རྒྱལ་གཞུང་རྩིས་ཞིབ་དབང་འཛིན།

Performance Audit Report on the Operations of State Mining Corporation Limited

རྒྱལ་ཁམས་ ས་གཏེར་ལས་འཛིན་ཚད་ཀྱི་
ལས་སྤྱོད་དང་འབྲེལ་བའི་ ལས་འབྲེལ་རྩིས་
ཞིབ་སྙན་ཞུ།

2024

DISCLAIMER NOTE

The audit was conducted in accordance with the International Standards of Supreme Audit Institutions (ISSAIs). The review was confined to the operations of State Mining Corporation Limited (SMCL). The audit was based on the audit objectives and criteria determined in the audit plan and programme prepared by the Royal Audit Authority (RAA) and the findings are based on the information and data made available by the SMCL, Department of Geology and Mines (DGM) and other relevant agencies.

This is also to certify that the auditors during the audit had neither yielded to pressure nor dispensed any favour nor resorted to any unethical means that would be considered a violation of the RAA's Oath of Good Conduct, Ethics and Secrecy.

རྒྱལ་གཞུང་རྩིས་ཞིབ་དབང་འཛིན།

ROYAL AUDIT AUTHORITY

Bhutan Integrity House

Reporting on Economy, Efficiency & Effectiveness in the use of Public Resources

RAA/DPCA/PAD(PA-SMCL)/2023-24/1962 **Date: 7 May 2024**

The Chief Executive Officer
State Mining Corporation Limited
Samtse

Subject: <u>Performance Audit Report on the Operations of State Mining Corporation Limited (SMCL)</u>

Dear Sir,

Enclosed herewith please find the ***Performance Audit Report on the Operations of SMCL*** conducted in line with the mandate enshrined in the Constitution of the Kingdom of Bhutan and the Audit Act of Bhutan 2018. The audit is conducted in accordance with the International Standards of Supreme Audit Institutions on Performance Audit (ISSAI 3000). The audit is also conducted in the context of Performance Auditing following the RAA Performance Audit Guidelines 2019. The audit objectives are as follows:

- *To assess the operational efficiency of SMCL.*
- *To assess the effectiveness of SMCL in delivering its mandates.*

The report has been prepared based on the review of available documents, analysis of data, physical visit to mining sites, and discussion with relevant officials of the SMCL, Department of Geology and Mines (DGM), and other relevant agencies. The report contains shortcomings and deficiencies, and recommendations, which are aimed at improving the operations of SMCL. The findings were issued in the form of a draft report on 28 November 2023 to SMCL and DGM for factual corrections and comments.

In line with the Audit Act of Bhutan 2018, the audited agencies are required to submit responses to the Performance Audit Report in the form of a Management Action Plan (MAP). The MAP should specify the action plans for implementing the recommendations with a definite timeframe to address the underlying causes of the findings.

Further, as specified by Section 55 (16) of the Audit Act of Bhutan 2018, the audited agencies concerned must submit a signed Accountability Statement (AS) to implement the recommendations provided. The RAA will follow up on the implementation of the corrective actions and recommendations based on the MAP and AS. Failure to comply will result in taking appropriate actions, which may include suspending audit clearances to the official(s) accountable.

Therefore, the RAA would like to request the agencies concerned to submit a MAP for the implementation of recommendations with a definite timeframe on or before **24 May 2024** along with the signed AS (format attached under ***Appendix A***).

In the event of non-submission, the RAA shall invariably fix the overall supervisory accountability on the head of the audited agency in line with Section 55(17) of the Audit Act of Bhutan 2018.

We take this opportunity to acknowledge the officials of SMCL for rendering the necessary cooperation and support which facilitated the timely completion of the audit.

Yours sincerely,

(Tashi)
Auditor General

Copy to:

1. Hon'ble Prime Minister, Royal Government of Bhutan;
2. Hon'ble Gyalpoi Zimpon, Office of the Gyalpoi Zimpon;
3. Hon'ble Speaker, National Assembly of Bhutan;
4. Hon'ble Chairperson, National Council of Bhutan;
5. Hon'ble Opposition Leader, National Assembly of Bhutan;
6. Hon'ble Chairperson, Public Accounts Committee, National Assembly of Bhutan;
7. Chief Executive Officer, Druk Holding and Investment;
8. Director, Department of Geology and Mines, MoENR;
9. Director, Department of Marketing and Logistics, SMCL, Samtse;
10. Assistant Auditor General, Planning and Policy Division, RAA; and
11. Office copy.

P.O. Box: 191 | Kawangjangsa | Thimphu | Bhutan |Tel: +975-2-322111/328729/328730/324961 | Fax: +975-2-323491
Website: www.bhutanaudit.gov.bt | Email: info@bhutanaudit.gov.bt and tashiag@bhutanaudit.gov.bt

TITLE SHEET

Performance Audit on Operations of SMCL

1.	Title of the Report	:	Performance Audit Report on the Operations of SMCL
2.	AIN	:	**TAD-2022-274**
3.	Audited Entity	:	1. State Mining Corporation Limited
			2. Department of Geology and Mines
4.	Audit Period	:	1 January 2015 – 31 December 2022
5.	Audit Schedule	:	21 March 2022 – 29 September 2022
6.	Audit Team	:	1. Dawa Tshering, Sr. Audit Officer
		:	2. Dhendup Tshering, Sr. Audit Officer
		:	3. Pema Wangdi, Sr. Audit Officer
		:	4. Sangay Tenzin, Sr. Program Officer
7.	Supervisor	:	Sonam Delma, Assistant Auditor General Kinley Zam, Offtg. Asstt. Auditor General
8.	Overall Supervisor	:	Dorji Wangchuk, Deputy Auditor General Department of Performance and Compliance Audit

Acronyms & Abbreviations

Performance Audit on Operations of SMCL

AIN	:	Audit Identification Number
AoI	:	Articles of Incorporation
APC	:	Annual Performance Compact
AWPL	:	Army Welfare Project Limited
CEO	:	Chief Executive Officer
CSP	:	Corporate Strategic Plan
CSR	:	Corporate Social Responsibility
DCCL	:	Dungsam Cement Corporation Limited
DECC	:	Department of Environment and Climate Change
DGM	:	Department of Geology and Mines
DHI	:	Druk Holding and Investment
DoL	:	Department of Labour
FIFO	:	First-In-First-Out
FMFS	:	Field Mine Feasibility Study
GNH	:	Gross National Happiness
HR	:	Human Resource
ISSAI	:	International Standards of Supreme Audit Institution
KHEL	:	Kholongchhu Hydro Energy Limited
KPI	:	Kep Performance Indicator
M&E	:	Monitoring and Evaluation
MMMA	:	Mines and Minerals Management Act
MoENR	:	Ministry of Environment and Natural Resources
MT	:	Metric Ton
OB	:	Overburden
OD	:	Organisational Development
OHS	:	Occupational Health and Safety
PBVA	:	Performance Based Variable Allowence
PMS	:	Performance Management System
POL	:	Petroleum, Oil and Lubricants
PPE	:	Personal Protective Equipment
RAA	:	Royal Audit Authority
RGoB	:	Royal Government of Bhutan
ROI	:	Return on Investment
SDEBCC	:	SD Eastern Bhutan Coal Company
SMCL	:	State Mining Corporation Limited
ToR	:	Terms of Reference

Table of Contents

EXECUTIVE SUMMARY

Bhutan is endowed with mineral resources including dolomite, limestone, gypsum, slate, coal, marble, quartzite, granite, talc, iron ore, and pink shale. However, only about one-third of the country's territory has been geologically mapped, there is a potential for discovering more minerals. In 2019, the mining and quarrying sector contributed 5% to the GDP, amounting to Nu. 8,577 million. Recognising the mining sector as a cornerstone in the advancement of national economic development, the government identifies mining as one of the five key sectors for development, alongside hydropower, tourism, cottage & small industries, and agriculture.

Mining operations were initially carried out by the government but gradually privatised over the years. With the establishment of State Mining Corporation Limited (SMCL) in December 2014 as a subsidiary of Druk Holding and Investments (DHI), some captive mines are now operated by SMCL. SMCL was established with an objective to foster a profitable, environment friendly and socially responsible mineral industry that ensures intergenerational equity for future generations to have access to our natural resources. As of 2022, the company has four coal mines, one gypsum mine, one stone quarry (quartzite) and one dolomite mine in operation.

Considering the importance of the mining sector for socio-economic development, the Royal Audit Authority (RAA) conducted the performance audit on the “Operations of State Mining Corporation Ltd.” as mandated by the Constitution of the Kingdom of Bhutan and the Audit Act of Bhutan 2018. The audit was conducted covering the period from 1 January 2015 to 31 December 2022 and following Performance Audit Guidelines, which are in line with the International Standards of Supreme Audit Institutions (ISSAI). The audit objectives were:

- *To assess the operational efficiency of SMCL; and*
- *To assess the effectiveness of SMCL in delivering its mandates.*

Since its inception in 2015, SMCL has successfully maintained a consistent growth in terms of total assets (from Nu. 0.36 billion in 2017 to Nu. 3.22 billion in 2022), net worth (from Nu. 0.30 billion in 2017 to Nu. 2.05 billion in 2022), total income (Nu. 0.26 billion in 2017 to Nu. 5.37 billion in 2022), and profits (after tax profit from Nu. 0.07 billion in 2017 to Nu. 1.92 billion in 2022). Nevertheless, the RAA noted gaps and shortcomings in its operations indicating opportunities for improvement and some of the notable findings are highlighted below:

- SMCL is mandated to develop strategic minerals and increase the mineral sector's contribution to the national economy. However, the absence of a clear classification for strategic minerals hindered development of strategies to achieve this goal. Additionally, a lack of coherence between SMCL's Corporate Strategic Plan and its Articles of

Incorporation, along with an operational plan, was noted to further drive the company in the strategic direction.

- Although the overall financial performance of SMCL was consistently positive, the RAA noted gaps between actual targets and the targets set in its Corporate Strategic Plan and the potentials anticipated in the Field Mine Feasibility Study reports (FMFS) as indicated below:

    - The FMFS reports have projected annual production targets for coal, quartzite, gypsum, and dolomite. However, the SMCL could not meet these production targets overall, leaving a fraction of the mineable reserves of these minerals unextracted at the end of 2022.

    - The Corporate Strategic Plan 2019-23 had anticipated a generation of a total revenue of Nu. 21.87 billion between 2019 and 2023 against which SMCL could generate total revenue of Nu. 12.19 billion between 2019 and 2022 indicating non-achievement of the targets of the Strategic Plan by the end of 2023.

    - Similarly, the FMFS reports collectively assessed the potentials for generating a total revenue of Nu. 12.99 billion from inception till 2022 from the sale of minerals extracted from the existing mines and quarries. However, SMCL could generate a total revenue of Nu. 11.66 billion from the sale of minerals (excluding indirect incomes) from inception till 2022 as the company has not been able to keep pace with the rate of extraction indicated in the FMFS reports for all categories of minerals.

- SMCL had invested in developing several mines and quarries since its inception. Upon analysing the return on investment for each mine and quarry, the RAA noted underperforming investments that the company needs to address to avoid an adverse impact on its overall financial performance.

- The SMCL was challenged with the high operating cost, instances of defunct mines and quarries after investing significant resources, inconsistent demand for its minerals, and relaxed credit management practices which altogether hindered the performance.

- The RAA noted inadequate HR management and development policies, strategies and practices that have hampered in building and sustaining HR capabilities. Thus, the importance of having efficient and effective manpower to boost the performance of the company was overlooked.

- The RAA also noted instances of non-compliances to the requirements of Occupational Health and Safety measures and Environmental regulations and norms. This has hampered in creating a safe working environment for the workers and becoming an environmentally responsive mining company.

To address these issues, the RAA has proposed eight recommendations:

A. Strategic:

1) DGM should classify strategic minerals considering the potential of the mining sector for the socio-economic development of the country.

2) SMCL should do a periodic update of Corporate Strategic Plan aligned to the revised targets of Field Mine Feasibility Studies, objectives of its Articles of Incorporation, and DHI Roadmap.

B. Operational:

3) SMCL should scale up the production of mines as per the annual production targets in the Field Mine Feasibility Study Reports of each mine.

4) SMCL should establish robust cost optimisation plans and initiatives.

