bauxite lands against sterilization is necessary to secure the reserves required for future mining and to maintain the viability of the industry. The Division is also charged with facilitating the optimum utilization of lands before, during and after mining, monitoring the use of these lands and ensuring that the legal obligations of the government and the bauxite companies in respect of land agreement are fulfilled. Over the past year, the Division worked closely with the Bauxite Reserves Division with the production of maps and GIS information. These activities were critical in advising on multiple matters pertaining to the JBI's role in the industry.

Processing of Applications for Sub-divisions on Bauxite Lands

For the financial year to date April 2022 to March 2023, the Bauxite Lands Division processed three

hundred and thirteen (313) subdivision applications, of which three hundred and twelve (312) applications were approved. There was refusal of one application and proposed land use from the parish of Manchester. Additionally, the turnaround time for the processing of subdivision applications has been held at five to seven days. A very large percentage of the requests received were related to developments for housing or commercial purposes. Table 1 below shows the distribution of applications received and approved by parish.

Midlands

The JBI continues to manage the midlands properties on behalf of the NLA. Plans are still in play to review the existing MOU to address various issues including 1) renewal of existing MOU 2) revising of JBI's management fee. Collections on lease payments total \$3,560,317.37. The lands under Midlands are currently leased to small farmers in the parishes of Manchester, St. Elizabeth and St. Ann. These properties were once owned by Reynolds, a bauxite company that left Jamaica in 1984 and handed over these lands to the Government of Jamaica. Majority of the lands are currently in agricultural production. It is anticipated that the lease arrangements with these farmers will be reviewed starting this financial year.

PARISH	TOTAL	APPROVED	REFUSED
Saint Ann	66	66	0
Trelawny	27	27	0
Saint Elizabeth	80	80	0
Manchester	95	94	1
Clarendon	35	35	0
Saint Catherine	10	10	0
Total	313	312	1



BAUXITE RESERVES

All the bauxite mining companies saw a reduction in the quantity of bauxite extracted for the reporting period. This is indicative of the current state of the bauxite industry as each company has been facing severe challenges that have been affecting their ability to mine.

Discovery Bauxite

The main challenge the company faced was the inability to access the reserves required for their mining operations due to legal restrictions being placed on mining in Special Mining Lease (SML) 173, which would have already been drilled and earmarked for mining. This has forced them to utilize material of lower than optimum quality because they are unable to blend efficiently. This restriction on mining also resulted in financial challenges for the company, which further negatively impacted their operations.

Winalco Ewarton

Winalco Ewarton's original mining lease SML 162 is essentially depleted and thus they have been struggling to supply their refinery with the quality of material required by their process. This is as a result of a lack of long term planning on their part, where they should have converted their Special Exclusive Prospecting License (SEPL) to an SML well in advance of their running out of suitable reserves. The poor quality bauxite has negatively affected the refinery operations. Though they have now been granted the new SML 174, they are challenged with accessing the ore as they need to build a new haul road and the property acquisition process is proving difficult and time-consuming.

Jamalco

There was also a reduction in mining activity for Jamalco for the reporting period and this was mainly as a result of the fire at the refinery in August of 2021. This had resulted in the operations being halted for repairs to the power house which would have negated the need for mining. However, the

refinery re-started production in August of 2022 albeit on a reduced scale of approximately 50% production so mining activities consequently re-started as well.

JISCO Alpart

JISCO remained closed for the period and it is unclear as to when they will begin work required for their re-opening.

Research Projects

Use of bauxite residue as an additive in the manufacture of Portland Cement.

Discussions have taken place with Cemex Jamaica about the possibility of using bauxite residue (red mud) in the manufacture of Portland cement. Cemex had previously done some work on this subject and would like to continue this work in collaboration with the JBI. As a member of the International Aluminium Institute's working group for persons working on utilizing bauxite residue in the cement manufacturing process, the JBI can share meaningful research on the subject.

CERTIFICATION EXERCISES

In 2022, four (4) companies presented a total of 253.49 ha of lands for certification. Of this amount, 239.34 ha were accepted as satisfactorily rehabilitated. This figure represented an increase of 287.60 % from the previous year where only 61.75 ha were certified restored due to the effects of the Covid-19 pandemic. Table 2 is a summary of the certifications conducted.

PROCESS MONITORING & SERVICES

Environmental Management

In the 2022/23 Financial year, there was a slow transition in the attempt to return to pre-pandemic operations, particularly where there were opportunities for meetings in online or hybrid formats. Productivity was on par with the previous year, however there was increased activities as



TABLE 2
SUMMARY OF LAND CERTIFICATIONS 2022

Company	Area Presented	Area Accepted	Swell Area	Area Rejected	Area Conditionally Certified
ALPART	37.89	37.89	14.82	0.00	0.00
JAMALCO	75.91	73.69	22.89	0.00	2.22
DBP	99.48	99.48	34.89	0.00	0.00
WINDALCO EWARTON	40.21	40.21	6.45	0.00	0.00
TOTAL	253.49	239.34	78.85	0.00	2.22

**All areas are stated in hectares*

Source: Mines and Geology Division

Jamalco resumed operations in July 2022. The other operational areas in the period were Windalco's Ewarton Works and Discovery Bauxite (formerly Noranda Bauxite), however the ongoing case in the courts for the latter resulted in a reduction in mining. All companies are subjected to the government's environmental monitoring and management programme, which has the objective of minimizing impacts on adjacent communities and the public at large. The other locations - Windalco's Kirkvine Works and Mines remained mothballed and is still part of court action with UC Rusal. JISCO Alpart remained shut down through 2022, though environmental permit renewals were sought in expectations of restart.

Public concerns yet again remain centred on three areas: dust emissions, regulation and risk assessment. The Jamaica Bauxite Institute has undertaken regular environmental review site meetings, audits at all facilities and verification monitoring of surface and groundwater resources. The companies are generally in compliance with the air quality standards and where there are breaches, action plans are developed to address the issues.

Even though JISCO Alpart has been shutdown since 2019, dust nuisance from the residual disposal site remains an area of primary concern. The surrounding communities were not happy with JISCO's management of dusting incidents, but some resolutions were achieved from interactions with the government stakeholders and community representatives.

In September of 2021, a suit in the courts was initiated against Noranda (part government owned) on constitutional grounds with respect to negative environmental impact. This backdrop has resulted in an anomalously long permitting process which ultimately resulted in the environmental permit for the new mining area for Special Mining Licence (SML) 173. The area lies adjacent to the Cockpit Country Protected Area (CCPA) which was gazetted and now includes area that was previously owned by Kaiser and formerly in the SML 173 area.

With respect to waste management, in particular the red mud sites, the JBI continued with the development of the framework for status, assessments and standards. The expansion for the Effluent Holding



Pond (EHP) at Ewarton works was initiated and it is anticipated that there will be better water management at the bauxite residue disposal site. With the above-mentioned fire, Ewarton remained the only active alumina producer for the remaining 6 months of this financial year. There was no change to the commitment to constrain the size of the operational waste disposal areas, as well as utilization of the best available technology. The invasion of Ukraine by Russia is yet to impact local operations though there has been an accelerated change in cost of living.

