

Conference Paper

Bauxite Industries: Lesson Learn from Governance Perspective

Mohd Tamizi Mazlan, Khairil Anuar Bin Ramly @ Tamrin, and Nur Emilia Binti Abdullah Harun

Faculty of Industrial Management, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang, Pahang, Malaysia

Abstract

The mining of bauxite in Malaysia, specifically in Kuantan Pahang is in-demand industry. Over the last three years, Bauxite has become a national issue where uncontrolled handling will lead to severe impacts on the environment and the local community. It started from the dumping of bauxite by miners who have illegally and uncontrollably mine the bauxite. Thus, this paper aimed to study on good governance perspective as it is an important element in ensuring the sustainability of an organization and strengthening the direction and objectives of business activity. Failure to set effective good governance will cause the organization to be in a volatile state and will lead to fraud and breach of trust. The impact of these governance failures is huge and may cause the company or organization to be adversely affected and will cause negative perceptions from the community and stakeholders. This has led the government to set a moratorium to stop the bauxite operations. Throughout the moratorium, the Water, Land, and Natural Resources Minister revisits every single process and SOP to ensure that all rules and regulations, procedures, and laws are in full application. This paper looks at a lesson that can be learned from the episode and hopes it will serve as a guide to be the best steps to be taken to ensure that governance upheld once Bauxite activity continues.

Keywords: bauxite operations, governance

Corresponding Author:

Mohd Tamizi Mazlan
mdtamizi@ijm.com

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1. Introduction

Early 2013, started small scale bauxite mining in Balok and later expanded to Sungai Karang, Bukit Goh and Bukit Sagu. Bauxite is the raw material that is converted to the aluminum's metals. China, the country of alumina production capacity, has grown in tandem with smelter capacity in recent years. In order to meet the rapid growth of the industry, China decided to increase the import of raw material instead buy the end product of alumina from overseas countries due to the higher costs. For China, importing bauxite as raw material is more preferable since the country has its refineries and smelters to produce aluminum. Before China, import bauxite from

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Malaysia, Australia, and Indonesia was the major player exporting this mineral to China. Due to the expensive freight cost to export bauxite from Australia to China, they looking substitute for the import of bauxite where China determine Malaysia is a good position to replace Australia to be exporter for the raw material in meeting the rapid increase of this mineral in China. The demand for bauxite from Malaysia has been more increasing after the Indonesia government banned the mineral cargo ore and bauxite to China in order for the government of Indonesia to utilize the domestic of aluminum production.

Bauxite mining and export has risen dramatically since the middle of 2014. According to records in 2015, bauxite minerals have been exported by 31.0 million tones via Kuantan Port. This industry contributed to a Gross Domestic Product (GDP) growth from 0.51% in 2017. It has also contributed to the state of Pahang with a total royalty collection of RM7.7 million for 2014 and RM47.8 million for 2015.