5) SMCL should institute a system of thorough analysis of return on investments before venturing into new investment plans.

6) SMCL should review and implement the credit sales policy and enhance its collection process to eliminate the risk of bad debts and ensure adequacy of its working capital.

7) SMCL should strengthen Human Resource Management.

8) SMCL should ensure compliance to Occupational Health and Safety requirements and Environmental regulations.

The RAA concluded that SMCL had achieved notable progress during the period; however, there were still opportunities to be capitalised on. To fully leverage its strengths and seize future opportunities, the RAA provided eight recommendations that it considered advantageous for the company.

CHAPTER 1: ABOUT THE AUDIT

1.1. Mandate

The RAA conducted the 'Performance Audit on the Operations of SMCL' as mandated by Article 25 of the Constitution of the Kingdom of Bhutan 2018 to audit and report on the economy, efficiency, and effectiveness in the use of public resources.

Chapter 5, Section 69 of the Audit Act of Bhutan 2018 further specifies the mandate of the RAA to conduct performance audits. It states that, *"The Authority shall carry out performance, financial, compliance, special audits, and any other form of audits that the Auditor General may consider appropriate."*

Section 255 of the Companies Act of Bhutan 2016 recognises the Auditor General as the ex-officio auditor of government companies and authorises him to instruct auditors regarding any matter relating to the performance of his functions.

1.2. Audit Standards

The RAA conducted this audit in accordance with the International Standards of Supreme Audit Institution (ISSAI-3000). The RAA followed audit procedures as prescribed under RAA's Performance Audit Guidelines 2019 to maintain uniformity and consistency of approaches in auditing.

1.3. Audit Objectives

The RAA conducted the 'Performance audit on Operations of SMCL' with the following audit objectives:

* *To assess the operational efficiency of SMCL.*
* *To assess the effectiveness of SMCL in delivering its mandates.*

1.4. Audit Approach Applied

A combination of result-oriented and system-oriented audit approaches were employed. Through the result-oriented approach, the RAA has assessed the efficiency and effectiveness of the company in meeting their strategic mandates and performance targets. Through the system-oriented approach, the RAA assessed the adequacy of SMCL's HR management and enforcement mechanism in ensuring compliance with the statutory requirements.

1.5. Audit Scope

The audit was focused on the assessment of operations of SMCL including the regularity framework at national level (what?) covering the period from 1 January 2015 to 31 December 2022 especially for data analysis (when?). To achieve the objectives of the audit, the RAA visited the SMCL corporate office in Samtse and all mine sites located in Samtse, Pema Gatshel, Samdrup Jongkhar and Trashigang; and the Department of Geology and Mines (DGM) in Thimphu (where?).

1.6. Audit Methodology

The RAA applied the following methodologies to gather information, analyse data and derive conclusions:

Document review:

i. Reviewed Articles of Incorporation (AoI), Corporate Strategic Plan (CSP), Field Mine Feasibility Study (FMFS) reports, Mines and Minerals Management Act (MMMA) 1995, Mines and Mineral Management Regulations 2022, Mineral Development Policy 2017, Economic Development Policy 2016, Toposheet geological mapping with details and its progress (ppt) obtained from the DGM, and the Annual Reports and 10-year Roadmap of DHI that pertains to the SMCL's operation.

ii. Reviewed HR Manual 2016, Terms of References (ToR) of employees, PMS guideline 2016, Annual Reports, and Minutes of Board Meetings of the SMCL.

Data analysis:

i. Analysed the production targets, mineral reserves, and other qualitative and quantitative data reported in the FMFS reports,

ii. Analysed the revenue targets set in CSP 2019-23, CSP 2022-31, FMFS reports and Annual Performance Compact (APC) documents of the SMCL; and

iii. Analysed the annual productions, incomes, expenditures, profits, selling prices etc., reported in the financial data furnished to the RAA by the SMCL management in MS Excel file, and the overall financial performance and positions reported in the audited Financial Statements of the SMCL.

Physical visits:

i. Visited the Corporate Office of the SMCL in Samtse;

ii. Visited Chunikhola Dolomite Mine (Phuntshopelri, Samtse), Habrang, Tsophangma and Majuwa Coal Mines (Samdrupchholing, Samdrup Jongkhar), Reshore Coal Mine (Dewathang, Samdrup Jongkhar), Khothakpa Gypsum Mine (Shumar, Pema Gatsel), and Dzongthung Stone Quarry (Bartsam, Tashigang); and

iii. Visited Coal stockyards at Matanga, Samdrupchholing and Reshore in Samdrup Jongkhar; Gypsum stockyard at Matanga in Samdrup Jongkhar; and Dolomite stockyard at Chunaikhola, Samtse.

Interview and focus group discussions:

i. Conducted interviews with management and employees at SMCL corporate office, Samtse as well as with the employees and workers at various mine sites;

ii. Conducted focus group discussions with employees from SMCL corporate office as well as from various field mine offices, and local communities; and

iii. Conducted interviews with relevant officials from the DGM.

CHAPTER 2: INTRODUCTION

The mining sector plays an important role in the national economic development by not only providing materials essential for all sectors of the economy but also contributing towards employment and revenue generation in addition to boosting regional development.

Minerals are required for industrialisation, economic diversification, and infrastructure development. Because of this, the mining sector is considered one of the priority sectors for socio-economic development as it plays an important role in the national economic development in terms of revenue generation and employment opportunities.

As it contributes towards socio-economic development, mining activity also causes negative impacts on society and the environment, if responsible and sensible mining practice is not followed. Consequently, sustainable resource management is required to maximise contribution to the stakeholders and to minimise adverse environmental and social impacts.

Sustainable mining practice includes an approach where the mining activities are financially profitable, technically appropriate, environmentally sound, and socially responsible. Therefore, the businesses involved in extracting non-renewable resources have come under mounting pressure to embrace and incorporate sustainability into strategic decision-making processes and operations.

In the early 1970s, the mining sectors were mostly operated by government enterprises and gradually, with the policy of privatisation, mining sector operations were privatised over the years. Various reviews and studies have indicated that the current mining sector owned and operated by private companies lacks a sustainable approach. Hence, the RGoB envisioned the noble concept of establishing a state entity realising the potential of mining sectors' contribution to the nation's socio-economic development and expanding economic opportunities, creating jobs, and generating revenue for the country. During the 45th Lhengyel Zhungtshog, the RGoB decided the formation of SMCL, a state-owned mining company.

The SMCL is a subsidiary company of the Druk Holding and Investment (DHI) incorporated under the Companies Act of Bhutan 2016 on 31 December 2014 vide Executive Order No. MoF/PED/01/2014/1669 dated 20 November 2014. The SMCL's main objective is to carry out responsible mining by striking a balance in minerals extraction, utilisation and environment conservation while enhancing revenue generation. The Company has four coal mines, one gypsum mine, one stone quarry and one dolomite mine in operation.

According to the Articles of Incorporation, the SMCL is expected to expand economic opportunities, generate employment opportunities, and enhance revenue for the country. It shall be guided by the power-based investment opportunity, maximisation of stakeholders' benefit, promotion of the private sector and custody of socio and environment impact.

2.1. Vision and Mission of SMCL

Vision

- To be a premier mineral resources development company in the nation guided by the principles of GNH.

Mission

- Explore and extract mineral resources scientifically and help build a dynamic economy for a vibrant democracy.
- Accelerate socio-economic development.
- Lead and stimulate private sector development.

2.2. Mandate as per Articles of Incorporation (AoI)

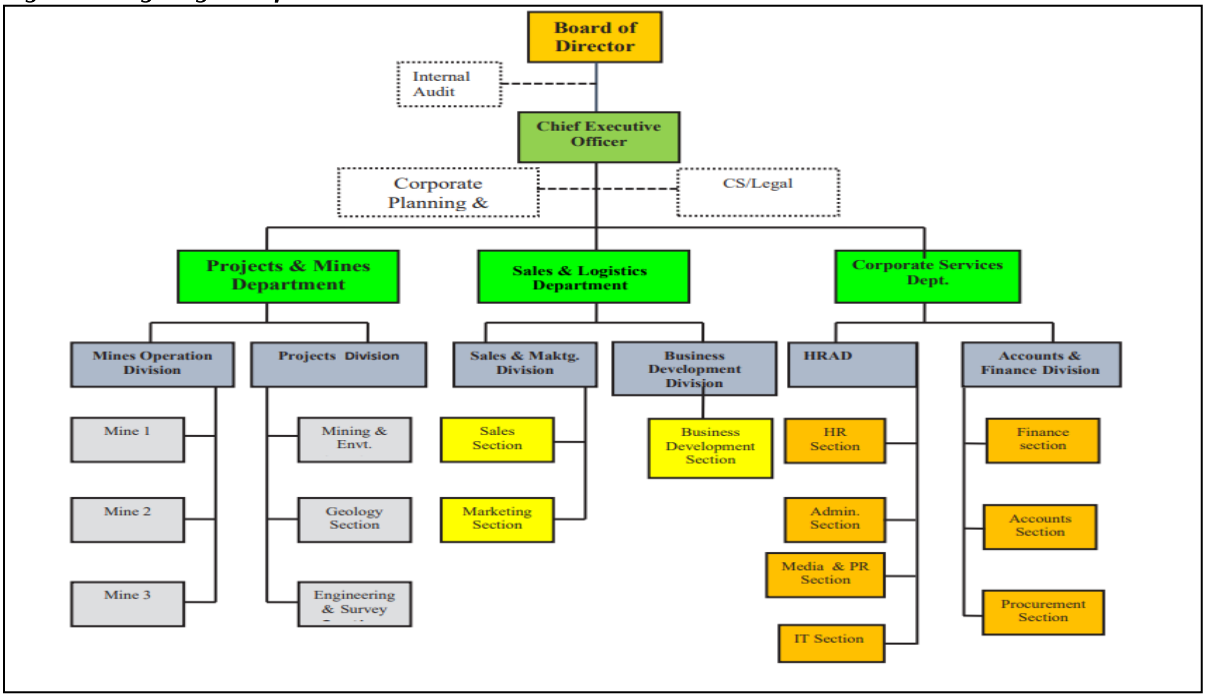
- Play an exemplary role in terms of technology and process to make the mining and mineral sector environmentally responsive, socially acceptable and financially sustainable;
- Increase the contribution of the mineral sector to the national economy and create gainful employment opportunities for Bhutanese;
- Be a designated body to develop strategic minerals as defined by the erstwhile Ministry of Economic Affairs (MoEA);
- Prospect and develop such other mines and minerals provided it is viable;
- Carry out mining activities for supply to the domestic and export markets with priority given to domestic industries; and
- On its own, or through Joint Venture Partnerships engage in all the above activities.

2.3. Organisational Structure

As shown in Figure 1, the SMCL functions under the guidance of the SMCL Board. The Board of Directors is appointed by DHI. The size, composition, and the number of independent Directors were determined in keeping with the Board Charter – Sections 2.2 and 2.3 of the Corporate Governance Code and the Companies Act of Bhutan 2016. The Chief Executive Officer (CEO) is directly responsible for the functioning of the company. He is accountable to report to the SMCL Board for any support/guidance and important decisions.

The Head Office of SMCL is located in Samtse. The company has six cost centres (mining sites), as shown in Figure 2, each headed by a Manager.

Figure 1: Organogram of the SMCL



Source: *SMCL Website*

Figure 2: Location of mine sites of the SMCL

Source: *SMCL Website*

CHAPTER 3: AUDIT FINDINGS

This chapter presents the shortcomings and deficiencies identified during the audit of the SMCL's operations. The discussion is structured into four areas of Strategic Management, Operations and Management, Human Resource (HR) Management and Development, and Compliance to Social and Environmental Norms as stated below:

3.1. Strategic Management

The SMCL aspires to be a premier mineral resources development company in the nation, guided by the principles of GNH. To fulfill this aspiration, it intends to scientifically explore and extract mineral resources, contributing to the development of a dynamic economy for a vibrant democracy, accelerating socio-economic progress, and stimulating private sector development. These strategic directions have been derived from the ToR and AoI.

In order to achieve these strategic intents, the company has prepared its Corporate Strategic Plan (CSP) 2019-23 which was designed to serve as a roadmap to strategise, engage, communicate, review, and improve their performance to achieve larger stakeholder satisfaction as the ultimate shared goal. It assesses the internal and external environment, sets a strategic framework, formulates objectives, and establishes measures and targets. The plan emphasises monitoring, evaluation, and periodic review to ensure continued relevance and success.