The JBI Environment Unit had a particularly challenging year - the expiry of all permits issued prior to 2015 became due for renewal and updating, as well as Environmental Impact Assessments for new mining areas and new permit applications had to be executed with the limited staff complement. Additionally, technical subcommittees with other government partners were reinitiated for air and water quality. At the strategic level, input was ongoing for the global initiatives for mineral resource governance in the context of sustainable development and the forest approaches to reduce emissions from deforestation and forest degradation in developing countries (REDD+).

In terms of progress in the closure at the bauxite residue disposal pond at Mt Rosser, the total progress of the closure works is estimated at 85% - however, works to lower the dam was significantly impacted by the ongoing pandemic. Once the site has met the government requirements, another five years of continuous monitoring will be done.

Monitoring of Mount Rosser Water Quality

During the year, the JBI continued the monitoring of the water quality around the Mount Rosser Pond which was used by Ewarton Works for red mud disposal up to 1987. The data collected over the years is indicating improvement in the water quality. This was expected when the use of the pond as an operating site was discontinued and the closure plan implemented. The site has been revegetated and the project is in an advanced state of completion.

Research and Development

The Division continued the research and development activities and completed the literature review on gallium. Gallium is one of the critical elements of the future that is used extensively in electronic components. It is present in trace amounts in bauxite; It dissolves in the Bayer Process for extracting alumina from bauxite. The Bayer Process is the primary source of extraction from which it is recovered as a by-product. Preliminary tests were done and will continue in the coming year to quantify the levels to assess the feasibility of recovering it from Jamaican bauxite.

With respect to sodium oxalate which is waste product of the Bayer Process, literature review is ongoing. Sodium oxalate or its derivative is used in production of rare earth elements.

ANALYTICAL SERVICES

Activities in the Analytical Services Division were impacted by the two X-ray spectroscopic equipment being in a state of disrepair over the period. The X-ray Diffractometer (XRD) and the X-ray Fluorescence Spectrometer (XRF) are used for quantification and identification of constituents in solid phases such as bauxite and red mud, and they are core to laboratory research and commercial activities at the JBI. Efforts to get these equipment repaired were futile, due to the failure of the supplier to meet the requirement to be registered with the Public Procurement Commission (PPC) in order to be eligible for the contract award to repair the XRD and XRF. Consequently, commercial lab tests and planned research activities on rare earth elements (REE) were limited to what could be done without the XRD and XRF.

Limited by the unavailability of the X-ray equipment, the total number of samples analysed by the laboratory was only 631, representing a 47% reduction relative to the previous year when 1188 samples were analysed. These 631 samples were comprised of 365 commercial samples and 266 samples analysed per statutory obligations.



Research activities around the development of an economically viable process for the recovery of rare earth elements from Jamaican red mud was constrained not only by the unavailability of the XRD and XRF, but also by frequent unavailability of argon gas for the Inductively Coupled Plasma Spectrometer (ICP). Nonetheless, there was emphasis on literature research and some laboratory research activities were completed with the available resources, such that research findings were sufficient to produce one article on heat treatment of red mud in pursuance of REE extraction.

In light of the aforementioned challenges, human resources were primarily utilized in improving the operations and income generation capacity of the Division through efforts to attain ISO/IEC 17025 accreditation of laboratory testing methods. While this accreditation was not achieved over the period April 2022 to March 2023, significant progress was made in terms of developing the laboratory operations to achieve the accreditation, and the process is expected to be finalized early in the fiscal year 2023/24.

PICTORIAL HIGHLIGHTS



World Water Day, JBI expo at STETHS



TVJ Smile Jamaica interview



Castor Bean Forum held in Mandeville, Manchester



Denbigh Agricultural Show 2023, JBI expo



Muirhouse playfield renovation



Renovation of the entrance of the Black River Hospital



UWI Students tour the Analytical lab with the Director of Analytical Services

CORPORATE GOVERNANCE REPORT

Jamaica Bauxite Institute continues to strive for compliance in accordance with the Corporate Governance Framework for Public Bodies in keeping with the general thrust of the public sector. This report outlines initiatives and activities undertaken by the entity in furtherance of its obligations under the Framework.

The initiative undertaken and/or implemented was:

1. Continued reliance on the internal legislative compliance and Corporate Governance schedule that was created to assist with being compliant with reporting timelines.

The Board of Directors and the Corporate Secretary participated in Corporate Governance Sensitization Sessions.

The following components of the Corporate Governance Framework have been implemented:

- Procurement Committee
- Evaluation and Tender Committee
- Audit Committee
- Annual Report
- Audited Financial Statements
- Corporate Plan
- Quarterly Report
- Annual Returns
- Annual Asset Declaration
- Quarterly/Annual Summary of awards contract
- Record of officers with assigned vehicles

ESTABLISHED COMMITTEES

Audit Committee

Membership

The Audit Committee comprised of the following members at the beginning and at the end of the reporting period:

- Mr. Dameon McNally (Chairman)
- Mr. Angus Gordon
- Ms. Sharon Hay Webster
- Mr. Shayne Kerr

The Internal Auditor, where applicable, was required to be in attendance at the meetings. The General Manager and Board Chairman attended on the invitation of the Committee Chairperson to specific meetings.



Meetings

The Committee met two (2) times during the reporting period.

Activities

The Committee relied primarily on the work of the Internal Auditor to the extent that an individual was engaged to the post. For the relevant period, the Institute had a person contractually engaged (short term) as Internal Auditor at the beginning of the reporting period, through to the end. The following activities were undertaken:

- Audited Financial Report
The Audited Financial Statement for the preceding financial year was presented in depth and accepted by the Audit and Risk Management Committee. The Internal Audit Report for the preceding financial quarter ending March 31st, 2023 was presented in depth and accepted by the Audit and Risk Management Committee.
- Vacant Posts
The Committee acknowledged that there were a number of posts that needed to be filled in order to allow the Institute to operate efficiently. The Committee urged the HR Department to fill these posts, which included the Internal Auditor. A shortlist of candidates was finalised.
- Audit Plan
The Audit Plan for the Financial period April 1, 2023 to September 30th 2023 was presented to the Committee for review.
- Investment Policy
An Investment Policy was drafted by Human Resource Department, discussed by the Committee and subsequently ratified by the Board of Directors.
- JB I Risks
Risks were highlighted in respect of the Management of Assets. The implementation of an updated asset register was in progress, in addition to the insurance and proper labelling of assets. A Disaster Preparedness Plan was also put in place. A framework was created and will be utilised as a means of following up on recommendations made by the Committee known as the Implementation Status of Audit Recommendation schedule (ISOAR Report).
- JB I Policies
The Committee discussed, in conjunction with the HR Department, the implementation of new policies to mitigate risks within the Institute.
- Monitoring of Projects
The Committee monitored a number of projects that were undertaken by the Institute, two of which were the updating of the Staff Handbook and the payment of outstanding seniority allowances. Moreover, the other notable project concerned the new rates for health insurance which came into play at the end of the month of January. There were some issues as to the ratio of the staff contribution that would be applied. This issue has now been rectified and all parties have come to an understanding on the matter.



Finance Committee

Membership

At the beginning of the reporting period the Finance Committee comprised of the following members:

- Rev. Casbert Bryan (Chairman)
- Mr. Denis Miller
- Mr. Gordon Hutchinson

At the end of the reporting period (March 2023) the Finance Committee comprised of the following members:

- Rev. Casbert Bryan (Chairman)
- Mr. Dameon McNally
- Ms. Kayon Whyne

The Committee is also supported by the Accountant, Assistant Accountant, the Director of Administration and Finance and the Director of Bauxite Lands of JBI. The General Manager attends Finance Committee meetings.