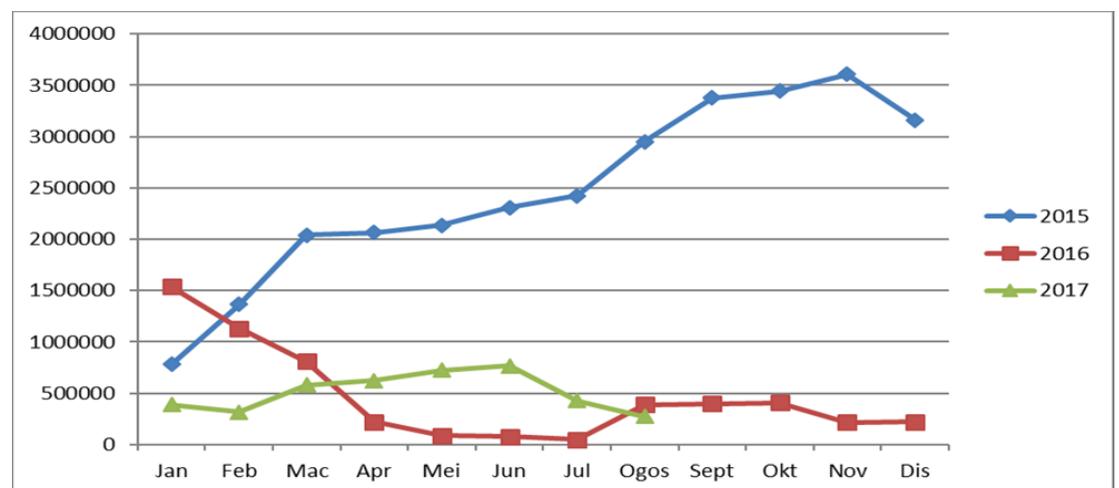


Figure 1: Bauxite Exports Through Kuantan Port (Source from Kuantan Port Authority).

Following the escalation of these activities, some issues and problems have arisen from bauxite mining and exports such as environmental pollution, road safety, and health threats to residents around bauxite mining areas. This has been exacerbated by several incidents that the Government and the public are aware of such "red sea" and a life-threatening incident caused by lorries transporting bauxite. Other effects of this bauxite effect are as follows:

- Contaminated ecosystems have the potential to produce an exposure that leads to direct effects or long-term effects on the health of the locals. Various health problems have been reported since these activities have grown. Although no detailed studies have been conducted on the special effects of bauxite on human health, all well aware of the dredging and mining activities will indeed freeze dust and dust, either from the surface and in the ground during dredging activities,

or during the transportation and transfer process from the mining site to port or collection center.

- In general, such as other mining activities, bauxite also contains dust and soil dust. This landowner can be freed not only in the air but can accumulate and attach to the road surface, clothes or vehicles used by locals. Continual or continuous exposure to soil dust and dust in general at any given time may cause cough, sore throat, eyesores, or respiratory disorders.
- Not all residents will experience these symptoms. However, the risk of these symptoms depends on the individual's current health level, which will be easy for both children and those who are already suffering from lung diseases such as 'bronchial asthma' or chronic obstructive airway disease), allergic rhinitis and rigid smokers. Excessive exposure to the content in bauxite is also said to be detrimental to the health of which the effects are the painful and reddish nose, cough, pain and redness on the skin, skin peeling and scratchiness.
- Apart from health problems and water pollution, residents in Pahang are also facing problems of infrastructure damage in residential areas resulting from bauxite mining activities. Infrastructure damage is potholes and uneven roads and non-compliance with road regulations. Since Bauxite operation commencing April 2015 to January 2016, the Pahang Road Transport Department (RTD) has recorded several cases involving bauxite transport vehicles which are overloaded by 194 cases while hazardous offenses are 915 cases.
- This bauxite transport activity has also resulted in a fatal accident involving a teacher due to the collapse of the bauxite lorry tire that was removed at Jalan Pintasan, Kuantan on 22 December 2015.

It stems from the increase and uncontrolled illegal miners. The illegal miners avoided regulated law and acted in place. They influence the settler and landowner by giving them money and thus create fast millionaire settler and landowner. The settler and landowner tend to surrender their land to the illegal miners to mines the bauxite. The illegal miners can control the transportation company to ensure the logistics transportation of cargo to the port is not affected. In 2015, the transportation of the entire country mainly focused in Kuantan, Pahang to take the opportunity to receive a high pay from the illegal miners. Irresponsible action taken by illegal miners resulted in an environmental disaster.

The Cabinet of Ministers at its meeting on 27 November 2015 has decided that the YB Minister of Natural Resources and Environment (now Water, Land, and Natural

Resources Minister) and YAB Menteri Besar of Pahang issued a joint press statement on the imposition of a moratorium on bauxite mining and export activities in Kuantan, Pahang. Also, the Ministry of Natural Resources and Environment (now the Ministry of Water, Land, and Natural Resources) was asked to make a thorough overhaul on mining legislation and mining licensing procedures and the Export License (AP). Such improved legislation and procedures need to be enforced after the moratorium expires. However, the duration of the implementation of the moratorium is subject to the compliance of the entrepreneur against the implementation of the environmental mitigation measures set by the Ministry. In this regard, the moratorium is implemented at the state level by order issued by the Mineral Director to every holder of a Bauxite Mining / Mining License under Section 7 (1) of the Mineral Development Act 1994, pursuant to the Minister's instructions to the Director-General of Mineral Resources under Section 5 the same act. The imposition of a moratorium on mining activities and extraction of bauxite in Kuantan is divided into several steps:

- Cessation of bauxite mining operations
- Disposal of bauxite stockpile within Kuantan Port area and Kemaman Port
- Cleaning and upgrading of Kuantan Port facilities
- Stockpile transfer outside the port area to a central stockpile area to be determined by the Pahang State Government

Mineral activity belongs to the several government agencies where the law, act, and policies are already established. The mining industry falls under the purview of the Natural Resource & Environment Ministry (NRE). Anyhow as mining involves land, State Government has the authority on the matter of land use. Therefore, the federal agencies under the purview of the NRE such as the Department of Mineral & Geoscience (DMG) and the Department of Environment (DOE) provide the applications approval in exploration/prospecting and mining which comes under the State Authority with technical inputs. In 1988 the Federal Government established a council named National Mineral Council (NMC). Its function is to coordinate mineral-related matters, between the Federal and State Governments and to oversee the overall integrated development of the mineral industry. Transportation activity falls under Road transport ministry where the function of the agency control all the commercial transportation and private. So, what happened actually? With all the activities and policies already establish, this issue should not happen, and it can be controlled. In this paper, will discuss how the lacks of the governance and integrity both agencies government and bauxite player contribute to the failure in handling the Bauxite industry.

The objective of this paper to understand what factor contributes to the failure of the Bauxite industry from governance of view. It is not the intention of this paper to blame the agencies or player of the industry but would like to understand to enhance the process itself to ensure the sustainability of the industry. Good governance will help the agencies to be more effective and productive in enforcement, control, and monitoring of the bauxite activity.

2. What is Bauxite?

It is an amorphous, clayey rock containing aluminum hydroxide which is the ore for the metal that we know of as aluminum. It consists of mostly hydrated alumina with proportions of other material such as iron oxides. Bauxite does not have any specific composition. The combination of materials mainly of hydrous aluminum oxides, aluminum hydroxides, clay minerals, and insoluble materials, namely quartz, hematite, magnetite, siderite, and goethite. The high concentration of bauxite gives the red color characteristic; hence, it is commonly referred to as “red mud.” The word Bauxite originated in 1821 by a French geologist Pierre Berthier who discovered bauxite near the village of Les Baux in Provence, southern France. Bauxite is a naturally occurring, heterogeneous material comprised primarily of one or more aluminum hydroxide minerals plus various mixtures of silica, iron oxide, titania, alumina silicate and other impurities in trace amounts.

For many years, the largest producer of bauxite in Australia, followed by China. Starting in 2017, China has become the top producer of aluminum with almost half of the world’s production, followed by Russia, Canada, and India. Even though aluminum demand is rapidly increasing, known reserves of its bauxite ore are sufficient to meet the worldwide demands for aluminum for many centuries, on top of that, increased recycling activity of aluminum, which has the advantage of lowering the cost in electric power in producing aluminum, will considerably extend the world’s bauxite reserves.

Usually, bauxite is a strip-mined and founded close to the surface of the terrain, what this means that mining activity is relatively simple, which does not require good deep mining. As of 2010, approximately 70% to 80% of the world’s dry bauxite production is processed first into alumina and then into aluminum by a method called electrolysis.

The need for a light but durable metal such as Aluminum had driven to the demand increase for raw material (Bauxite) from thriving global manufacturing sector; consequently, the mining industry in Pahang is seeing a revival from its sunset days of Tin mining many years ago. However, this is not without several transformations that need to

be done for us to see shifts to create a more sustainable industry. To be a sustainable business for the next in 20 – 30 years, those involved need to take action due to driving sustainable growth. This is true because these are non-renewable resources. In combination with consumer demand, the right actions are required for us to balance the economic, social, and environmental impact.