While cross-referring and examining the contents of the CSP, AoI, and overall regulatory framework, the RAA noted certain deficiencies as discussed below:

3.1.1. Strategic Planning

i. Development of strategic minerals

- Although the company was identified as the designated body to develop strategic minerals defined by the government, it has not developed any strategies to develop strategic minerals other than coal, quartzite, gypsum and dolomite. This is because there is no list of minerals classified as "strategic minerals" by the erstwhile Ministry of Economic Affairs, even though it is required by the Mineral Development Policy 2017 for the effective management and regulation of the mining industry in Bhutan and for ensuring the sustainable development of mineral resources.

ii. Integration of CSP with AoI

- The linkage between the CSP and AoI is critical to the achievement of objectives of AoI because CSP provides the overall direction and long-term vision for the company, outlining the strategies and initiatives that will help achieve that vision. However, the RAA noted that elements of AoI are not clearly integrated in the CSP to achieve the intents of AoI. *For instance*, as per the AoI and ToR of the Government Order No. MOF/PED/01//2014/1669 dated 20 November 2014, SMCL is mandated to '*play an* *exemplary role in terms of technology and processes to make the mining and mineral sector environmentally responsive, socially acceptable and financially sustainable.'* However, strategies for achieving such intents were not reflected in the CSP.

- Moreover, the CSP does not have clear strategies to fulfill the goals of the company. *For instance*, the CSP highlighted that the company will carry out mining activities on a sustainable basis and ensure intergenerational equity, however, strategies to fulfill such intents were not clearly defined.

iii. Operational plan

- The company lacks a detailed operational plan to implement the CSP outlining detailed activities, delegation of responsibilities to departments, divisions or individuals, and milestones and baselines for some of the initiatives. In addition, some of the performance measures do not have baselines and set targets. Without clear operational plans, the company will be challenged in terms of achieving specific tasks, allocating resources and monitoring the progress.

iv. Performance measurement reporting

- As per the CSP 2019-23, the Corporate Planning and Strategy Section is responsible for monitoring and evaluation of the implementation of the CSP in consultation with other divisions and sections. The outcomes of the evaluation are to be discussed in the company's mid-term review and annual general meetings. The CSP 2019-23 is also to be used to draw the Annual Performance Linked Incentive System and Compact targets.

- In order to realise the strategic goals, SMCL has defined several broad and sub objectives encompassing areas from financial, customer, internal process, and organisational capacity. Additionally, expected results, performance measures, and initiatives or strategies for these objectives were also elucidated in the CSP.

- However, it was noted that the progress of the whole components of the objectives of CSP was not evaluated or measured using the performance measures or indicators outlined in the CSP. While some components of the CSP, pertaining to the financial, are captured in the annual reports of the DHI, other areas such as customer satisfaction score, market share, growth rate, service delivery, and etc., are neither reported nor evaluated as required.

Developing a strategic plan without aligning to AoI will result in derailment of strategic intent of the plan from achieving the actual vision of establishing the company. Further, without evaluation and reporting of progress of essential components of CSP, there is a risk of losing focus and sight of the goals of the strategic plan, which will result in misalignment, inefficiencies, missed opportunities, and incorrect decisions.

i. **Regarding the development of the strategic minerals, the SMCL responded that they cannot independently pursue the role of defining and classifying strategic**

minerals due to the legislative and policy constraints. The company pointed out the need for adequate legislation and policy guidance from higher authorities.

On the same issue, the DGM responded that the categorisation of strategic minerals is a complex process that demands comprehensive studies such as market dynamics (global market requirements and domestic use), techno-economic feasibility studies on mining, mineral use and value addition. In addition, Bhutan remains mostly unexplored in terms of mineral resources, thereby having limited information on mineral deposits and occurrences. There is no clear direction on the listing of strategic minerals from the MMMA 1995. Hence, the Mines and Minerals Bill 2020 was drafted capturing all the policy intentions including clause on the listing of strategic minerals, and submitted to the Parliament which is yet to be passed. However, in light of huge export market potential and competitive grade for use in steel and cement plants of India and Nepal, dolomite and gypsum has been allocated to SMCL with a larger understanding of their national importance. Likewise, the coal by virtue of occurring in isolated locations in south-eastern Bhutan with limited known deposits, which is critical for use in domestic industries, has also been considered to be of national importance. Thus, the coal has also been allocated to SMCL.

ii. **Regarding the integration of CSP with AoI, the SMCL responded that they have a well-structured CSP aligned with RGoB's intents of responsible mining, operational excellence, and human capital development. Furthermore, it adheres to the Hartwick Rule in ensuring inter-generational equity.**

iii. **Regarding the operational plan, the SMCL responded that they operationalise the CSP through Annual Performance Compact (APC) which includes corporate-level compact with DHI and Department-level compact with Board. The performance targets in these two types of compacts are aligned with the intents of CSP.**

iv. **Regarding the performance measurement reporting, the SMCL responded that the Corporate Planning and Monitoring Section was kept non-operational to minimise HR cost. The APC sufficed the M&E requirements till date. However, the Section will be operationalised from February 2024 and will carry out the M&E.**

While the RAA acknowledges the responses provided by SMCL and DGM, it is imperative to underscore the urgent necessity for clear regulatory guidance in promptly defining strategic minerals. This step is vital for the company to develop effective long-term plans and strategies aligned with the intents of the mineral development policies.

Additionally, the absence of explicit sustainability plans and technology integration strategies in the CSP of the company raises concerns regarding long-term environmental and social impacts.

Furthermore, although the company has taken an effort to operationalise the CSP through APC, the RAA noted that some of the aspects of APC are not consistent with the CSP. For instance, the revenue targets stipulated in the CSP do not match the targets set in the APC documents, as exhibited in Table 1:

Table 1: Example of the deviations among the revenue targets set in CSP and APC

Document Name	*Performance Targets (Nu. in million)*					
	Yr-2020	*Yr-2021*	*Yr-2022*	*Yr-2023*	*Yr-2024*	*Yr-2025*
Corporate Strategic Plan 2019-2023	*2,511.00*	*5,257.00*	*6,085.00*	*6,751.00*		
Corporate Strategic Plan 2022-2031			*5,232.69*	*7,212.91*	*7,760.00*	*8,693.88*
Annual Performance Compact	*1,973.64*	*3,804.50*	*4,768.82*	*6,783.42*		

Data Source: *CSP 2019-23, CSP 2022-31 and APC documents.*

Thus, the RAA reiterates the importance of a clear linkage between its CSP and APC signed with DHI in order to have a robust performance management framework to ensure attainment of its strategic intents.

3.1.2. Performance of SMCL

Since its establishment in November 2014, SMCL has consistently showcased a positive financial performance and has significantly contributed to the government's revenue through rents, taxes, and dividends. *For instance*, SMCL has generated a total revenue of Nu. 12.90 billion and paid total taxes amounting to Nu. 2.01 billion between 2017 and 2022. The company's net worth stood at Nu. 6.09 billion at the end of 2022, rising significantly from Nu. 0.30 billion in 2017. The year wise breakup of the amounts is presented in Table 2.

Table 2: Financial highlights of SMCL[1]

	Amounts (Nu. In Million)					
	Yr-2017	Yr-2018	Yr-2019	Yr-2020	Yr-2021	Yr-2022
Total Assets	363.35	642.76	1,032.93	1,357.97	2,856.27	3,223.20
Net Worth	295.85	410.60	681.77	729.50	1931.10	2,047.66
Income	260.44	449.72	1,432.76	1,165.90	4,229.18	5,365.29
Expenditure	170.19	325.61	952.26	634.20	1,957.97	2,513.36
PBT	90.25	124.11	480.50	531.69	2,271.20	2,851.93
Tax	22.86	37.84	144.15	168.63	702.92	931.20
PAT	67.39	91.39	336.35	363.06	1568.28	1,920.73

Data Source: *From Annual Reports of DHI.*

Nonetheless, it is important to measure performance of the SMCL to offer insights on whether the company is able to achieve the goals and at the same time identify areas for improvement.

[1] The SMCL has started to earn profit from 2017 onwards.

In order to assess the performance of SMCL, RAA has reviewed strategic targets envisaged in the CSP 2019-23 and FMFS reports for all six cost centres. The RAA also assessed actual achievements against the APC that SMCL signed with DHI. This entails comparing the performance achievement of the targets defined in the study reports against the actual productions of minerals.

The performance of SMCL is discussed below:

i. Achievement of production targets defined in FMFS reports

While reviewing the FMFS reports, the RAA noted that the company had carried out initial assessments of coal, quartzite, gypsum and dolomite to ascertain the quantity of extractable portion of the mineral deposits and the annual production targets for a specific period as summarised in Table 3.

Table 3: Summary of mineable reserves and production targets as per FMFS reports and actual production

Milerals	Mineable Reserves as per FMFS Reports (MT)	Planned period	Production target as per FMFS upto 2022 (MT)	Actual production (MT)	Operation period	Unextracted balance as at the end of 2022
	(A)			(B)		(A-B)
Coal	1,050,182.27	2016-2024	664,170.00	531,862.00	2016-2022	518,320.27
Quartzite	5,048,272.00	2018-2022	1,055,106.00	276,310.00	2018-2022	4,771,962.00
Gypsum	2,687,798.89	2019-2023	1,947,173.27	1,741,994.00	2019-2022	945,804.89
Dolomite	7,270,000.00	2021-2023	4,273,838.00	5,066,936.00	2021-2022	2,203,064.00

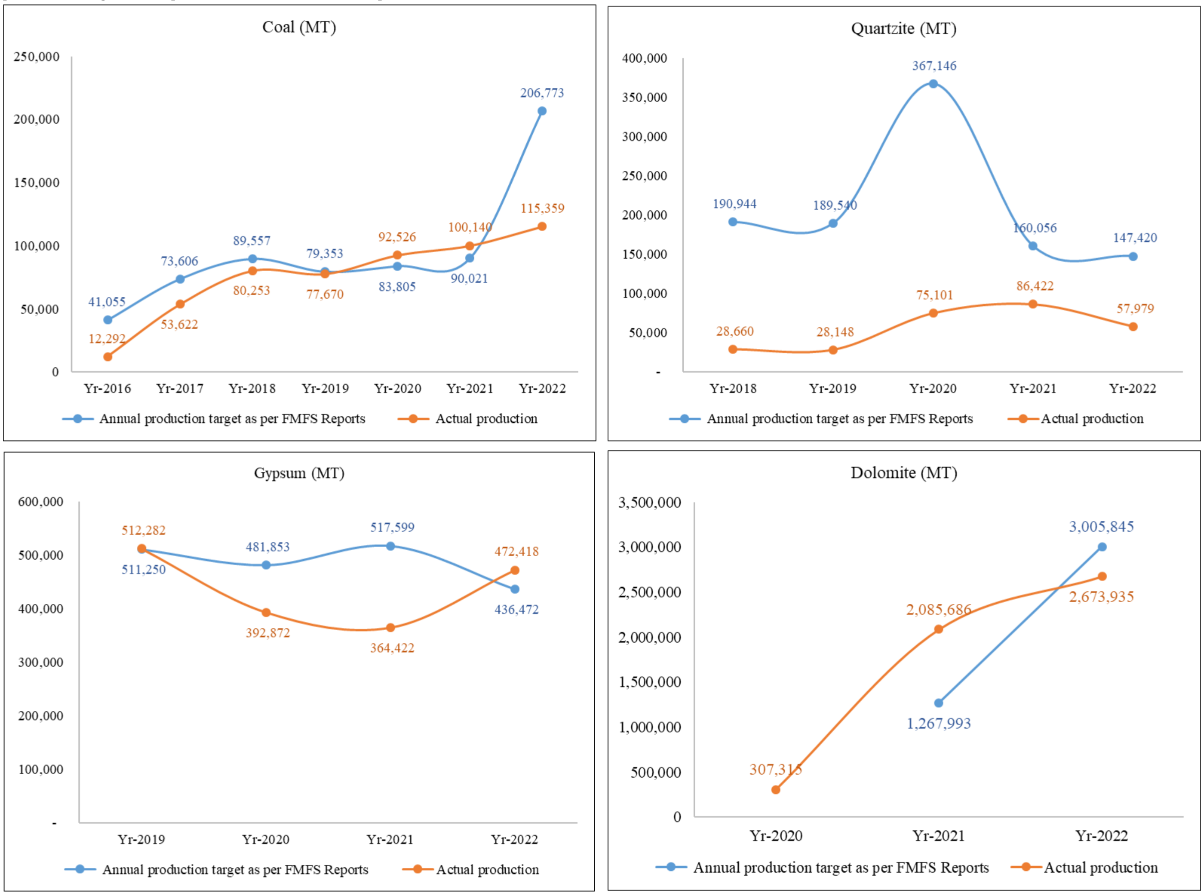
Data Source: *Compiled by RAA based on the content analysis of the respective FMFS reports and actual production data. The details of the calculation is provided under* ***Appendix B****.*

- According to the FMFS reports, dolomite has the highest mineable reserves at 7.27 million MT, followed by quartzite with 5.05 million MT. The mineable reserves of gypsum was estimated at 2.69 million MT and coal at 1.45 million MT (combining Habrang, Tshophangma, Reshore, and Majuwa Mines).