Meetings

The Committee met nine (9) times during the reporting period.

Activities:

- Reviewed monthly Financial Statements to ensure proper accountability of JBI's funds and also to ensure that the accounting standard was maintained.
- Reviewed monthly Income and Expenditure Statements for the Bauxite Community Development Programme (BCDP).
- Reviewed on a monthly basis, negative and positive variances with respect to the Institute's expenditure.
- Discussed and made the necessary adjustments to the Budgetary Forecast for the 2023/2024 Financial Year.
- Revised the Investment Policy.
- Funding amounting to \$268,479,591 from the Capital Development Fund was received.



Human Resource and Corporate Governance Committee

Membership

At the beginning of the reporting period (April 2022) the Human Resource and Corporate Governance Committee comprised of the following members:

- Ms. Rayharna Wright-Strachan (Chairperson)
- Rev. Casbert Bryan
- Mrs. Sharon Hay Webster
- Ms. Kayon Whyne

At the end of the reporting period, the Human Resource and Corporate Governance Committee comprised of the following members:

- Ms. Juliet Mair (Chairperson)
- Ms. Nayekah Adams
- Mrs. Sharon Hay Webster
- Rev. Casbert Bryan
- Mrs. Kayon Whyne
- Mr. Vaughn McDonald

The Committee is supported by the Legal Counsel, Human Resource Manager and Human Resource Consultant. The General Manager also attends these meetings. Notably, the position of Chairperson of the Committee was passed from Ms. Adams to Ms. Mair during this period.

Meetings

The Committee met nine (9) times during the reporting period.

Activities:

- The Committee continued the Policy Review Process. Existing policies were revisited, and the Committee explored formulating new policies that were relevant to JBI's operations.
- The Committee received a report from the HR Manager on a monthly basis, where the Committee was advised on HR related matters within the Institute.
- Discussed and actioned the filling of vacant posts. Approval was received from the Ministry of Finance & the Public Service during the reporting period for filling the post of General Manager, Projects Officer, Director of Economics and Projects, Mechanical Technician, Assistant Accountant, Internal Auditor and Procurement Administrator, with the latter post only to be filled on a contractual basis.
- Received Approval to engage both the Accountant and Director of Process Monitoring and Environmental Services respectively in post retirement contracts.
- Discussed activities with a view to raising JBI's public profile.
- Developed and administered a Staff Satisfaction Survey at the Institute.
- The Institute's Organisational Structure was reviewed and amended.



- Reviewed the Staff Loan Policy.
- The HR Consultant was reengaged.
- A Performance Appraisal was drafted and adopted by the Committee.
- Began process of reviewing Terms of Reference (TOR) of respective JBI sub-committees.

Bauxite Community Development Programme Advisory Board

Membership

At the beginning of the reporting period (April 2022 to March 2023), the BCDP Advisory Board comprised of the following members:

- Mr. Angus Gordon (Chairman)
- Mrs. Rayharna Wright-Strachan
- Mrs. Sharon Hay Webster
- Mrs. Shasha Lee
- Ms. Juliet Mair

At the end of the reporting period, the BCDP Advisory Board comprised of the following members:

- Mr. Angus Gordon (Chairman)
- Mrs. Sharon Hay Webster
- Ms. Nyekah Adams
- Ms. Roy Nicholson

The Advisory Board is supported by the Director of Bauxite Lands, BCDP Project Coordinator, Project Officer, and Research and Development Specialist of JBI, who is expected to join all meetings. The General Manager attends these meetings.

Meetings

The Advisory Board met seven (7) times during the reporting period.

Activities

- Perused the BCDP accounts (income and expenditure) on a monthly basis. The Nursery sales for each month were reviewed on a monthly basis.
- Continued the development of agreements between the JBI and the Cluster Managers (Operators) and with individual farmers associated with the JBI/JSIF Water Harvesting and Greenhouse Cluster Project.
- Earmarked funds for the improvements to the Main Building of the Broadleaf Health Centre.
- Commenced work on the Alexandria Hospital Project.
- Completed work on the Black River Hospital Rehabilitation Project as well as the Muirhouse Project.



- Emphasis was placed on the Life After Bauxite Initiative where the Advisory Board discussed activities and strategies to promote continued support of communities in the bauxite areas, even after the mining of bauxite has ceased.
- Received updates, discussed the progress of, and addressed issues relating to BCDP projects.

Director's Information

Tables 3 and 4 below outline the names, expertise, length of service, meeting attendance records and list of other directorships, for the JBI Board members.

TABLE 3		
NAME	EXPERTISE	LENGTH OF SERVICE
Mr. Alston Douglas-Chairman	Industrial Engineer	Chairman July 2018-Present
Mrs. Sharon Hay Webster	Social Engineer	May 2016- Present
Ms. Julliet Mair	Attorney-at-Law	February 2017-April 2022 & January 2023- Present
Rev. Casbert Bryan	Theology	July 2018-Present
Ms. Nyekah Adams	Human Resource Management & Development and General Administration	May 2022- Present
Mr. Angus Gordon	Finance and IT	July 2018-Present
Mr. Dameon McNally	Accounting, Auditing & Corporate Governance	May 2022 - Present
Mr. Roy Nicholson	Mining	May 2022 - Present
Mrs. Kayon Whyne	Educator	July 2021-Present



TABLE 4

NAME	MEETING ATTENDANCE RECORD JAN-MAY 2023 TOTAL MEETINGS HELD - 5	OTHER DIRECTORSHIPS
Mr. Alston Douglas-Chairman	Meetings attended- 5	Port Authority of Jamaica-Director Port Management & Security-Director
Mrs. Sharon Hay Webster	Meetings attended- 5	JIS- Advisory Board Member
Ms. Juliet Mair	Meetings attended- 4	None
Rev. Casbert Bryan	Meetings attended- 5	1. RADA (Trelawney Advisory Board) Vice Chairman 2. Warsop Primary and Infant school Chairman 3. Wait A Bit Primary School Vice Chairman Raymoth Notice Infant School - Chairman
Mr. Angus Gordon	Meetings attended- 5	SERHA- Director
Mr. Dameon McNally	Meetings attended - 3	1. JRC- Director 2. NHF- Audit Committee Member 3. Water Resource Authority- Audit Committee Member
Mr. Roy Nicholson	Meetings attended - 4	Water Resource Authority-Committee Member
Mrs. Kayon Whyne	Meetings attended - 5	None
Ms. Nyekah Adams	Meetings attended - 5	None



CORPORATE SOCIAL RESPONSIBILITY ACTIVITIES

Although the Ministry of Finance and the Public Service has not finalized a Corporate Social Responsibility Framework, the Jamaica Bauxite Institute discussed plans to embark upon the following activities for the period 2022/2023:

1. A programme to assist communities to continue to strive after bauxite mining has ceased.
2. The Rio Tinto /Alcan Legacy Fund Scholarship
3. Assisting with the provision of titles to landowners in the bauxite communities.
4. Providing support to hospitals in need of repairs in select bauxite communities.

JBI continued to make arrangements to implement the initiative to reach out to at-risk youths within the bauxite communities in an attempt to offer guidance.

BOARD PERFORMANCE EVALUATION

The Jamaica Bauxite Institute did not complete a Board Performance Evaluation in the reporting period, neither for the Board nor the Committees. The Institute does however intend to have one done for the financial year 2023/2024.