To meet the ever-increasing demands of modern society, mineral production in Malaysia is continuously increasing along with the scale of mining operations. The wealth creation for resource-rich nations, minerals could be one of the potential resources and mining still the primary method of extraction. As for Malaysia, the mining sector has a huge potential to generate income and create more employment opportunity with the mining and quarrying sector as contributing large allocation of our Gross National Product. Due to avoid environmental degradation, adversely affecting societal well-being, the mining activity needs to manage properly.

In 2009, the Second Mineral Policy (NMP2) introduced the discipline on environmental stewardship due to ensure the nation's mining sector is developed in a responsible, sustainable manner and environmentally sound.

Regarding sustainability, the government must ensure the environmental friendly applied in bauxite operation by utilizing the bauxite residue. According to C.Klauber 2011, utilization is taking the residue in some nonhazardous form (as a by-product) from the alumina refinery site and using it as a feedstock for another distinct application. The residue utilization may avoid minerals wastage. However, the volume, performance, cost, and risk influence inaction residue management.

3. Mineral Act in Malaysia and State

There is a few relevant legislation that is related to the mining of mineral in Malaysia. By jurisdiction, any activities that relate to mineral are governed by the Mineral Development Act, 1994 and the State Mineral Enactment (SME). In the Mineral Development Act 1994, provision of power has been given to the Federal Government for inspection and regulation of mineral exploration and mining and other related matters.

Bauxite in Kuantan is being mined or excavated through two permitted activities, one through a mining permit issued by the Pejabat Tanah & Galian (PTG) Pahang with inputs from Jabatan Mineral & Geosains (JMG) Pahang, and the other is through a permit for excavation of laterite soil issued by the Pejabat Daerah dan Tanah Kuantan.

In order to capitalize on the country's mineral resources, the Federal Government has formulated the National Mineral Policy 2 (NMP2) in 2009. NMP2 has provided the

foundation for the development of an effective, efficient, and competitive regulatory environment for the mineral sector. The thrust of the policy is to expand and diversify the mineral sector through optimal exploration, extraction, and utilization of resources using modern technology supported by Research and Development (R&D).

The salient features of NMP2 are the provisions for the security of tenure, high land-use priority for mining, uniform, and efficient institutional framework, and regulations and guidelines for mining. Under NMP2, the emphasis has been given to rehabilitation, environmental protection, sustainable development, and the management of social impact.

The environmental aspects of mines are regulated by the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987, which is the subsidiary legislation to the (Environmental Quality Act, 1974). Under this Order, mining of minerals in new areas where the mining lease covers a total area larger than 250 hectares is a prescribed activity and requires an approved Environmental Impact Assessment report by the Department of Environment.

3.1. The mineral development act 1994

Under the Mineral Development Act 1994 Section 63 (2), provision has been made for the Minister-in-charge of mining to regulate matters related to environmental protection and safety. The Mineral Development (Operational Mining Scheme, Plans and Record Books) Regulation 2007 were enacted to deal with information or proposal of mining scheme which includes environmental protection measures, monitoring, and contingency plans and progressive rehabilitation and post mine closure. More regulations related to environmental and safety such as Mine Effluents (ME) Regulations and the Safety in Surface Mines and Exploration (SSME) Regulations have been planned in different stages to provide more comprehensive enforcement in mining industry.

3.2. Mining activities

Bauxite mining activities in Kuantan started in 2013 and were not subject to Environmental Quality (Prescribed Activities) (EIA) Order 1987 since it is not categorized as a prescribed activity. Under the EIA Order 1987, only the mining of minerals in new areas where the mining lease covers a total area in excess of 250 hectares is categorized as a prescribed activity. However, all the mining leases or excavation permits issued seem to be of smaller sizes. Hence, none was subjected to an EIA. According to the Mineral

Enactment 2001 for the state of Pahang, 'to mine' is defined as intentionally to win minerals and includes any operation directly and indirectly and necessary therefor or incidental thereto, and 'mining' shall be construed accordingly. In order to administrate the state mineral resources, the State Mineral Resources Committee needs to be established. In Part II Chapter 1 of the Mineral Enactment 2001, the committee shall consist of the following members:

1. A Chairman who shall be appointed by the State Authority;
2. The State Legal Advisor or his authorized representatives;
3. The Director who shall be the Secretary;
4. The Director-General of Mineral and Geoscience or his authorized representative;
The Director-General of Environmental Quality or his authorized representative;
5. The Director-General of Forestry Peninsular or his authorized representative;
6. The Director of the State Economic Planning Unit or his authorized representative;
and
7. Three other members who shall be appointed by the State Authority.