- Out of these mineable reserves, SMCL was expected to produce 4.27 million MT of dolomite, 1.06 million MT of quartzite, 1.95 million MT of gypsum, and 0.66 million MT of coal by the end of 2022. However, so far, the SMCL has not been able to achieve the production targets set in the FMFS reports as shown in Figure 3.

- As illustrated in Figure 3, SMCL has fallen short of meeting the production targets outlined by the FMFS reports for all four mineral segments. In the cases of quartzite the production gap has been very significant throughout. For coal, the gap has been minimal except in 2022, when it widened significantly due to the company's launch of the Reshore and Majuwa Coal Mines. These mines introduced additional production targets at the outset of operation. In the case of gypsum, SMCL met the production target in its first year of commencement in 2019. However, it encountered some setbacks in 2020 and 2021 but was able to surpass the target in 2022. As for dolomite, the company exceeded the production target in 2021 but struggled to maintain the pace in 2022.

Figure 3: Comparison of SMCL's actual production against annual production targets set in FMFS reports from the year of commencement of each mineral sector until 2022



Data Source: *The figures for annual production targets were compiled by the RAA based on the content analysis of the FMFS reports. The details of the calculation is provided under **Appendix C**. The actual production data were furnished to the RAA by the SMCL. The statistics for the dolomite should be read with caution, as the company began production in November 2020, while the FMFS report projected annual production to start in 2021.*

- The overall status of extraction of the estimated minable reserves at the end of 2022 is shown in Figure 4, where:

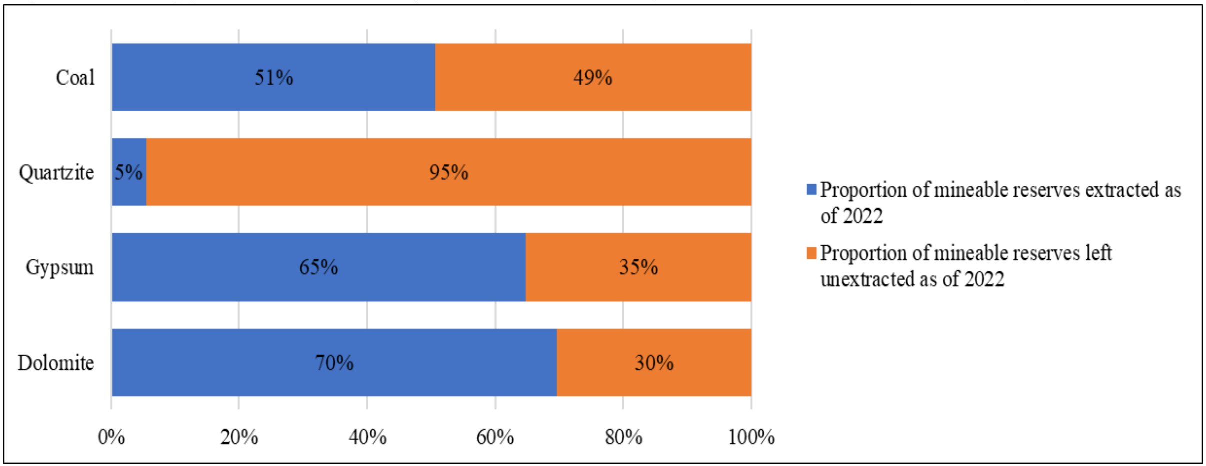
    a) 51% of the mineable reserves of coal extracted over the past seven years of operation;

    b) 5% of the mineable reserves of quartzite extracted over the past five years of operation;

    c) 65% of the mineable reserves of gypsum extracted over the past four years of operation; and

    d) 70% of mineable reserves of dolomite extracted over the past two years of operation.

Figure 4: The approximate balance of mineable reserves left unextracted as at the year-end of 2022



Data source: *Calculated by the RAA based on the minable reserves reported in Table 3 and actual production data received from SMCL. The details of the calculation is provided under* ***Appendix B****. The estimated mineable reserves for coal pertains to the period 2016 to 2024, for quartzite from 2018 to 2022, for gypsum from 2019 to 2023, and for dolomite from 2021 to 2023.*

Thus, the SMCL has not been able to achieve the production targets of the FMFS reports (as seen in Figure 3) and the company has not been able to keep pace with the rate of extraction indicated in the FMFS reports for all categories of minerals as seen in Figure 4. This indicates missed opportunities to generate more revenue. If the company was able to keep pace with the production targets of the FMFS reports, the company may achieve the revenue target of Nu. 21.87 billion by 2023 as discussed in the next sub-section.

The SMCL responded that:

i. The mineral production targets are set based on consumer demand at the end of the previous financial years instead of FMFS reports. Therefore, due to changing market conditions, the actual production may differ from the targets defined in FMFS reports, leading to discrepancies.

ii. The reserves reported in FMFS reports are inferred reserves and may not be the basis for production targets. Generally, production targets set in the APC have been achieved. In the case of coal production, estimating the reserve is very difficult due to its erratic nature of occurrence.

iii. Various administrative arrangements between RGoB and SMCL, and the COVID-19 pandemic has hampered the production. However, SMCL has achieved the production targets beyond the average annual production target estimated in FMFS reports in the year 2023:

- **Dolomite production achieved the annual target of 3.1 MT in 2023.**
- **Gypsum production reached 0.57 MT in 2023.**
- **Coal production has increased steadily and reached 163,022.517 MT in 2023.**

iv. **The production targets for Dzongthung Stone Quarry was estimated based on the demand of KHEL. However, after the commencement of KHEL was suspended, Dzongthung Stone Quarry was operationalised mainly to keep its machineries running. Thus, it has the highest gap.**

While acknowledging the influence of consumer demand and market conditions on production target settings, the RAA feels that it is crucial to ensure production targets are aligned with these dynamics effectively, and accordingly, strategies are established to adapt to changing situations in a timely manner. It also raises questions about whether solely relying on past demands as the basis for projecting future targets is sufficient. Since the quality of dolomite and gypsum produced by the SMCL is claimed to be high, the appropriate marketing strategies are deemed essential to enhance its sales and revenue. Therefore, the current approach of projecting the production based on the previous years' sales needs reconsideration. There may be opportunities to improve the accuracy of projections by considering future market explorations and value additions in the products as additional factors.

The RAA also acknowledges the challenges associated with estimating coal reserves; however, it is important that robust methodologies for reserve estimation and production target setting are in place to facilitate realistic projections of demand and production.

Additionally, the RAA is of the view that the FMFS reports should serve as the basis for setting production targets for all minerals, as they are supposed to have been carried out scientifically with expert consultations as well as through a series of field surveys and studies.

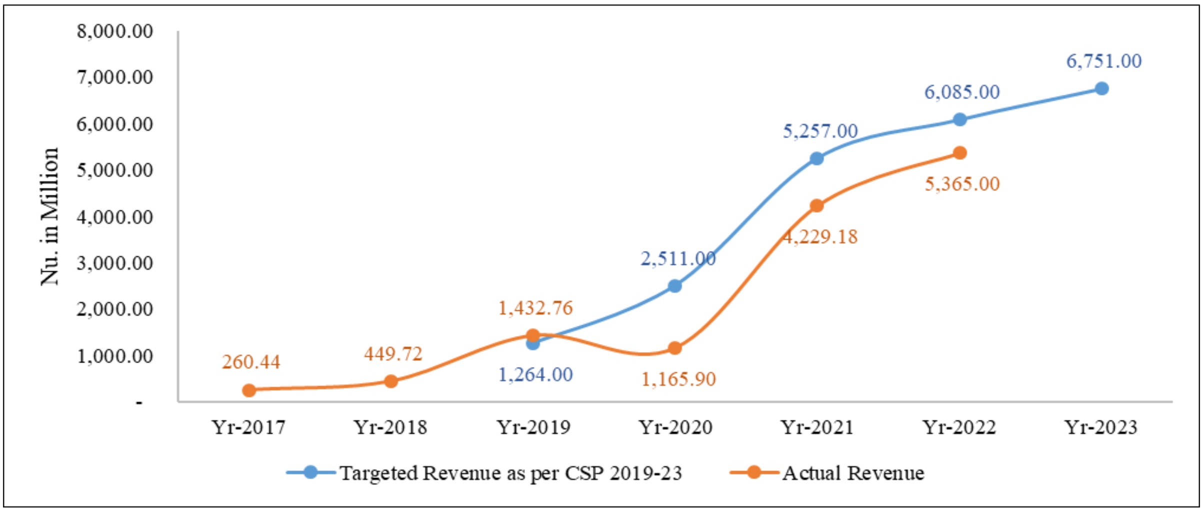
ii. Achievement of revenue targets specified in CSP, FMFS, and APC

The revenue targets of the company are established through various documents, including the CSP, FMFS, and APC. These documents outline the company's financial goals and expectations, serving as a benchmark for measuring the actual performance.

As per the CSP 2019-23, the target destination of the company at the end of the strategic plan period is to generate cumulative revenue of Nu 21.87 billion and pay cumulative tax of Nu. 2.46 billion to the RGoB by 2023.

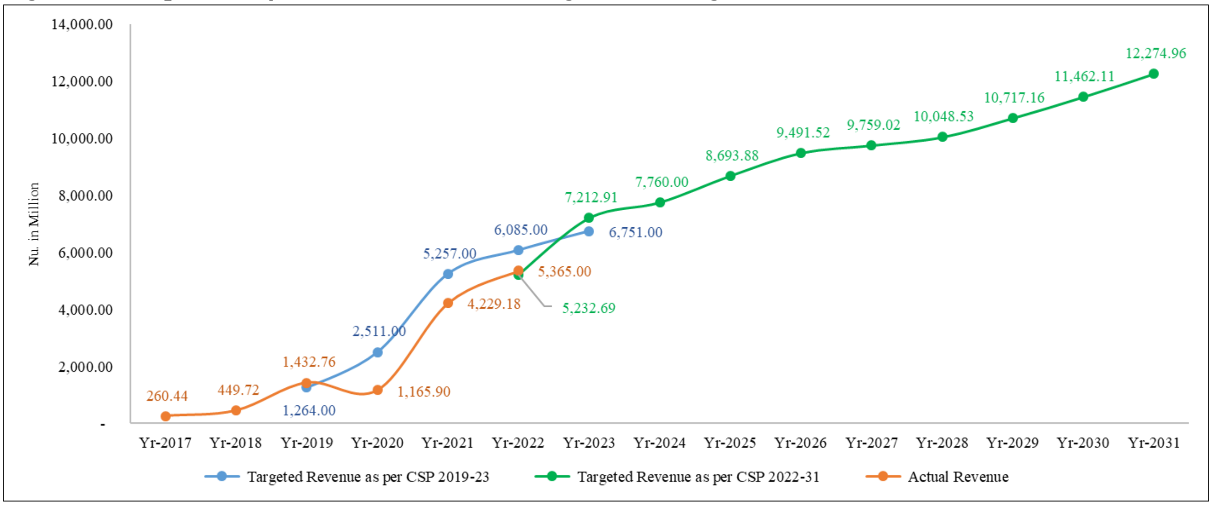
However, the actual revenue trend between 2017 (a year from which the company started earning profit) and 2022 showed that, except for 2019, the company had not been able to achieve the intended targets in terms of revenue generation as shown in Figure 5. In 2022, the company revised its strategic plan which charts out the ten-year roadmap for the company as shown in Figure 6.

