

Responsible Mineral Resource Development: The Way Forward

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Abstract

This paper provides an insight to a responsible mining, whereby it is an effective application of sustainability concepts to the full mining life cycle. Responsible mining refers to advocacy to reform mining activity, as well as to a marketing strategy used by mining companies to promote their operations as environmentally or socially sound. The author explains the ASEAN principles of responsible mineral resource development, the reporting mechanism and criteria in ASEAN countries responsible mining framework.

Keywords: Mineral, mining, sustainability, reporting mechanism

1. INTRODUCTION

Responsible mining is a process or a set of principles with the effective application of sustainability concepts to the full mining life cycle. It refers to advocacy to reform mining activity, as well as to a marketing strategy used by mining companies to promote their operations as environmentally or socially sound. Sustainable mining was a term coined as the mining industry explored how to apply the new concepts of sustainability being developed for other industries and activities. It is related to resource efficiency, energy efficiency, environmental protection, improved remediation and waste disposal, as well as better community relations (Kip Jeffrey, 2002). It took many studies and reports before some sort of consensus emerged as to whether the sustainability made sense as a concept and what it encompassed. The issue is really how does or can mining contribute to Sustainable Development (SD) and how do the various pillars of SD highlight improvements required in the way mining is undertaken – mining may not be sustainable but it can and does strongly contribute to sustainable development in many countries.

2. LITERATURE REVIEW

The responsible mining framework includes sustainable development, equity, participatory decision making, accountability, precaution, efficiency and polluter responsibility. These can be help with the aid of advocates of responsible mining such as The Alliance for Responsible Mining, The Artisanal Gold Council, BioVerde, S.A., Citizens for Responsible Mining, The Framework for Responsible Mining, The Initiative for Responsible Mining Assurance, Levin Sources, The Pew Campaign for Responsible Mining and StandFIRM: Filipinos for the Institution of Responsible Mining.

Sustainable mineral resource development can benefit the Asian people, economy and environment. Sustainable development meets the needs of the present without compromising the needs of future generations. Sustainable development of mineral resources seeks to attain a balance between economic development, environmental protection, community benefits and government responsibilities. This can be realised through responsible mining and processing guided by sustainable resource development, best practices in environment management and recycling of mineral-based product.

There are four principles of Asean Responsible Mineral Resource Development which are responsible mining, responsible mineral processing, rehabilitation of mined-out areas and recycling. Responsible mining refers to developing and integrating practices that reduce the environmental impact of mining operations while responsible mineral processing is developing new technologies for ore processing that reduce the impact on environment. The rehabilitation of mined-out areas can be done by implementing successful mine closure and reclamation activities. The recycling of mineral based products could be improved to lengthen the usable life of mineral commodities and minimise non-renewable resource issues.

The implementation of sustainable mineral resource development is beneficial to the social and economic development through strong and effective legal and regulatory frameworks, policies and practices which can minimise waste and negative impacts to the communities. In addition, it can contribute to the economic and regional development, environment safeguard by developing, managing and regulating mining in a sustainable manner. It also can provide healthy environment for future generations through mining operations that minimize impact on the surrounding environment, and reclaiming mine sites for re-use by people and ecosystems.

ASEAN Minerals Cooperation Action Plan (AMCAP) is a blueprint for ASEAN minerals cooperation developed to further enhance ASEAN minerals sector dynamism. It was started in 2005 with each phase updated for every five years. The list of AMCAP phase is shown below;

- AMCAP-I (2005-2010)
- AMCAP-II (2011-2015)
- AMCAP-III (2016-2025)
 - Phase I (2016-2020)
 - Phase II (2021-2025)
- AMCAP-III Phase I (2016-2020)

In AMCAP-III Phase I (2016-2020), there are four strategic areas included such as facilitating and enhancing trade and investment in minerals, promoting environmentally and socially sustainable mineral development, strengthening institutional and human capacities in the ASEAN minerals sector and maintaining an efficient up-to-date ASEAN minerals database, including its infrastructure towards achieving AEC integration in the minerals sector.

Meanwhile, in AMCAP-III (2016-2025), strategy 2 clearly states the ASEAN's commitment to promote environmentally and socially sustainable minerals development in the region and aspires to apply the concept of sustainable development to mineral resource development and to direct mineral cooperation towards ensuring that (i) sustainable practices are undertaken at every stage of minerals development, focusing on social and environmental well-being and (ii) all mining activities are conducted sustainably, both during and after mining activities.

ASEAN minerals cooperation recognises the need to implement sustainability assessment frameworks and guidelines. It likewise recognises the need for mechanisms and processes to measure and assess the sustainability performance of the minerals sector across the various ASEAN Member States (AMS) and to demonstrate continuous improvements over the long term. Hence, ASEAN Senior Officials Meeting on Minerals (ASOMM) agreed in July 2017 to establish a Reporting Mechanism (RM) to monitor the adoption and implementation by AMS of Sustainability Assessment Frameworks and Tools (SAFT).

The RM will monitor SAFTs adopted and/ or implemented by AMS, such as (The ASEAN Secretariat, 2017):

- i) Sustainable Indicators and Indices, such as (i) Global Reporting Initiative Indicators, (ii) Commission on Sustainable Development Indicators, and (iii) Sustainable Development Indicators for the Mining and Minerals Industry.
- ii) Product-Related Sustainability Assessment Tools, such as (i) Life Cycle Assessment, and (ii) Life Cycle Costing.
- iii) Integrated Assessment Tools, such as (i) Environment Impact Assessment, and (ii) Strategic Environmental Assessment.
- iv) Other relevant legislations, rules, frameworks and guidelines.