However, in practice for (d) through (g), the authorized representatives, namely, the State Directors, attend the committee meetings. The functions of the committee shall include to:

- Perform any function conferred or imposed upon under the State Mineral Enactment 2001; and
- Perform any other function as the State Authority as determined from time to time.

3.3. Penalty for mining without a valid license

According to Part XI 158, any person who conducts mining without a valid license or lease issued under the State Mineral Enactment whether or not any mineral is won shall be guilty of an offence and shall on conviction be liable to a fine of not exceeding five hundred thousand ringgit or to imprisonment for a term not exceeding ten years or both.

3.4. Penalty for failure to pay into the Mine or Common Rehabilitation Fund

Any lessee who fails to pay the amount for Mine Rehabilitation or Common Rehabilitation Fund as the case shall be liable to a fine not exceeding twice any amount outstanding or to imprisonment for a term not exceeding six months or both.

4. Lack of Governance

To understand where the non-compliance actually occurs, it is best to understand the chain of bauxite handling activities, which are as follows:

4.1. Pre-Mining

- illegal mining failed to eradicate
- there were no proper criteria on who can apply for a bauxite mining license, no requirements for those granted a license to furnish technical reports, and the absence of an open tender

4.2. Mining operation

- Missing or abuse of transit documents
- Minimized mineral transactions caused the occurrence of purchase/sale of ore from non-sources tenement by using Mineral Ore License (MOL)
- Irregular stockpile management effective cause of dust contamination and water in the surrounding area the absence of a Mining Scheme or non-compliance to the schemes to cause waste management including the discharge of irregular effluents on the site dredging

4.3. Post Mining

- Illegal and undirected transport causing spills of lorries and resulting dust pollution and dirt on the road
- Special AP Expenditure for the purpose of disposing of stockpile ineffective and open space to dumping ore obtained illegally for export

5. Source of Governance Failure

What can be translated through the above issues, it is clear that noncompliance and integrity are the main sources of governance failure.

5.1. Not updating the Standard Operating Procedure (SOP)

Standard Operating procedure (SOP) important element in ensuring the activity or work process meet the objectives set by the organization. Elements such as update act/law, procedures, or policies should implement in the SOP to ensure the sustainability of each activity does not conflict with the original goal. Through the observation of the bauxite activity, there are conflicts with the SOP of each government agency involved in managing bauxite activities start from the application for approval of the mining license until the post-mining. Not denying the act has been established, but the question is it relevant with the current bauxite operation? What about policies and procedures, is it updated according to the suitability of the activity? This factor contributes to failure in updating SOP to meet current activity. When the SOP is not fully packed, it will contribute to the failure of the employee's assessment in ensuring the validity of the bauxite activity. The multiplication of applications for bauxite mining activities adds to the pressure and failure to comply with the SOPs provided by the organization. Not surprisingly, we can see that non-compliance issues can occur that cause damage that negatively impacts the industry. Awareness and training not given by the organization to the staff contribute to the failure staff taken action and not clear their functionality.

5.2. Lack of enforcement and monitoring

Enforcement and weak monitoring contribute to the main factor of failure control in illegal mining activity. A weakness shows that increase of the illegal mining uncontrol. It is unclear why this is happening. Among the possibilities for this failure is that there is no clear guideline and policy for enforcement authorities to take action against illegal miners. Increased dramatic mining openings made it harder for authorities to take action more effectively. There is also a cooperation between license miners with illegal miners making it more difficult for enforcement. It added illegal miners using the power of influence with stakeholders to free themselves from the grip of enforcement.