Figure 5: Comparison of SMCL's actual revenue against the target set in the CSP 2019-23



Data Source: *The target revenue was sourced from CSP 2019-23, while data for actual revenue was sourced from the Audited Financial Statements of the company. The targeted revenue represents the intent of SMCL, as highlighted in CSP 2019-23, to set the revenue target in their company-level APC. The actual revenue includes revenue earned from the sale of minerals and other indirect incomes such as sale of tender documents, liquidated damages, sale of rejected stones, guesthouse rents, audit recoveries, interests, and other sources as reported in the Financial Statements of the company.*

Figure 6: Comparison of SMCL's actual revenue against the target set in the CSP 2019-23 and CSP 2022-31



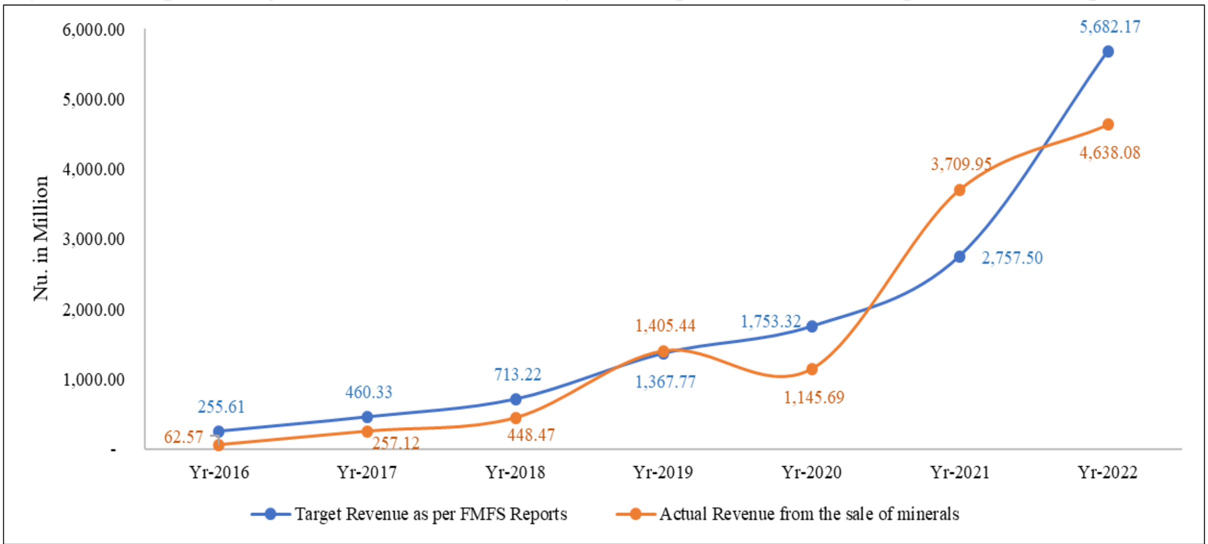
Data Source: *The target revenue was sourced from CSP 2019-23 and CSP 2022-31, while data for actual revenue was sourced from the Audited Financial Statements of the company. The targeted revenue represents the intent of SMCL, as highlighted in CSP 2019-23 and CSP 2022-31, to set the revenue target in their company-level APC. The actual revenue includes revenue earned from the sale of minerals and other indirect incomes such as sale of tender documents, liquidated damages, sale of rejected stones, guesthouse rents, audit recoveries, interests, and other sources as reported in the Financial Statements of the company.*

The RAA also reviewed the performance of SMCL in achieving the projected revenue calculated based on FMFS production targets. The FMFS reports showed that SMCL had the potential to generate a cumulative revenue of Nu. 12.99 billion by the end of 2022 if they have met the annual production targets specified in the FMFS reports and successfully sold the entire quantity produced.

However, it was noted that SMCL's actual cumulative revenue from the sale of minerals for the stipulated period amounted to Nu. 11.66 billion indicating unrealised revenue potential of Nu. 1.32 billion (10% of the potential revenue not realised).

The year wise comparison of projected revenue with actual revenue generated by the company is depicted in Figure 7 and mineral wise comparison is given in Table 4 with further detail in Table 5. As seen in Figure 7, Tables 4 and Table 5, SMCL remains below its revenue target projected in the FMFS reports, although the company showed slight improvement in 2021 probably due to the commencement of dolomite production, which significantly exceeded the estimated annual production target of the FMFS report.

Figure 7: Comparison of SMCL's actual revenue against the potential revenue as per the FMFS reports



Data Source: *The potential revenue was calculated by the RAA by multiplying the annual production targets, as estimated in the FMFS reports for each mineral category, by the average selling price of the respective mineral in that particular year. The details of the calculation is provided in* ***Appendix C****. The actual revenue includes only the sale of minerals. The indirect revenue such as the sale of tender documents, liquidated damages, sale of rejected stones, guesthouse rents, audit recoveries, interests, and other sources were excluded. The gap between the two lines in this figure signifies the amount of unrealised portion of potential revenue.*

Table 4: Summary of comparison between SMCL's actual revenue with potential revenue as per FMFS reports

SN	Mineral segment	Period of operation	Cumulative Revenue (Nu. in Million)			
			Potential Revenue as per FMFS	Actual Revenue as per Financial Statements	Unrealised Revenue predicted by FMFS	Unrealised Revenue %
1	Coal	2016-2022	4,178.64	3,129.81	1,048.83	25%
2	Quartzite	2018-2022	757.19	133.47	623.72	82%
3	Gypsum	2019-2022	3,495.17	3,430.13	65.04	2%
4	Dolomite	2021-2022	4,558.92	4,971.52	(412.60)	-9%
Total =			**12,989.91**	**11,664.93**	**1,324.99**	**10%**

Data Source: *The potential revenue was calculated by the RAA by multiplying the annual production targets, as estimated in the FMFS reports for each mineral category, by the average selling price of the respective mineral in that particular year. The details of the calculation is provided in* ***Appendix C****. The actual revenue includes only the sale of minerals. The indirect revenue such as the sale of tender documents, liquidated damages, sale of rejected stones, guesthouse rents, audit recoveries, interests, and other sources were excluded.*

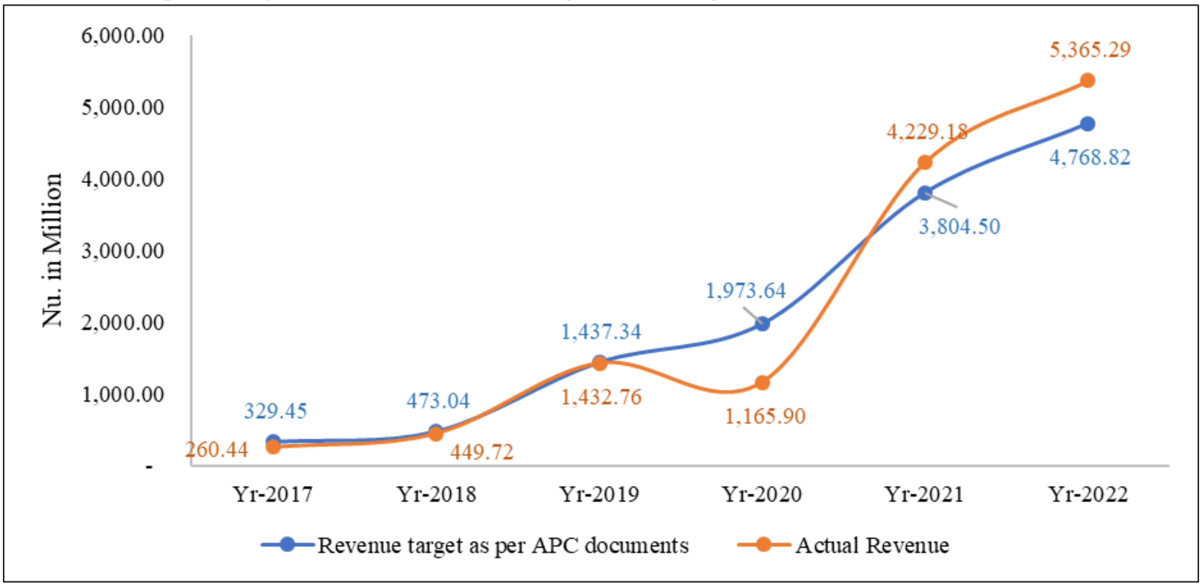
Table 5: Mineral wise comparison of potential revenue and actual revenue (Nu. In Million)

Coal								
	Yr-2016	**Yr-2017**	**Yr-2018**	**Yr-2019**	**Yr-2020**	**Yr-2021**	**Yr-2022**	**Cumulative**
Potential Revenue as per FMFS (If all qty. produced were sold)	255.61	460.33	574.60	490.96	532.66	559.12	1,305.36	4,178.64
Actual Revenue	62.57	257.12	440.91	532.74	458.64	609.73	768.11	3,129.82
Potential revenue not realised	193.04	203.21	133.69	(41.78)	74.02	(50.61)	537.25	1,048.82
Quartzite								
	Yr-2016	**Yr-2017**	**Yr-2018**	**Yr-2019**	**Yr-2020**	**Yr-2021**	**Yr-2022**	**Cumulative**
Potential Revenue as per FMFS (If all qty. produced were sold)			138.63	127.56	236.44	130.29	124.28	757.19
Actual Revenue			7.56	15.49	16.34	61.96	32.12	133.47
Potential revenue not realised			131.07	112.07	220.10	68.33	92.16	623.72
Gypsum								
	Yr-2016	**Yr-2017**	**Yr-2018**	**Yr-2019**	**Yr-2020**	**Yr-2021**	**Yr-2022**	**Cumulative**
Potential Revenue as per FMFS (If all qty. produced were sold)				749.25	984.21	716.41	1,045.30	3,495.17
Actual Revenue				857.21	670.71	925.47	976.74	3,430.13
Potential revenue not realised				(107.96)	313.50	(209.06)	68.56	65.04
Dolomite								
	Yr-2016	**Yr-2017**	**Yr-2018**	**Yr-2019**	**Yr-2020**	**Yr-2021**	**Yr-2022**	**Cumulative**
Potential Revenue as per FMFS (If all qty. produced were sold)						1,351.68	3,207.24	4,558.92
Actual Revenue						2,111.37	2,860.15	4,971.52
Potential revenue not realised						(759.69)	347.09	(412.60)

Data Source: *Refer Table 4 note.*

The year wise comparison of actual revenue achievement and targets of APC (Figure 8) showed that the company's actual revenue has been in proximity with the targets of APC between 2017 to 2019. The revenue performance in 2020 dropped significantly below the APC target which was attributed to the COVID-19 pandemic. However, a significant turnaround was made in 2021 and 2022 surpassing the targets of APC.

Figure 8: Comparison of SMCL's actual revenue against the target set in the APC



Data Source: *The target revenue was sourced from the APC documents furnished to the RAA by the SMCL, while data for actual revenue was sourced from the Audited Financial Statements. The targeted revenue represents the commitments made by the company in the APC signed with the DHI. The actual revenue includes revenue earned from the sale of minerals and other indirect revenues such as sale of tender documents, liquidated damages, sale of rejected stones, guesthouse rents, audit recoveries, interests, and other sources as reported in the Financial Statements of the company.*

Thus, although the company has been able to achieve the revenue targets set in the APC for most of the years, its revenue performance fell short of targets set in the CSP and FMFS reports throughout the period reviewed by the RAA.

The SMCL responded that the cumulative revenue target of Nu. 21.87 was ambitiously projected based on an assumed and gradual annual production and sale increment over the CSP period of five years. However, the targets for the operational years were set annually upon confirmation of the demand volume of the mineral products from the buyers. The significant deviation between actual revenue and FMFS projections is attributed to projections made at different times based on mineable reserves, fixed lease periods, and unconfirmed market information. The Dzongthung Stone Quarry in Bartsham, Trashigang, faced significant deviation from the targets (82%) due to the suspension of the KHEL.