ALUMINIUM INDUSTRY REVIEW

THE INTERNATIONAL ECONOMY

At the onset of 2022 the global economy was poised for robust, albeit divergent recovery from the COVID-19 pandemic. Global GDP had seen an impressive rise of 6.3% in 2021, demonstrating a resilient rebound from the negative 3.1% impact the pandemic had in 2020. This positive momentum persisted into January 2022. However, China's economic performance, new strains of the Covid-19 virus, Russia's invasion into the Ukraine and the trajectory of that conflict, sanctions against Russia, and a faster-than-anticipated Fed tightening policy all posed threats to the growth landscape. Consequently, the global economy lost momentum with growth declining from 6.3% in 2021 to 3.4% in 2022.

Growth in advanced economies slowed from 5.4% in 2021 to 2.7% in 2022 with most of the downturns mainly in the US and European economies. The United States experienced GDP growth of 2.1% in 2022, marking a deceleration from the 5.9% increase in 2021. This shift denotes the economy's return to a more typical growth rate after the disruptions caused by the pandemic in the previous two years. Growth was driven primarily by consumer spending, exports, and investments, despite decreases in residential investments and Federal spending. The downturn in growth in the Euro Area was less pronounced in comparison to the US. GDP in the Euro Bloc gained by 3.5%, down from its increase of 5.4% in 2021. Despite the harsh effects of the Russia/Ukraine war and consequent economic sanctions on trade, The Euro Area demonstrated exceptional economic resilience in 2022. Major budgetary support measures, nearing 1.3% of the European Union's GDP, were implemented to aid households and enterprises amid the energy crisis. Member states expanded notably by varying degrees. Italy and Spain achieved corresponding growth rates of 3.7% and

5.5% in 2022 after benefiting from a revival in tourism and industrial production. Conversely, France and Germany saw slower growth with rates dropping to 2.6% and 1.8% from 6.8% and 2.6% in 2021, respectively.

The UK posted slower growth of 4.0% in 2022, after expanding by 7.6% in 2021. This has primarily stemmed from escalating inflation, which eroded consumer purchasing capacity as well as from rigorous monetary policies that affected both consumer spending and business investments. Meanwhile the Japanese economy grew by 1.1%, down from 2.1% growth in 2021.

Emerging market economies also experienced downswings in growth, although not as severe as in developed regions. In 2022, GDP growth in emerging market economies declined to 4.0%, contrasting with 6.9% growth in 2021. Pandemic-related factors significantly hampered China's economy, causing a substantial plunge in manufacturing capacity. These issues affected both China and its global trading partners by reducing demand for foreign exports and prolonging supply chain issues, thereby maintaining high global inflation. China expanded by just 3.0% in 2022 after experiencing growth of 8.4% the previous year. Notably, India demonstrated robust growth of 6.8% in 2022, though this was lower than the 9.1% experienced in 2021. Russia, Brazil, and South Africa exhibited less optimistic growth rates. Russia, after a strong 5.6% growth in 2021, experienced negative growth (-2.1%) in 2022. The contraction was largely due to the heavy sanctions and war costs from its Ukraine invasion, worsened by labour shortages due to mobilization and a significant population exodus. Meanwhile, Brazil and South Africa's GDP in 2022 grew by 2.9% and 2.0% in that order, down from 5.0% and 4.9% in 2021, respectively. (See Table 5 for GDP rates from selected economies).



TABLE 5
OVERVIEW OF GDP FOR SELECTED ECONOMIES

Economy	2021 (y-o-y % change)	2022 (y-o-y % change)	2023 Projec- tion %)	2024 (Projection %)
World Output	6.3	3.4	2.8	3.0
Advanced Economies	5.4	2.7	1.3	1.4
United States	5.9	2.1	1.6	1.1
Euro Area	5.4	3.5	0.8	1.4
Japan	2.1	1.1	1.3	1.0
United Kingdom	7.6	4.0	-0.3	1.0
Emerging & Developing Markets	6.9	4.0	3.9	4.2
China	8.4	3.0	5.2	4.5
India	9.1	6.8	5.9	6.3
Russia	5.6	-2.1	0.7	1.3
Brazil	5.0	2.9	0.9	1.5
South Africa	4.9	2.0	0.1	1.8

Source: IMF: World Economic Outlook Update, April 2023

Economic Outlook for 2023

The outlook is for the world economy to continue its recovery from the pandemic and the Russia/Ukrainian conflict. Much of this recovery is expected to be underpinned by the strong resurgence in China's economy along with the easing of supply chain issues and the resolution of war induced energy and food market dislocations. Moreover, the widespread coordinated monetary policy tightening by many central banks is starting to have some positive effect on bringing inflation in alignment with set targets. In fact, global inflation is poised to decrease, albeit at a slower pace than initially anticipated, from 8.7% in 2022 to 7% this year, and further to 4.9% next year. Nonetheless, the economic outlook is laden with downside risks,

including uncertainties related to financial stability which have surfaced. As a result, the International Monetary Fund (IMF) in its April 2023 issue of the World Economic Outlook (WEO), predicts a dip in global growth to 2.8% in 2023 before a slight increase to 3.0% in 2024. Risks to the forecasted scenario include recession fears, high inflation, potential banking system disruptions, larger than anticipated impacts from central bank rate hikes, and high debt distress in emerging economies. Further threats are China's shaky recovery, the escalation of the Russia/Ukraine conflict, and geopolitical fragmentation. However, the global economy might show greater resilience than projected, possibly experiencing a surge in consumption owing to accumulated savings and thriving labor markets.



Growth in advanced economies is expected to fall to 1.3% in 2023 and then up to 1.4% in 2024. This downturn will affect about 90% of these economies. Accompanying this decline, average unemployment is projected to increase by 0.5 percentage points from 2022 to 2024. The news in the US and the Euro Area was not very upbeat, with US growth slowing considerably to 1.3% quarter-on-quarter in Q1 2023, somewhat of a presage of weak growth persisting throughout the year. Growth was led by consumer spending, which was facilitated by exports, government spending, and non-residential business investment. The US is expected to see growth slow to 1.6% in 2023 and further to 1.1% in 2024, and with the euro zone falling into technical recession after contracting by 0.1% in the same period. The Euro Area meanwhile fell into a technical recession after contracting by 0.1% in the three months to March. Among the bloc's biggest economies, the Gross Domestic Product (GDP) contracted in Germany (-0.3%) and the Netherlands (-0.7%) while the expansion was recorded for France (0.2%), Italy (0.6%), and Spain (0.5%). The poor showing in GDP resulted from decreased household expenditure weighed down by high inflation and borrowing costs. Additionally, public spending declined by 1.6% (vs +0.8%), as governments roll back stimulus that were meant to partly offset the impact of rising energy costs. The Euro Area is forecasted to expand by a mere 0.8% in 2023, and then to improve to 1.4% growth in 2024. For other major economies like the UK, a contraction of 0.3% is projected for 2023 followed by slight growth of 1.0% in 2024. Looking ahead, the UK the economy is expected to motor along throughout the rest of the year. The momentum will remain subdued, however, as still-high inflation and tight financial conditions will continue to press the brakes on growth. Meanwhile, it is anticipated that the Japanese economy will increase by 1.3% in the reporting year and then see growth of 1.0% in 2024.