5.3. Lack of communication between government agencies

Communication is an important element in ensuring process and understanding in performing the process follow the procedure and policies. Bauxite industry involved several government agencies where every agency plays its role in ensuring the activity in under control. The question is how communication between every agency to do monitoring and enforcement. The failure of this communication led to misunderstandings among agencies in enforcing more effective enforcement and observations. As an example, stockpile management involves several agencies in ensuring that miners comply with the procedure and policies. The question is how the miner's failure in complies regulation and standard given in manage the stockpile where the failure cause to the serious pollution even though it is under the control of several agencies involved. The conflict also arises in between officer from different agencies in communicating when overcoming the issue.

5.4. Lack of officer contribute to the integrity issue

MACC reported Nine Pahang Land and Mines Office (PTG) assistant enforcement officers were ordered to be remanded seven days to facilitate a probe into alleged graft linked to illegal bauxite mining in the state. The men, aged between 29 and 59, were suspected of having received bribes in order to shield bauxite miners who had contravened the existing moratorium on mining the lucrative mineral in the state. Among others involved is Customs officer whereas reported he was remanded to facilitate a probe into him allegedly receiving kickbacks to ignore the shipment of bauxite that was brought by miners to Kuantan Port to be exported overseas. Why has it happened? What are the factors that have contributed to the Integrity issue? The factor that has led to corruption are:

1. The Opportunity that is considered open wide when both parties work together to meet their requirements with risking corrupt practices as a way of making the best of every one of them, respectively.
2. The weakness of personality is a difficult problem dealt with, causing themselves to be involved in the practice of corruption. Individual weakness affects the value of itself. The result from the lack of appreciation of true values in carrying out their duties, the greediness and greed, the desire to live luxuriously and to boast, wanting to be fast rich and selfish is the driving force of corruption.

3. Inadequate procedures, regulations, and weaknesses in the implementation system solely, may cause a department exposed to treatment such as bribery, abuse, and abuse of power by officers and staff.
4. The problem of the rising cost of living and income or salary received is not worth it with a challenging current economic environment especially for them living in urban areas that require tremendous financial resources accommodating the cost of living. This problem caused some parties to be compelled to take the easy way by doing corrupt practices.

6. Recommendation

During Moratorium, Ministry of Natural Resources and Environment are required to make comprehensive improvements to mining legislation and procedures for mining license and Export License (AP). Such improved legislation and procedures need to be enforced after the moratorium expires. Ministry of Natural Resources and Environment has held a series of engagement together with various relevant ministries/departments/ agencies including a series of workshops on 4 to 6 October 2015 and 27 to 29 January 2016. The workshops are intended to review all rules, procedures, and guidelines involving mining and exporting bauxite. Besides, the ministry has drawn up the necessary improvements to make bauxite mining and export activities implemented in a sustainable and responsible manner. As a result of a series of engagement and workshops held, improvements should be made in the aspect of the bauxite operating activities chain such as follows:

- Application for Mining Rights Application
- Bauxite Mining Site Management
- Stockpile and Port Management
- Transportation and Enforcement Methods
- Bauxite Export Procedure

Transparency and accountability are an important element in ensuring the sustainability of the process and activity. The effectiveness of enhancement in engagement with all relevant agencies in updating SOP depending on how the officer implements SOP itself. In ensure there is no repeat of the corruption issue, the agencies should have adequate procedures implemented to prevent the occurrence of corrupt practices in relation to their activities. The implementation includes:

- Starting with the tone at the top of the level management that believes that integrity and ethics are important for the organization
- Practicing the highest level of integrity and ethics
- Complying fully with applicable laws and a regulatory requirement on anti-corruption
- Effectively managing the key corruption risks of the organization.

Assure internal/external stakeholders that the organization is operating in compliance with its policies and applicable regulatory requirement. The tone from the Top – Spearheading organization to improve the effectiveness of Corrupt Risks Management framework, Internal Control system, review and monitoring, and training and communication. Procedures implement such Anti-Corruption Compliance Programmed, promote a culture of Integrity, encourage the use of reporting (WB Channel), Assign a competent person in charge in AB policy, Policies for internal and external parties, result of audit, risk assessment review and control measures are reported to Top Level management.