While acknowledging the views of the company, the premise of the RAA's observation was based on the consideration that the targets of CSP and FMFS were developed scientifically through pre-studies which are deemed to bear certain accuracy and reliability.

iii. Achievement in terms of meeting domestic market demand

The AoI mandates SMCL to carry out mining activities for supply to the domestic and export markets with priority given to domestic industries. However, the present market situation for SMCL's products reveals certain shortcomings, particularly in fulfilling market demands and its preparedness for logistics-related risks as discussed below:

a) Since its inception in 2014, the company has consistently positioned coal as its flagship product, however, it has struggled to attain production levels that can adequately meet the demands of the domestic market.

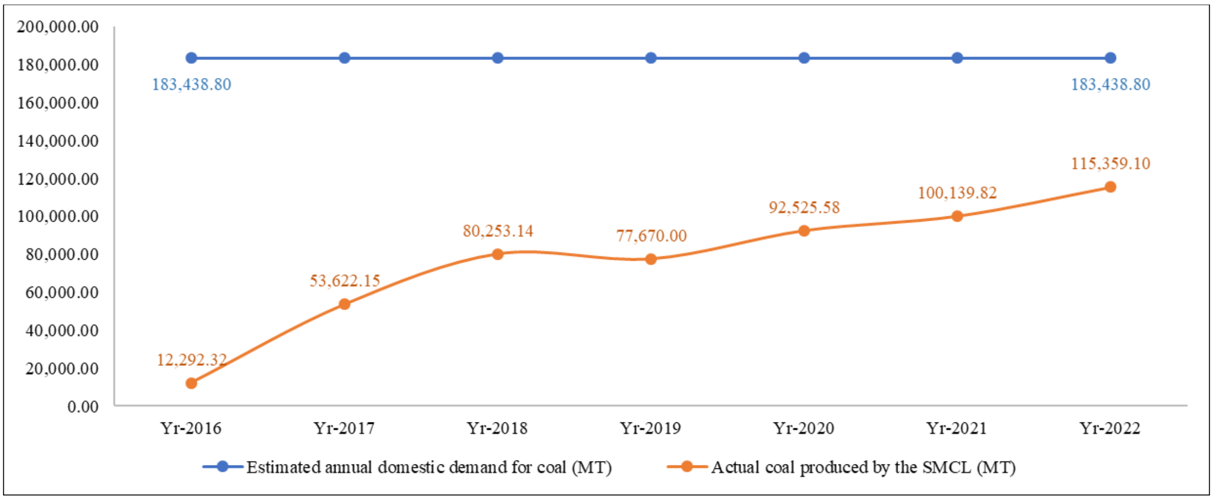
b) The primary consumers of the coal in the domestic market are predominantly composed of cement factories and AWPL, and these consumers altogether have substantial coal consumption capacities, as detailed in Table 6. Based on the past records from 2016 to 2021, the annual demand for coal from these consumers aggregated to 183,438.80 MT. However, as shown in Figure 9, the company produced around 69,417.17 MT of coal annually taking average of the annual production between 2016 and 2021. This indicated that the company was not able to cater the domestic demand for coal.

Table 6: Summary of coal consumption within domestic market

SL. No	Consumer	Average coal consumed in one year (in MT)
1	Dungsam Cement Corporation Limited (DCCL)	110,188.80
2	Penden Cement Authority Limited	40,000.00
3	Lhaki Cement	25,000.00
4	AWPL	8,250.00
	Total	**183,438.80**

Data Source: *The data were furnished to the RAA by the SMCL.*

Figure 9: Demand vs Actual Coal Production



Data Source: *The data were furnished to the RAA by the SMCL. For the purpose of the analysis, the demand for coal was assumed to be constant between 2016 and 2022.*

c) Domestic consumers therefore heavily rely on imported coal to fill up the short supply of coal by the SMCL, as indicated by the import data from the Department of Revenue and Customs as shown in Table 7.

Table7: Coal import from India (2018-2021)

Year	Quantity (MT)	Amount (Nu.)
2018	44,265.70	538,366,687.40
2019	26,259.56	280,361,946.90
2020	68,639	695,554,503.85
2021	80,391.78	915,916,620.90
Total	**219,556.04**	**2,430,199,759.05**

Data Source: *Department of Revenue and Customs*

d) The SMCL also plays a crucial role in the production of gypsum and dolomite, both of which are significantly marketed in India and Nepal. These neighbouring markets collectively account for over 90% of the market share, as illustrated in Table 8. In contrast, the domestic market share for gypsum is a mere 11.22%, and for dolomite, it is even lower at 0.67%, underscoring the company's significant reliance on international markets.

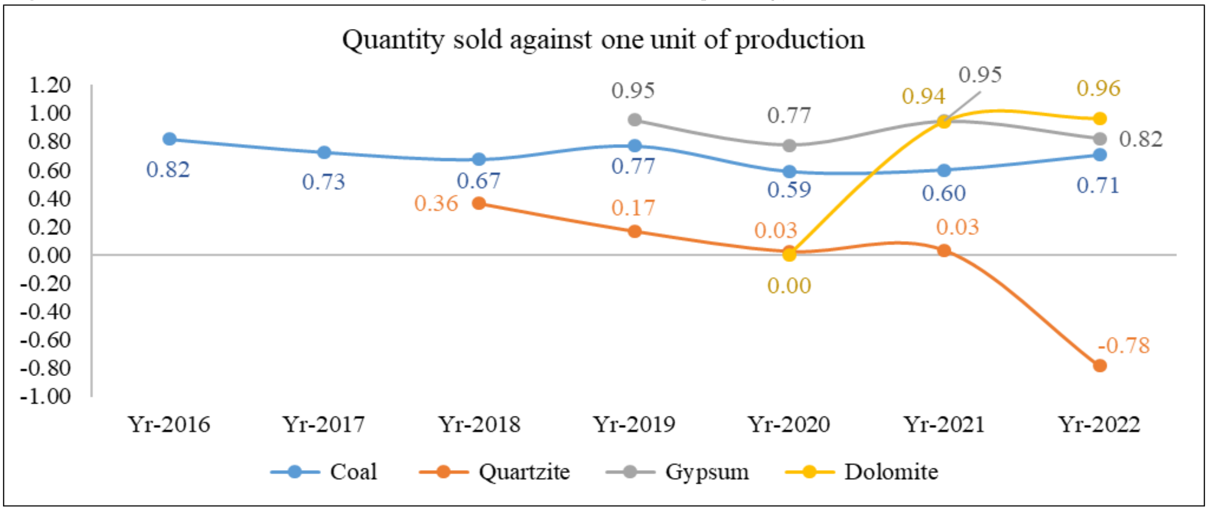
Table 8: Gypsum and dolomite market share and number of clients by locations

Market	Country	Gypsum		Dolomite	
		% of Sale	No. of Clients	% of Sale	No. of Clients
Domestic	Bhutan	11.22%	6	0.67%	3
International	India	27.48%	37	99.23%	8
	Nepal	59.54%	5	0.00%	0
	Bangladesh	1.76%	3	0.10%	4
Total		**100.00%**	**51**	**100.00%**	**15**

Data Source: *The data were furnished to the RAA by the SMCL.*

e) An examination of the production-to-sales ratios (quantity) within the company's mineral portfolio reveals varying rates across different minerals. It is noteworthy that dolomite and gypsum demonstrate a comparatively higher sales rate when contrasted with coal and quartzite. As illustrated in Figure 10, the company achieved sales of 0.96 MT of dolomite against one MT produced in 2022. Similarly, the company achieved sales of 0.82 MT of gypsum against one MT produced in 2022 which was a decline from 0.95 MT in 2021. The sale of coal exhibited a gradual decline over time, ranging from 0.82 MT in 2016 to 0.71 MT in 2022 against each MT produced (with the exception of 0.77 MT in 2019). The quartzite segment displayed a less favourable performance, with the company achieving sales of 0.36 MT against one MT produced in 2018, which then declined to a mere 0.03 MT in 2020 and 2021. It has further declined to negative in 2022 indicating a huge unsold stock at the end of the year.

Figure 10: Production to Sales ratio (calculated based on total quantity)



Data source: *Ratios were calculated by the RAA based on the financial data received from SMCL. The quantities sold were recalculated after adjusting the possible opening and closing stock. The ratios should be interpreted as: for every 1 metric ton produced, SMCL sold "x" metric tons, and all the values for "x" are provided in the Figure. These ratios can also be expressed as percentages. For example, in 2022, SMCL sold 96% of the dolomite produced in that year.*

In light of the aforementioned findings, the RAA opines that the company has not made strategic choices among various mineral portfolios in response to market demand and accordingly plans for the resource allocations. In other words, there is an opportunity for comprehensive analysis to determine which minerals the company should prioritise for additional investments and productions, with the aim of maximising revenue contribution to the national income of the country.

The SMCL has responded that the challenge does not stem from an inability to meet the desired demand of their domestic consumers but rather from the inherent limitation of insufficient high-quality coal deposits in the mines. The coal mining operations are exclusively geared towards supplying the domestic cement industries, which impose strict quality parameters, with an acceptable ash content limit set at 20%, while the coal deposits in our mines inherently exhibit an average ash content surpassing 30%. Heavy penalties are imposed on SMCL for any ash content exceeding this threshold, with the amount reaching as high as Nu. 47 million in a single year. Additionally, the persistent challenge of dealing with a substantial inventory of poor-quality coal at the conclusion of each fiscal year further compounds the company's operational issues.

The RAA acknowledged the challenges stemming from coal quality limitations and strict industry parameters. However, it is important to recognise that addressing these challenges alone may not fully resolve the issue of meeting market demands. Broader strategies must be considered to navigate these constraints effectively and proactive measures, such as exploring technological advancements or diversifying markets, could help mitigate the impact of these challenges and ensure a more robust supply chain. Continuous collaboration with stakeholders, particularly domestic cement industries, remains an opportunity to find sustainable solutions.

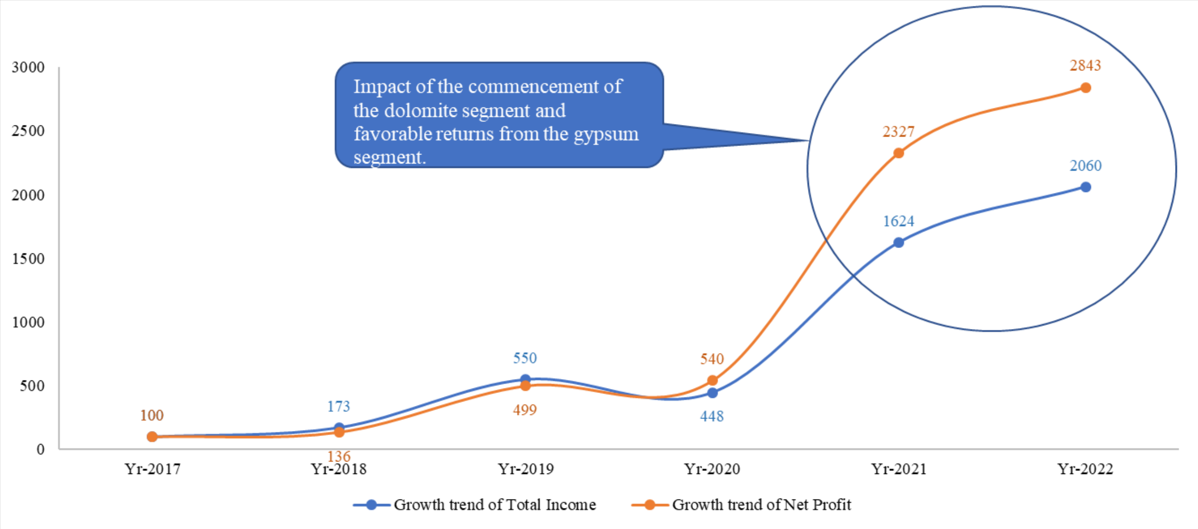
3.2. Operations & Management

The RAA reviewed the various aspects of operational efficiency to highlight the opportunities to enhance cost efficiency, productivity and profitability of the company. Some of the findings of the analysis are as discussed below.

3.2.1. Financial Performance

The overall financial performance of the SMCL showed a consistent growth as indicated by its total assets, net worth, total income, and profits as shown earlier in Table 2. Moreover, the acquisition of gypsum in 2019 and dolomite in 2021 contributed to SMCL's positive financial standing, resulting in significant growth in its profit, as depicted in Figure 11.