Economic forecasts for emerging markets and developing economies are generally more promising than for advanced economies, though these prospects significantly vary across regions. The IMF projects growth of 3.9% in 2023 and 4.2% in 2024. Despite previous contractions, recent data indicates the Russian economy is now shrinking at a slower

annual rate in Q1 2023, with a significant 3.3% annual growth in April - the first since February 2022. This is primarily attributed to increases in retail sales and industrial output, with support from a tight labor market and fiscal spending likely bolstering overall consumption. Purchasing Managers' Index (PMI) data suggests further expansion in May, demonstrating the economy's resilience to international sanctions. Meanwhile, focus is shifting towards the anticipated Ukrainian counteroffensive, which could critically influence the conflict's resolution. The Russian economy is expected to expand by 0.7% in 2023 and then by 1.3% the following year. Meanwhile, Brazil is anticipated to register growth of 0.9% in 2023 and 1.5% in 2024. The Indian economy is expected to grow 5.9% in 2023 and 6.3% in 2024. It is anticipated that China will grow by 5.2% in 2023 and 4.5% in 2024. That said, recent data showed the recovery remains uneven, with consumption, services, and infrastructure spending perking up but slowing inflation and soaring bank savings raising doubts about demand. Meantime, the central bank cut lenders' reserve requirements for the first time this year in March while Beijing pledged to launch more fiscal stimulus.

GLOBAL ALUMINIUM MARKET

Following a year of strong recovery post the COVID-19 pandemic, World primary aluminium consumption in 2022 was almost unchanged from 2021 at 68 million tonnes, undercutting world production of 69 million tonnes to create a market surplus of 1 million tonnes. Over this period, consumption in China, the world's largest primary aluminium consuming country, rose by 2.3% year-on-year. A rise in the use of aluminium in China's automotive sector (helped by the Chinese government's stimulus package) contributed to a jump in Chinese aluminium demand in 2022. Over this period, world primary aluminium consumption excluding China also grew in the United States (up 6.2% year-on-year), India (up 22% year-on-year), and South Korea (up 1.5% year-on-year). The growth in primary aluminium consumption partly reflects increased aluminium use in new, energy efficient car models. However, European consumption was hit by the impact of the Russian invasion of Ukraine, including rising energy and

vehicle fuel costs in 2022. Vehicle sales in Europe fell by 9.9% year-on-year (to 12.5 million units), reducing aluminium demand. Over this period, demand for aluminium in Spain and France fell by 40% and 5.9% year-on-year to 483,000 and 620,000 tonnes, respectively.

World primary aluminium output in 2022 increased by 1.8% year-on-year. This was propelled by higher output from China — the world's largest primary aluminium producer — which rose by 4.0%. China's primary aluminium producers raised output in response to the removal of power restrictions and improved power supply in the second half of 2022. Meanwhile, aluminium production in the World Excluding China also increased as amongst other major producers, primary aluminium output in the United Arab Emirates (UAE) increased by 9.6% year-on-year in 2022, driven by the commission of new reduction cells at Emirates Global Aluminium's AlTaweelah aluminium smelter. Production also rose in Iran by 25% year-on-year, driven by the ramp up of production at the 1.0 million tonnes per year SALCO aluminium smelter.

Aluminium prices continued its strong run in 2022 as the London Metal Exchange (LME) spot price for aluminium averaged \$2699/mt (in real terms), a 9% rise year-on-year from its previous \$2475/mt. The LME (3-Mth) price started the year at \$3000/mt and saw a significant surge in Q1 reaching a 34-year high of US\$3,985 a tonne on 7 March 2022, as the market reacted to the Russian invasion of Ukraine. However, rising concerns over COVID lockdowns in China, and the impact of rising interest rates, then saw prices fall sharply over the rest of 2022 before eventually closing in December at roughly \$2,428/mt. The LME aluminium 3-month price, to which the bauxite levy is indexed, averaged US\$2,708 in 2022, up 9% from the US\$2,483 per tonne in 2021.

Demand for primary aluminium in 2023 is expected to be primarily driven by China, as the reopening of China's economy lifts demand for primary aluminium. As a result, global primary aluminium consumption is forecast to increase by 2.2% in 2023, to nearly 70 million tonnes. Beyond 2023, world primary aluminium consumption is projected

to grow at an annual average rate of 2.1% to nearly 78 million tonnes by 2028. A significant driver of aluminium demand is expected to come from world automakers, seeking to reduce vehicle weight by increasing the use of aluminium — which is 10-40% lighter than steel. Electric vehicle makers are particularly focused on reducing vehicle weight, since it impacts heavily on the recharging range.

World primary aluminium output is forecast to grow by 3.7% year-on-year to nearly 71 million tonnes in 2023. The gain is expected to be driven by production ramp-up in China and India, as well as the restart of idled capacity in Europe. China's primary aluminium output is forecast to reach 42 million tonnes by 2023, up 4.0% year-on-year. Outside of China, primary aluminium production in India is forecast to increase by 5.0% year-on-year to reach 4.3 million tonnes in 2023. After 2023, world primary aluminium production is projected to rise by 1.8% a year over the outlook period, reaching 77 million tonnes by 2028. The gains will be driven by China, as more output is produced from greenfield aluminium smelters. China's primary aluminium production is projected to reach nearly 45 million tonnes by 2028. This is edging closer to the capacity cap of 45 million tonnes per year, a policy introduced by the Chinese Government in 2017, in response to environmental and oversupply concerns. As China edges closer to its primary aluminium capacity cap, other primary aluminium producing nations — such as India, Canada, Brazil and the UAE — will get the chance to fill any market gaps that develop.

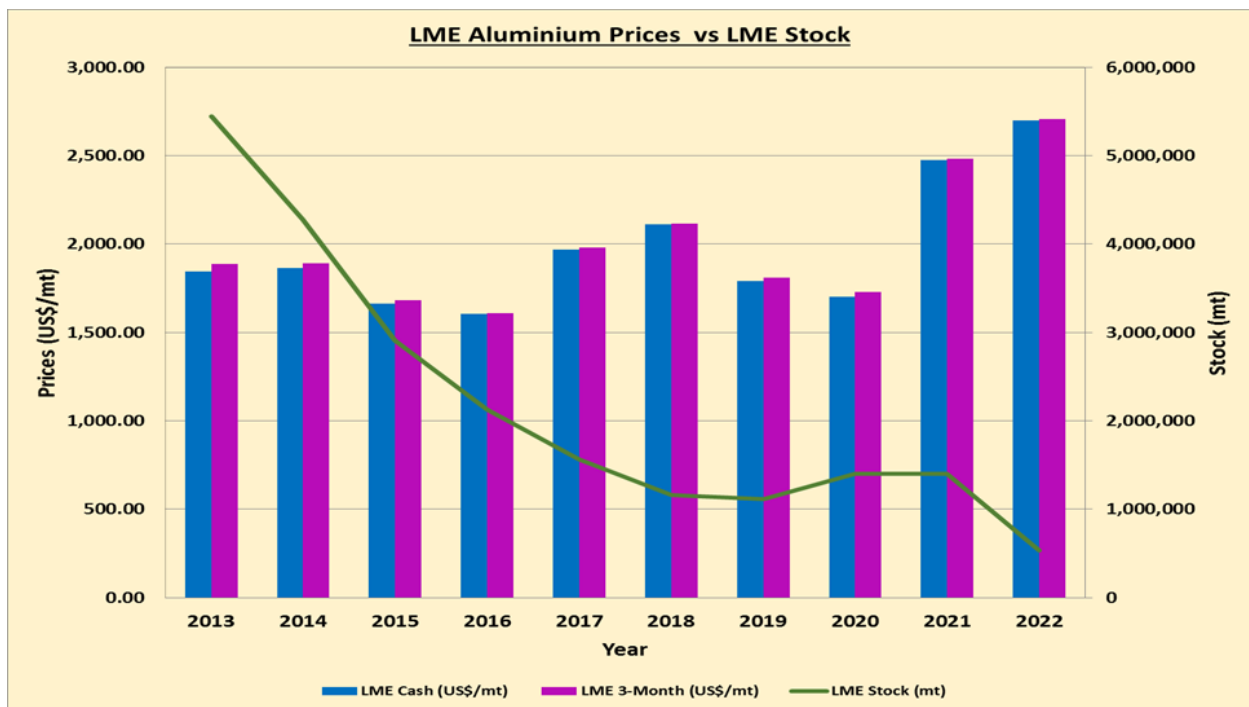
For Q1 2023, the LME 3-month aluminium price averaged \$2437/mt which reflects a 25% decrease from Q1 2022. Aluminium prices increased 3 percent in 2023Q1 from the previous quarter. The price gains in early January were driven by optimistic expectations for China's reopening amid falling inventories. Since then, however, a seasonal dip in China's demand and rising inventories have reversed the earlier price pressure. At the time of writing in June 2023, the LME 3-month price had gradually declined and currently averaged \$2,270/mt. Demand in China is expected to grow moderately through the rest of this year, while