Corruption risk assessment should form the basis of an organization's anti-corruption efforts and should conduct a corruption risk assessment periodically (3 years). To establish appropriate processes, systems, and controls approved by the top-level management to mitigate the specific corruption risks the business is exposed. Procedures the assessment may include:

- Opportunities resulting in weaknesses in organization governance framework/ internal control
- Non-compliance of external parties acting on behalf of a commercial organization
- Financial transactions that may disguise corruption payment
- Relationship with third parties in its supply chain which expose to corruption.

Undertake Control Measures- To put in place the appropriate controls and contingency measures which are reasonable and proportionate to the nature and size of the organization. Organization should establish key consideration or criteria for conducting due diligence on any relevant parties or personnel before entering into any formalized relationships. E.g., Background check, document verification process conduct an interview. The Organization's policies should be:

- Endorse by top-level Management
- Kept up-to-date

- Publicly and easily available and
- Suitable for use where and when needed

The procedure should be implemented:

- Establish an accessible and confidential trusted reporting channel
- Encourage persons to report in good faith, any suspected and attempted
- Establish a secure information management system to ensure confidentiality of WB identified
- Prohibit retaliation against those making reports in good faith

Policies and Procedures to cover the following General anti-bribery and corruption policy, Conflict of Interest, Gifts, entertainment, hospitality and travel, Donations and sponsorships, Recordkeeping for managing documentation related to adequate procedures, Managing inadequacies in monitoring framework and Financial Control.

Systematic Review, Monitoring, and Enforcement- Regular reviews are conducted to assess the performance, efficiency and effectiveness of the anti-corruption programmed and reviews may take the form of an internal audit, or an audit carried out by an external party. Procedures should be implemented:

- Plan, establish, implement and maintain monitoring programmed
- Identify the competent person(s)/establish a compliance function for auditing and other purposes
- Conduct continual evaluations and improvement on the organization's policies and procedures related to corruption
- Consider an external audit by the independent third party once every 3 years
- Monitor performance of personnel with anti-corruption policies and procedures to ensure their understanding stand
- Conduct disciplinary proceeding against personnel found to be non-compliant to the programmed.

Training and Communication where provide employees and business associates with adequate training which covers the areas of:

- Policy
- Training
- Reporting Channel

- Consequences of non-compliance

The policy should be made publicly available and communicated to all personnel and business associates. As part of Bauxite transportation create an issue to society, the recommendation to the government should

- Have a traffic management plan, developed in consultation with key stakeholders, if the transport of bauxite on public roads or through the community cannot be avoided; and
- Ensure all transport through the community includes safety training;
- Ensure that transport personnel adheres to speed restrictions and cover all vehicles appropriately.
- Assessing the impact of the mine on existing road traffic, by vehicle type and route, including the ability of the road to withstand the weight and increased intersection impact

Technologies implementation can be adopted in ensure the process more be efficient and effectiveness. Technologies adoption will be more transparency and accountability. All the agencies easy in communication and monitoring the activity in systematic, which can help prevent illegal miners manipulate the activity.

7. Conclusion

The principles of sustainable bauxite mining practices are common to the mining of other minerals and are focused on reducing impacts on biodiversity, land, and water; on promoting community engagement and on integrated rehabilitation and closure activities. Developing and integrating practices across safety, environment, economy, efficiency, and the community can also improve the sustainability of mining operations. Good governance, reduced environmental legacies, fewer safety incidents, and increased community benefits result in not only better financial outcomes and increased competitiveness, but also enhance the company, country, and industry reputation and credibility. Overcoming misalignment between the overall benefits of the activity and its local impacts remains one of the major challenges for mining, especially in less developed regions. Bauxite mining companies, through structured and innovative programs, should strive to be a catalyst for local, sustainable development.

Bauxite mine operators should assess the social, environmental, and economic impacts of their activities before the commencement of mining. Such an assessment

includes identifying affected stakeholders, the potential impacts of the planned mine, and those measures which should be applied to prevent and limit negative and maximize positive outcomes. Bauxite industries have a potential business and good profitability return to the country. All action taken hereafter should be in line with the needs of the community and the legislation. It is not wrong for the industry to re-operate as long as government agencies and mining operator bauxite ensure the governance and compliance of the policies and procedures in place.

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