***Figure 11**: Trend Index of Total Income and Net Profit from 2017 to 2021*

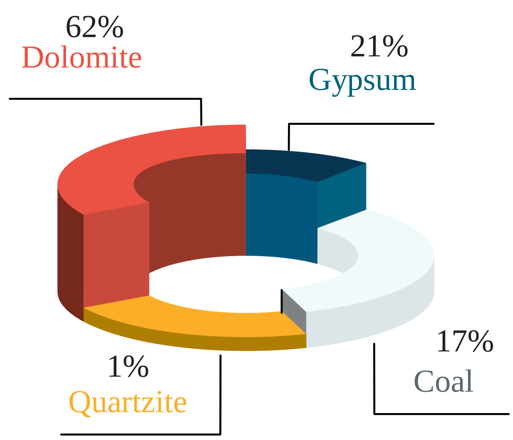


***Data source:** RAA computed based on the figures of audited financial statements of SMCL. The trend index was computed using the formula (Pi/P0) *100, where Pi represents the figure for the specific year, and P0 corresponds to the base year figure (2017). This metrics is used to track the relative changes in the figures over time or variations in the data compared to the base year.*

Further analysis of the total income for 2022 showed that dolomite had the biggest share of revenue (62%), followed by gypsum (21%) and then coal (17%) as presented in Figure 12. Quartzite had the least share of revenue (1%).

Moreover, as indicated in Table 9, coal was the sole revenue driver until 2018 when SMCL ventured into gypsum mining. In 2017 and 2018, coal's share of revenue was 100% and 98% respectively. In 2019 and 2020, gypsum's share of revenue superseded the coal (61% and 59% respectively). Starting from 2021, SMCL

Figure 12: Share of total revenue in 2022



began selling dolomite, which experienced strong market demand and became the primary revenue driver thereafter, contributing 57% to total revenue in 2021 and 62% in 2022.

Table 9: Revenue drivers in percentage among the four minerals

Mineral	Yr-2017		Yr-2018		Yr-2019		Yr-2020		Yr-2021		Yr-2022	
	Nu.	(%)	Nu.	(%)	Nu.	(%)	Nu.	(%)	Nu.	(%)	Nu.	(%)
Coal	257.12	100%	440.91	98%	532.74	38%	458.64	40%	609.73	16%	768.11	17%
Quartzite			7.56	2%	15.49	1%	16.34	1%	61.96	2%	32.12	1%
Gypsum					857.21	61%	670.71	59%	925.47	25%	976.74	21%
Dolomite									2,111.37	57%	2,860.15	62%
Total	**257.12**	**100%**	**448.47**	**100%**	**1,405.44**	**100%**	**1,145.69**	**100%**	**3,708.53**	**100%**	**4,637.11**	**100%**

Data Source: *Calculated by the RAA based on the financial data received from the SMCL.*

Despite the commendable progress observed in these aggregated financial metrics, a deeper analysis of the financial data, involving the dissection of these metrics into their constituent components, has revealed several performance challenges, which the company may address to enhance its overall performance. The findings of this analysis are presented hereunder:

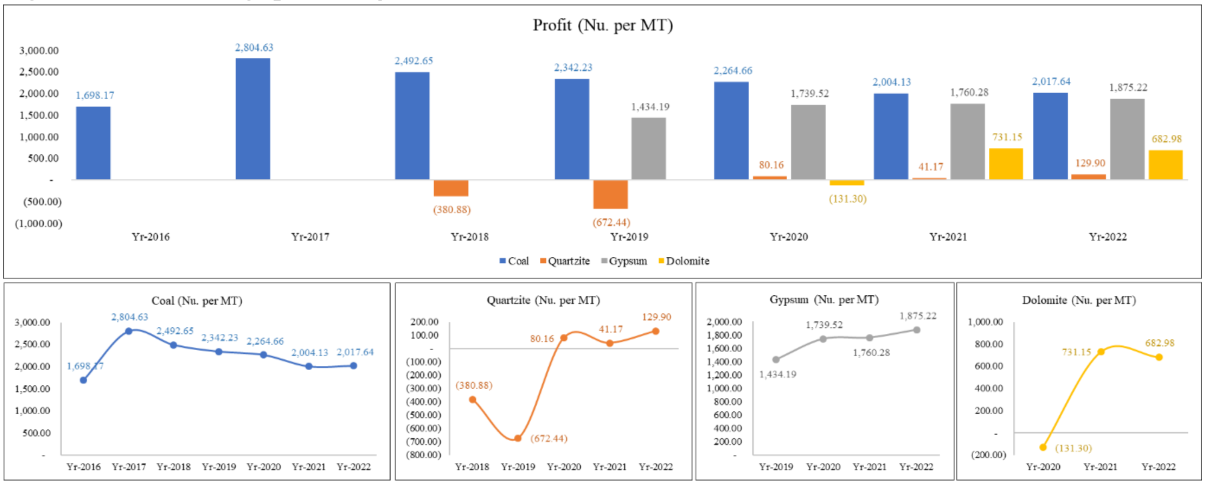
i. Profitability

a) The profitability reflects a company's ability to manage expenses and generate sustainable earnings, which is crucial for long-term viability. For a mining company, its ability to generate sufficient profit not only secures business sustainability but also fuels growth and expansion, while simultaneously enhancing its role in bolstering national income and fostering community development. Noting such importance, the AoI of the SMCL explicitly mandates it to be financially sustainable and increase the mineral sector's contribution to the nation's economy.

b) Despite the remarkable profit growth at the aggregated level, as presented earlier in Table 2 and Figure 11, an analysis of profits by breaking them down into per-unit profit revealed significant variations for all four mineral segments (Figure 13). The per-unit profits of the coal segment displayed a continuous declining trend since 2017, and the quartzite segment showed negative figures during the first two years of operation and a fluctuating trend thereafter. While the per-unit profit of gypsum and dolomite remained positive, the dolomite segment experienced high variations over the years of their operation while the gypsum segment showed slightly better in profit consistency.

c) These fluctuations in the per-unit profits in overall raise concerns about the company's operational efficiency and profitability.

Figure 13: Net earnings per MT of minerals sold between 2016 and 2022



Data Source: *Net earning data were furnished to the RAA by the SMCL. The statistics for the dolomite segment should be read with caution. Although the company began extraction in November 2020, sales did not commence until 2021. Consequently, there can be seen a loss of Nu. 131.30 per metric ton in 2020, representing the cost of extraction incurred in that financial year.*

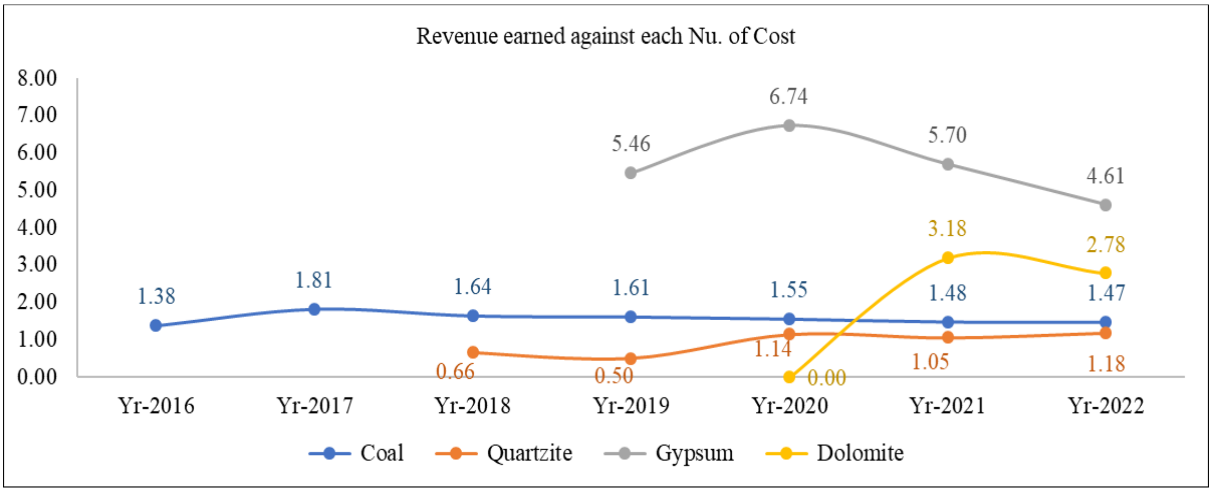
The SMCL responded that they lack control over selling prices and production costs, impacting its profitability. For instance, the coal price was fixed at Nu. 5,693.00 (ex-Habrang) per MT by a multi-sectoral committee in 2016 and has remained unchanged. Given that the production processes rely heavily on machinery and trucks, fluctuations in POL prices directly influence the overall production costs. The period during which RAA has done assessment has been affected by the COVID-19 pandemic thereby increasing the cost of production with restriction while reducing the efficiency of operation. Most mines are currently in a developmental stage and thus unstable operational efficiency. However, efficiencies will gain in the next few years after the completion of developmental works, except in the case of coal mines. Due to the unpredictable nature of coal deposits in the country, the annual cost of coal production is anticipated to vary, influenced primarily by the handling requirements for overburden.

ii. Cost efficiency

a) Cost efficiency is paramount for a mining business as it directly influences its profitability and long-term sustainability. The RAA has analysed the cost efficiency of SMCL by calculating revenue per unit of cost (or cost-revenue ratio) for all four mineral segments for the period of operation from 2016 to 2022.

b) It was found that the gypsum segment stands out as the most cost efficient, closely followed by dolomite. As shown in Figure 14, the gypsum segment has generated a revenue of more than five times its costs in average (cost-revenue ratio of 1:5 in average) but it showed a declining trend. Revenue from dolomite showed more than triple times the cost in 2021, but this ratio saw a decline in 2022, shifting the cost-revenue ratio from 1:3.18 to 1:2.78. Although the coal segment has constituted the cornerstone of SMCL's product mix, it exhibits a discernible decline in its cost-revenue ratio over time. Similarly, the quartzite segment showed gradual increase in cost-revenue ratios but remained the most inefficient segment in the company's product mix.

Figure 14: Cost to Revenue ratio (calculated based on per unit cost and revenue)



Data Source: *Ratios were calculated by the RAA based on the per unit sales revenue and per unit total cost data received from SMCL. The ratios should be interpreted as: for every one-ngultrum cost, SMCL earned "x" ngultrum revenue, and all the values for "x" are provided in the Figure. These ratios can also be expressed as times. For example, in 2022, revenue SMCL earned from gypsum was 4.61 times the cost of extraction.*

c) In summary, except for quartzite, all other three mineral segments are heading towards a declining trend on the way forward indicating inefficiencies and ineffectiveness in its revenue generation at the given costs.

d) Thus, such decreasing ratios could be a cause of concern that may warrant closer examination of existing cost control measures.

The SMCL responded that they are very cognisant of the variable factors and limitation on profitability due to various factors such as degree of competition, demand, substitutes, scale of production, and control over variable costs. Some of the factors are external which are beyond the control of the company. Taking the 2020 financial year as an example:

- **61.40% of the total cost of Khothagpa Gypsum Mine constituted the expense of transporting gypsum from the mine to the stockyard. If the company explores alternative transportation measures, the businesses of around 248 truckers are at stake. The cost of transportation is also variable with changes in the price of diesel.**

- **15.27% of the coal segment's total cost went to fuelling company-owned machinery and trucks, and an additional 35.54% was paid for hired machinery and trucks, with rates tied to variable diesel prices.**

- **Since 2020, the RGoB implemented an annual license fee of Nu.50 million for coal and, since 2022, Nu.200 million for dolomite and Nu.75 million for gypsum mines, impacting the overall production cost compared to previous years.**

The SMCL also submitted that it has started/planned various measures to minimise cost such as:

- **Conversion of diesel-operated mobile crushers to electric-operated.**
- **Purchase of bigger and efficient excavators & wheel loaders.**
- **Proposal for installation of conveyor system at Chunaikhola Dolomite Mine.**
- **Pooling of certain machinery amongst cost centres like backhoe loader, drum roller, etc.**
- **Pooling of experts within the company.**

iii. Return on Investments (ROI)

a) One of the objectives stipulated in the AoI for SMCL is to prospect and develop mines and minerals provided it is viable. Accordingly, the SMCL has invested in developing several mines and quarries since its inception. Upon analysing the ROI for each mine and quarry, the RAA noted underperforming investments that the company needs to address to avoid an adverse impact on its overall financial performance.

b) For the purpose of computing ROI for each mine, the RAA used initial investment and the annual expenditure incurred for the duration of operation of the respective mines and their respective revenues. The investment and expenses for the mines and quarries for the given number of years in operation is shown in Table 10.