consumption elsewhere is expected to be flat or declining as economies slow in Europe and North America. Some of China’s largest aluminum smelters faced hydroelectric power shortages due to drought, which resulted in production cuts, notably in the large producing province of Yunnan. A recovery in production, as temporary bottlenecks are resolved, is expected to lower aluminum prices by 11 percent in 2023 (*see Figure 2 for aluminium price movements*).

THE GLOBAL MARKET FOR ALUMINA

In 2022, both world alumina production and consumption levels experienced an increase with respect to the levels recorded previously in 2021. Global alumina supply rose by 7.4% year-on-year to 152 million tonnes in 2022, driven by higher output in

China. Production in China rose by 5.9% year-on-year, as Chinese refiners raised output to accommodate higher aluminium production. Observing world production excluding China, Indonesia’s alumina output rose by 71% year-on-year in 2022, propelled by production ramp-up at the 300,000 tonnes a year Tayan alumina refinery. Alumina production in Australia — the world’s second largest alumina producer — fell by 5.4% in 2022, due to lower production at Rio Tinto’s Yarwun refinery. Meanwhile, World alumina usage increased by 2.3% year-on-year to 134 million tonnes in 2022, driven by higher global aluminium production. China remained the world’s largest alumina consumer, accounting for 59% of global alumina consumption, and contributed most to this increase (up 4.4% year-on-year). Outside of China, alumina consumption in India and the UAE rose by 4.8% and 12% year-on-year in 2022, respectively.



Source: JBI, Economics Division

Figure 2: LME Aluminium Prices vs LME Stock



Alumina prices continued its high trajectory in 2022. Having broken the US\$300/mt barrier the previous year, the free on board (FOB) Australian alumina remained well above the barrier and grew by 10% year-on-year to US\$361 a tonne (in real terms) in 2022. The growth was driven by higher alumina demand, as world aluminium output rose by 1.8% in 2022. The CRU's Alumina Price Index (API) averaged US\$388 per tonne for the year 2022, up 9.5% from the US\$354.87 tabulated in 2021 (see *Figure 3 for alumina price trends*). The alumina price

was equivalent to 13.3% when expressed as a share of the LME aluminium 3-month, remaining unchanged when compared to the 2021 ratio.

World alumina output is forecast to grow by 3.2% year-on-year to 157 million tonnes in 2023, driven by rising output from new/existing refineries in China, Australia, Brazil and India. Australian output is forecast to rise by 5.9% year-on-year to nearly 21 million tonnes in 2023, driven by improved operating performance by alumina refineries. After

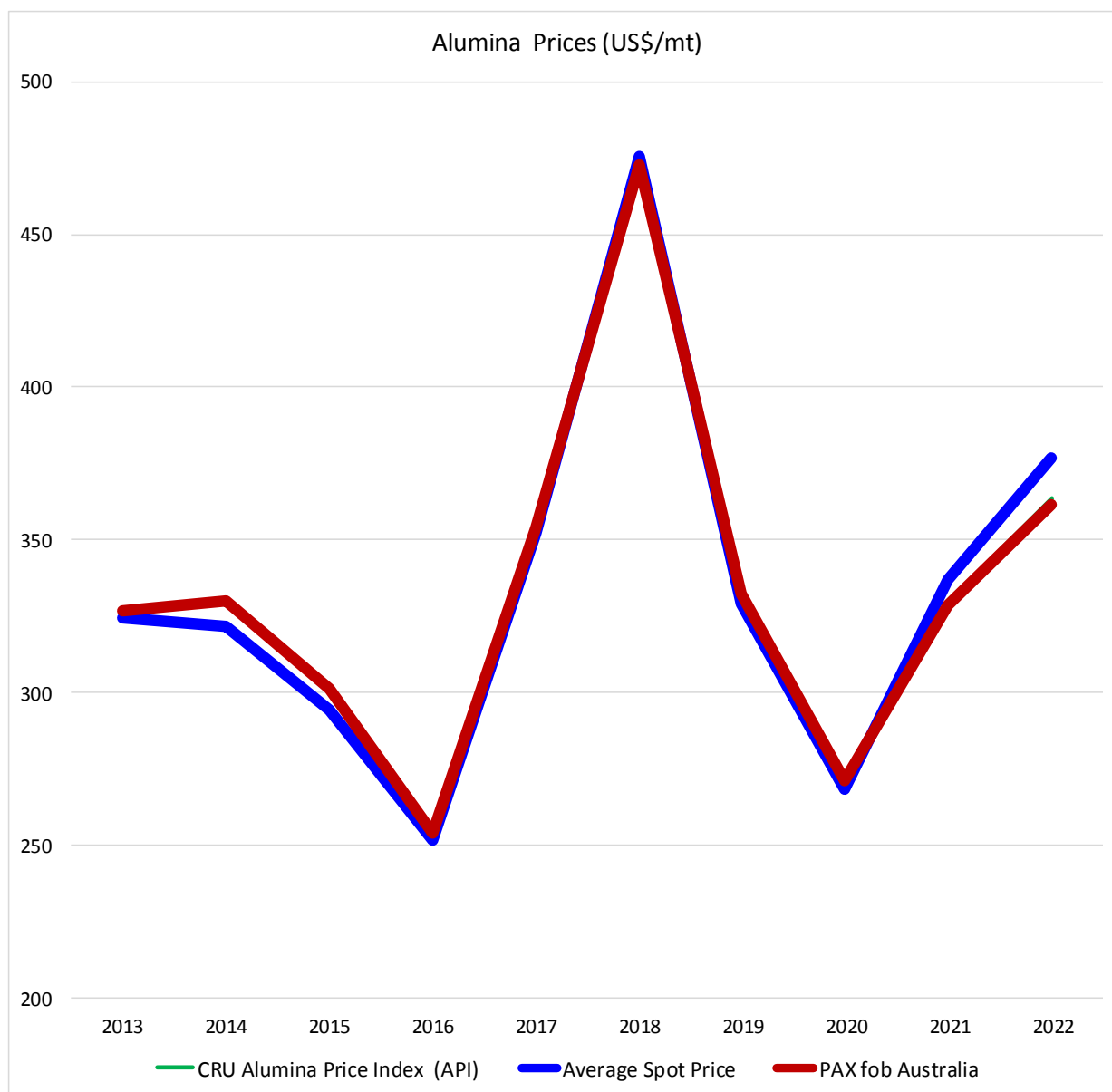


Figure 3: Alumina Price Trends



2023, world alumina output is projected to rise by 2.5% a year over the outlook period, reaching 178 million tonnes by 2028. The gains are forecast to be driven by China, Australia, India, and Indonesia.