The adopted and implemented SAFT are summarized in Figure 1.

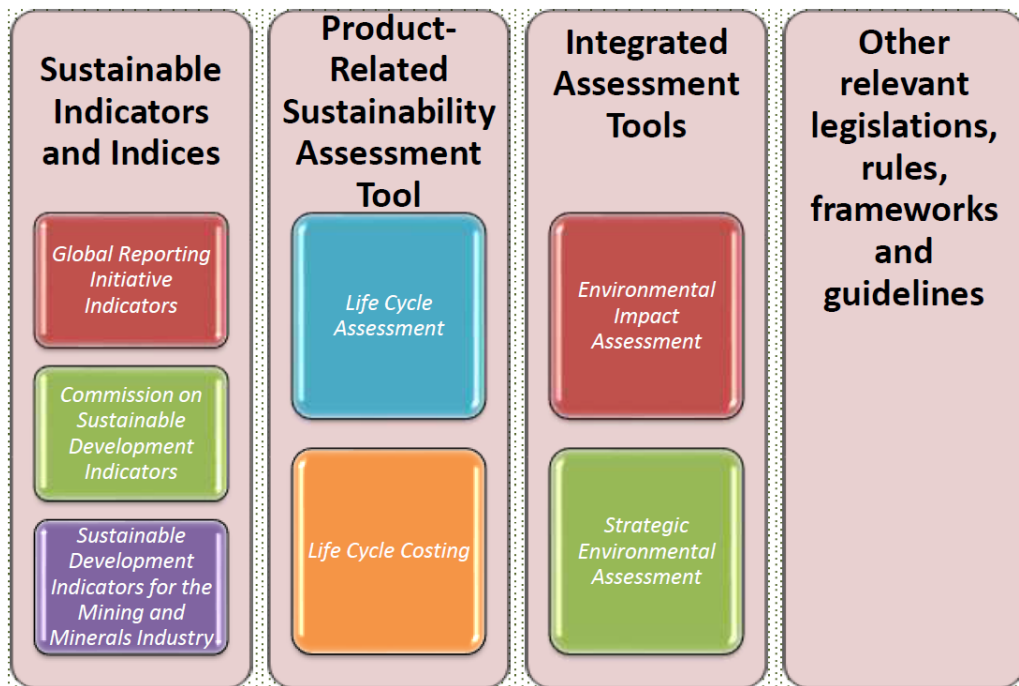


Figure 1: Adopted/Implemented SAFT

AMS reporting will include an assessment of their own stage of adoption and/or implementation of SAFTs by indicating a 'qualitative description' (e.g., C, B, A, AA and AAA) that corresponds to their respective overall level of implementation, are shown in Table 1.

Table 2: Level of implementations by qualitative description indicator

Level	Criteria
C	<ul style="list-style-type: none"> Sustainability frameworks and sustainability assessment tools for the mining and minerals industry yet to be adopted. Activities tend to be reactive in nature; Assessment procedures may exist but they are not integrated into policies and management systems.
B	<ul style="list-style-type: none"> Systems/processes are planned and being developed; Assessment procedures exist but are not fully consistent or documented, or are optional in nature.
A	<ul style="list-style-type: none"> Systems/processes are planned and being developed. Assessment procedures exist but are not fully consistent or documented, or are optional in nature.
AA	<ul style="list-style-type: none"> Integrated into management decisions and business functions.
AAA	<ul style="list-style-type: none"> State of continuous innovation towards excellence; indicates leadership in sustainable minerals development.

The RM will also compile relevant documents providing details on existing SAFTs in the AMS and the respective AMS agencies responsible for their oversight and implementation. The steps and monitoring under the RM are shown in Figure 2.

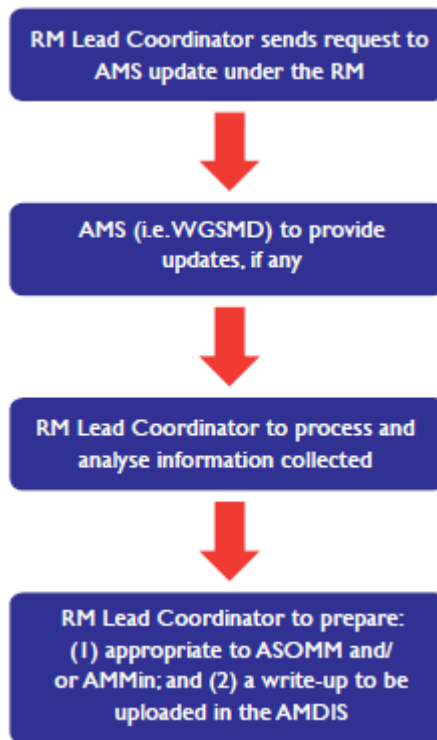


Figure 2: Steps and reporting under the RM

3. CONCLUSION

In conclusion, there is an urgent need to fully implement and register SAFT for Malaysia. These include GRI reporting for miners and operators, and implementation of SD indicators and Sustainability ratings. Hence it is important to have clear guidelines, Standard Operating Procedure (SOP) and regulations in place to ensure responsibility and sustainability of the mining industry in Malaysia.

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