THE BAUXITE MARKET

In regards to world bauxite consumption, usage rose by 7.4% year-on-year in 2022 to 385 million tonnes, propelled by increased global alumina production (also up by 7.4% in 2022). China remained the world's largest bauxite consuming country, accounting for 55% of global bauxite consumption. Meanwhile world bauxite production increased by 7.6% in 2022 to 396 million tonnes, propelled by higher output in Guinea — the world's second largest bauxite producer. Over this period, bauxite production in Guinea increased by 13% year-on-year to 99 million tonnes, as the ramp up of production capacity continued. Output in Australia — the world's largest bauxite producing country — decreased by 0.9% year-on-year to 102 million tonnes in 2022.

World bauxite output is forecast to grow by 2.4% year-on-year to 405 million tonnes in 2023. The gains are expected to be driven by the ramp up of new capacity in Guinea, where output is forecast to increase by 5.9% year-on-year in 2023 to 105 million tonnes. Indonesian production is forecast to fall by 33% in 2023, as the bauxite export ban - scheduled to start in June 2023 - will have an impact on the country's bauxite production. Production at the Tayan bauxite operation and the Ketapang bauxite

operation are forecast to fall by 79% and 33% year-on-year in 2023 to 0.7 and 7.2 million tonnes, respectively.

INVESTOR COMPANY PERFORMANCE

As illustrated in Table 6, UC Rusal reported a 16.5% increase in revenue, rising from US\$11,994 million in 2021 to US\$13,974 million in 2022. However, its net income saw a significant decline of 44.4%, falling from US\$3,225 million in 2021 to \$1,793 million in 2022. Rusal's aluminium production during 2022 accounted for approximately 5.6% of world output, while its alumina production represented roughly 4.5% of global output. The company's worldwide aluminium operations consist of eleven aluminium smelters, nine alumina refineries and seven bauxite mines.

Meanwhile, during the nine-month period which ended September 30, 2022, Noble Group Holdings Limited experienced a sharp decline in revenue by 87.2%, plummeting from US\$281 million in 2021 to just US\$36 million in 2022. The Group also saw a 44.8% increase in its net loss for the nine months ended on 30 September of 2022. It expanded from a US\$67 million loss in 2021 to a deeper loss of US\$97 million (see Table 6). The industry's remaining investors include Atlantic Alumina, proprietors of Discovery Bauxite Limited, and Jiuquan Iron & Steel Company Limited (JISCO), the owners of the currently

TABLE 6

REVENUE & NET INCOME/LOSS (US\$m)

	REVENUE			NET INCOME/LOSS		
	2021	2022	% Chg	2021	2022	% Chg
UC Rusal	11,994.0	13,974.0	16.5	3,225.0	1,793.0	-44.4
*Noble Group Holdings Limited	281.0	36.0	-87.2	(67.0)	(97.0)	44.8

* Financial results for Noble Group Holdings Limited are for the nine months ended 30 September 2021 and 2022.

Source: JBI, Economics Division



inactive Alpart plant. Additionally, an important update to the investor profile for the industry is Century Aluminium's acquisition of Noble Group Holding's 55% stake in Jamalco. The deal was set to close by April 2023.

ENERGY PRICES

Oil prices were boosted significantly in 2022 due to geopolitical tensions with Russia, peaking with its invasion of Ukraine early that year. The first half of 2022 saw a significant rise in crude oil prices as the Russia/Ukraine conflict fueled supply concerns as it coincided with a steady decrease in oil inventories from a resurgence in economic activity following pandemic-related easing. However, fears of an economic downturn reduced oil demand concerns leading to a general decline in prices in the second half of the year. In 2022, the OPEC Reference Basket averaged US\$99.9/bbl representing a 43.4% increase from 2021. Meanwhile, Brent and WTI-Cushing crude benchmarks rose year over year by 42.6% and 39.4% to average US\$100.8/bbl and US\$94.8/bbl, respectively.

The World Bank in its April 2023 Commodity Markets Outlook expects Brent crude's average price is expected to dip to \$84/bbl in 2023 from \$100/bbl in 2022 due to slower growth in developed economies. China's economic revival will boost oil demand until 2024, setting an oil consumption record of 101.9 mb/d in 2023, spurred by travel sector resurgence and China's rebound, despite slower growth outside Asia. Oil price risks range from China's recovery pace, potential underproduction, unforeseen Russian exports, global slowdown, to prolonged inflation. These risks may be balanced by strategic oil reserve refilling, although it's a lengthy process. Meanwhile, The Energy Information Administration (EIA) in its June 2023 Short Term Energy Outlook expects that in the wake of OPEC+'s announcement on June 4 to prolong crude oil production cuts till 2024, there will be a minor decrease in global oil inventories for the next five

quarters. It is therefore anticipated that this reduction will exert upward pressure on crude oil prices, especially towards the end of 2023 and the beginning of 2024.

THE LOCAL BAUXITE/ALUMINA SECTOR

The domestic industry saw notable declines in both bauxite and alumina production and exports in 2022. Part of this downturn was a result of operational challenges caused by equipment malfunction at the Windalco refinery, which impeded production for several months. However, the more significant element was the cessation of operations at the Jamalco refinery due to the fire that extensively damaged its powerhouse in the latter half of August 2021. The refinery recommenced production and resumed exports in July and September 2022, respectively. This considerable delay had a profound impact on the industry's total output and performance for the year.

The total bauxite produced in 2022 was approximately 4.35 million dry metric tonnes (DMT) tonnes, representing a significant reduction of 27.1% from the roughly 5.96 million DMT recorded in 2021. The amount of bauxite disposed of also decreased by 26.8%, falling from about 6.1 million DMT in 2021 to nearly 4.47 million DMT in 2022. The production of crude bauxite followed a similar trend, decreasing by 4.5% to just over 2.49 million DMT in the review year from approximately 2.61 million DMT in 2021. Correspondingly, crude bauxite exports amounted to roughly 2.48 million DMT, down by 4.6% from the slightly more than 2.6 million DMT generated in 2021.

Alumina production was particularly affected as the local industry refined just over 634 thousand tonnes of alumina in 2022. This equates to approximately 17% capacity utilisation rate and a decline in output of 45.3% relative to 2021. Exports of alumina were also down substantially



by 44.6% from roughly 1.21 thousand tonnes in 2021 to around 672 thousand tonnes in 2022. However, it was not all bad news for the industry. Capital expenditure saw an increase of around 19.8% from approximately US\$23.2 million in 2021 to roughly US\$27.8 million in 2022.

Despite higher bauxite and alumina prices, Jamaica's gross export value in 2022 decreased by approximately 30.4% to about US\$327.86 million from near US\$470.73 million the previous

year. This largely resulted from decreased crude bauxite and alumina exports. The sector's total inflows, which include local cost inflows and royalties, also plummeted from roughly US\$266.33 million in 2021 to about US\$114.36 million in 2022, which equated to a reduction of approximately 57.1 percent. This led to a reduced retention rate of 34.9% in 2022, significantly lower than the 56.6% reported in the previous year (See *Table 7 for details*).

TABLE 7

JAMAICA: PRODUCTION, EXPORT & EARNINGS

BAUXITE/ALUMINA	2022 (P)	2021 (R)	% CHANGE
Total Bauxite Produced ('000 mt)	4,345.1	5,962.3	-27.1
Total Bauxite disposed of ('000 mt)	4,466.8	6,100.2	-26.8
Crude Bauxite Production ('000 mt)	2,496.2	2,614.7	-4.5
Crude Bauxite Export ('000 mt)	2,484.0	2,603.9	-4.6
Alumina Production ('000 mt)	634.1	1,158.5	-45.3
Alumina Export ('000 mt)	672.2	1,214.1	-44.6
Capital Exp. (\$'000)	27,805.5	23,208.5	19.8
Bx Levy (US\$'000)	0.0	0.0	-
**Bauxite Levy Legacy Payment	0.0	0.0	-
Minimal Profit Sharing Payment @US\$1.50/mt (US\$'000)	0.0	0.0	-
Balance of Profit Sharing Payment @17½% (US\$'000)	0.0	0.0	-
Total Profit Sharing Payment (US\$'000)	0.0	0.0	-
Income Tax (US\$'000)	0.0	0.0	-
Local Costs Inflows (\$'000)	111,921.9	263,427.5	-57.5
Royalties (US\$'000)	2,439.3	2,897.9	-15.8
TOTAL Inflows (\$'000)	114,361.2	266,325.3	-57.1
Export Value (\$'000)	327,862.1	470,728.9	-30.4
Retention Rate (%)	34.9%	56.6%	

Notes: 1. Royalty total for 2020 was revised due to late payments ;

2. (p) - Provisional; * - Revised figure

Source: JBI, Economics Division



PROSPECTS FOR THE SECTOR

The sector's near to medium-term outlook appears subdued due to emerging global and local challenges. Even though the 2023 forecast for aluminium demand is positive with an expected 3.7% growth, the possibilities of high inflation and an ongoing recession risk may limit this growth. The year is also likely to be marked by lingering issues, such as geopolitical tensions and energy crises.

The conflict between Russia and Ukraine continues to trigger considerable unease and ambiguity regarding the potential mid- and long-term consequences of sanctions on Russia and Russian companies, including UC Rusal and Winalco. The increased costs of raw materials such as energy and caustic soda are expected to escalate production costs for bauxite and alumina. However, higher global demand might boost bauxite, alumina and

aluminum prices, counteracting some of the negatives of these production expenses.

On a positive note, the Jamalco refinery is ramping up production, which is nearing pre-fire levels. Further, Century Aluminium's acquisition of the 55% stake in Jamalco, previously held by Noble Group Holdings, is anticipated to bring considerable advantages to the refinery. The company has extensive industry experience therefore its expertise and technical assistance could result in enhanced operational efficiencies.

Against this background, it is projected that total bauxite production will amount to roughly 5.4 million tonnes in 2023. Assuming a modest price rise for bauxite and alumina from 2022, the total value of crude bauxite and alumina exports could reach an estimated US\$677.0 million.

SENIOR EXECUTIVE COMPENSATION

Names of Senior Executives	Position of Senior Executive	Salary (\$)	Gratuity or Performance Incentive (\$)	Travelling Allowance or Value of Assignment of Motor Vehicle (\$)	Pension or Other Retirement Benefits (\$)	Other Allowances (\$)	Non-Cash Benefits (\$)	Total (\$)
Stevie Barnett <i>until September 2022</i>	GENERAL MANAGER	3,640,943.57	1,224,290.00	420,993.44	N.A.	89,189.42		5,375,416.43
Yolanda Drakopoulos	SNR. DIRECTOR BAUXITE RESERVE/ ACTING GENERAL MANAGER	5,835,781.52		1,697,148.00	N.A.	122,000.04	110,413.80	7,765,343.36
Joan Thomas-Levy	DIRECTOR, ADMIN & FINANCE	4,695,192.96		1,697,148.00	44,126.60	222,000.04	81,082.35	6,739,549.95
Richard Hanson	DIRECTOR, A. S.	4,170,323.58		1,697,148.00	200,404.57	106,750.04	226,214.10	6,400,840.29
Worrell Lyew You	DIRECTOR P. M. S.	4,208,496.05		1,485,004.50	N.A.	106,750.04	155,118.85	5,955,369.44
Kemoy Lindsay	DIRECTOR B/LANDS	3,849,608.28		1,697,148.00	316,291.25	122,000.04	105,511.95	6,090,559.52

38,327,078.99

Notes

1. The General Manager is eligible to receive 25% of his annual basic salary as gratuity in lieu of pension benefits
2. Other Allowances comprised of Meal subsidy given to all staff and retro subsistence
3. Non-cash Allowances include Group Life & Health Insurance coverage
4. The Snr. Director of Bauxite Reserve salary includes leave pay

DIRECTORS' COMPENSATION

Position of Director	Fees (\$)	Motor Vehicle Up-keep/Travelling or Value of Motor Vehicle (\$)	Honoraria (\$)	All Other Compensation including Non-Cash Benefits as applicable (\$)	Total (\$)
BOARD OF DIRECTORS					
Alston Douglas - BOD	224,900.00	7,568.00	-	-	232,468.00
Angus Gordon - BOD, BCDP & AUDIT	173,000.00	75,000.00	-	-	248,000.00
Julliet Mair, BOD, BCDP & HR	82,300.00	-	-	-	82,300.00
Sharon Haywebster - BOD, BCDP, HR, PROCUREMENT & AUDIT	270,100.00	1,030.00	-	-	271,130.00
Rayhama Wright - BOD, BCDP & HR	45,500.00	-	-	-	45,500.00
Casbert Bryan - BOD, HR & FINANCE	278,100.00	73,710.00	-	-	351,810.00
Shasha Lee - BOD & BCDP	15,800.00	-	-	-	15,800.00
Kayon Whyne - BOD, HR, FINANCE & PROCUREMENT	258,400.00	241,648.00	-	-	500,048.00
Yaneke Watson - BOD	31,500.00	-	-	-	31,500.00
Nyekah Adams - BOD, CDP & HR	181,900.00	1,200.00	-	-	183,100.00
Roy Nicholson - BOD, BCDP & PROCUREMENT	126,500.00	-	-	-	126,500.00
Dameon McNally - AUDIT, BOD, FINANCE & HR	145,700.00	71,280.40	-	-	216,980.40
COMMITTEES					
Vaughn McDonald - HR & CORPORATE MEMBER	26,500.00	-	-	-	26,500.00
Gordon Hutchinson, FINANCE	5,300.00	-	-	-	5,300.00
Denis Miller - FINANCE	5,300.00	-	-	-	5,300.00
Shayne Kerr - AUDIT	5,300.00	-	-	-	5,300.00
					2,347,536.40

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