Table 10: Investment cost for all the mines

Mining sites	Investment (Nu,)	Expenditure (Nu.)	Total Investment Cost (Nu,)	Year of operation	No. of years in operation
Dzongthung Stone Quarry	149,945,606.50	173,420,987.64	323,366,594.14	2017-2021	5 Years
Habrang & Tshophangma Coal Mines	276,521,156.39	1,507,953,585.10	1,784,474,741.49	2016-2021	6 Years
Khothakpa Gypsum Mine	56,726,705.76	1,433,181,740.40	1,489,908,446.16	2019-2021	3 Years
Khabari Dara Stone Quarry	6,565,190.31	486,932.24	7,052,122.55	2018	1 Year
Reshore & Khichangpo Coal Mines	4,497,629.15	2,165,791.65	6,663,420.80	2020-2021	2 Years
Chunaikhola Dolomite Mine	145,187,472.18	791,174,962.20	936,362,434.38	2020-2021	2 Years

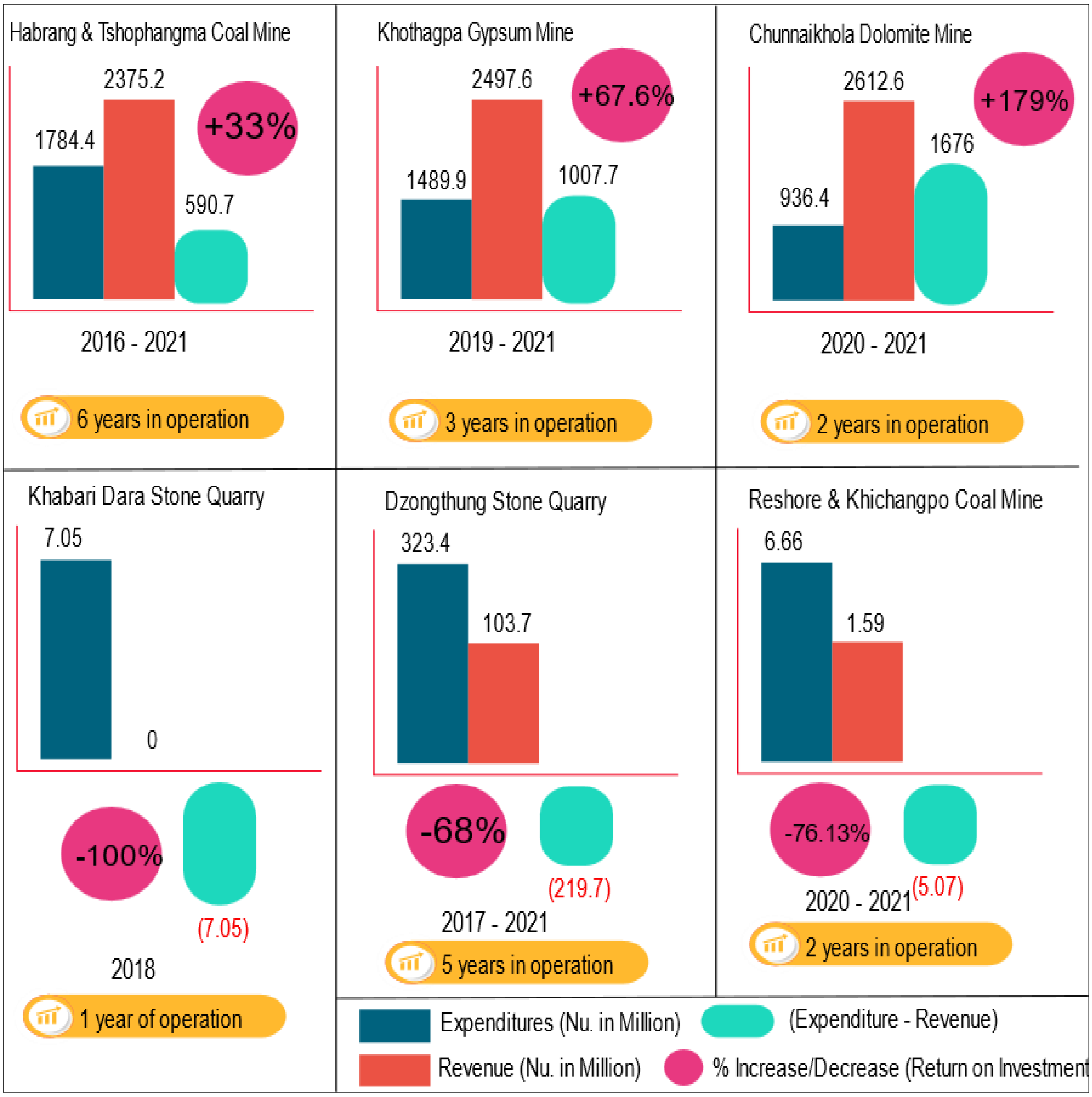
Data Source: *Furnished to the RAA by the SMCL.*

c) Figure 15 represents the return on investment calculated for each mine/quarry using the following formula:

$$Return\ on\ Investment = \frac{(Revenue - Total\ Investment\ Cost)}{Total\ Investment\ Cost} \times 100$$

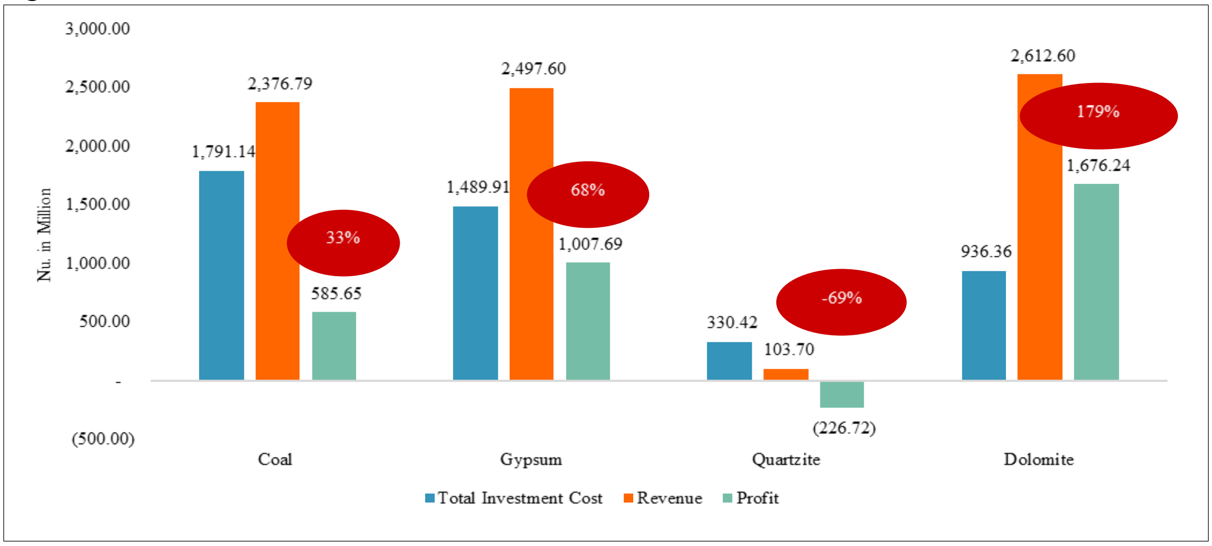
d) As illustrated in the Figure 15, Dzongthung Stone Quarry, Kharibaridara Stone Quarry and Khichangpo and Reshore Coal Mines show negative ROIs while other three mines show positive ROIs.

Figure 15: Cost centre wise ROI



e) Mineral wise ROI (Figure 16) showed that dolomite is the most profitable mineral with the ROI of 179%, followed by gypsum and coal with 68% and 33% respectively. A negative ROI is noted for quartzite, with -69%, indicating a loss and contributing to depletion of capital of the company.

Figure 16: Mineral wise ROI



Data Source: *Computed based on the financial data furnished to the RAA by the SMCL.*

f) As highlighted above, the different mining sites show ranging ROIs indicating differing profitability even for the same minerals. While the positive ROIs provide the company with an opportunity to enhance its strategy of maximising profit, the negative ROIs impact the overall financial performance. The SMCL has to make strategic choices to identify uneconomical investments, cut losses and improve efficiency, reallocate resources and diversify portfolio investment.

The SMCL responded that they have a social mandate to supply coal at cheaper prices. Accordingly, coals were supplied at Nu. 6,540 per MT (Rishore coal) in 2019 while the market rate was Nu. 8,100 per MT. SMCL was not in position to produce adequate quantities of coal even after operating multiple mines due to its erratic nature and difficulty in proving its deposits. Good-grade coal is found only in the Rishore area, but to maximise its production, the mining area must be expanded with payment of compensation and resettlement costs of Nu. 186 million. It may also be too early to assess the ROI for the Rishore coal mine as it has operated for only a year and within a small geographical area.

Regarding Dzongthung Stone Quarry, the investment pertains to the installation of a plant for supplying materials to the KHEL project, whose delay has impacted the ROI. However, if the KHEL project is not set to start soon, the plant can be relocated to other cost centres. The SMCL has already transferred some machinery and trucks initially invested for the Quarry to other cost centres.

3.2.2. Unsuccessful Investments

According to the AoI, SMCL is designated as the body responsible for developing strategic minerals and is tasked with prospecting and developing mines and minerals, provided they are economically viable. This mandate underscores SMCL's crucial role in identifying economically feasible opportunities for mineral development and ensuring responsible resource utilisation through strategic planning and assessments.

The RAA has observed that in 2018, SMCL established a stone quarry namely Khabari Dara Stone Quarry. Subsequently, in 2020, SMCL established a new coal mine namely Khichangpo Coal Mine. However, none of these two establishments could sustain despite incurring substantial establishment costs.

The details for the cases of unsuccessful investments are discussed below:

i. Khabari Dara Stone Quarry

a) In 2018, the company management apprised the board of the ongoing efforts by the RGoB to explore the feasibility of supplying railway ballast from Bhutan to the North East Frontier Railway in India. Negotiations were actively taking place between the two governments to finalise a Memorandum of Understanding for this venture.

b) In light of these negotiations, SMCL, in consultation with DGM, commenced site development works at Khabari Dara with the anticipation that the agreement between the two governments would come to fruition, enabling SMCL to capitalise on the business opportunity once the governments reached a successful agreement. Consequently, SMCL invested Nu. 7.05 million in site development works.

c) Later, when negotiations for the supply of railway ballast could not be materialised, SMCL made the decision to close the quarry and return the site to DGM. This led to avoidable costs, amounting to the entire investment of Nu. 7.05 million, with no return for the company.

ii. Khichangpo Coal Mine

a) On 16 August 2004, the erstwhile MoEA conducted an auction for the extraction of coal deposits located within the Samdrup Jongkhar region. During the auction, SD Eastern Bhutan Coal Company (SDEBCC) won the bid at Nu. 521 million and secured the rights to extract these coal deposits. This extraction contract was valid for a duration of 15 years, spanning from 2005 to 2019.

b) In 2017, SDEBCC took significant steps towards their coal mining operations by conducting the FMFS for three specific areas: Ashikhar, Dimola, and Khichangpo. According to the FMFS reports, the mineral reserves in these areas amounted to around 30,000 MT (Ashikhar = 6,131 MT, Dimola = 8,906, and Khichangpo = 14,250), from which it was estimated that 15,000 MT could be extracted annually on average. Consequently, SDEBCC established the mine site with a total combined area of 11.13 acres, including a designated area for waste disposal.

c) Between 2017 and 2019, SDEBCC extracted a total of 292,813.12 MT of coal from Ashikhar and Dimola areas as confirmed by records from the DGM. This indicates that the initial FMFS carried out by SDEBCC has underestimated the coal reserve in these areas.

d) During this timeframe, SDEBCC did not initiate mining activities in the Khichangpo area, and their mining rights, as per the lease agreement, finally came to an expiry in September 2019. As per the FMFS report prepared by SDEBCC, Khichangpo area had a total coal reserve of 14,250 MT within the area of 1.1 acres (0.445 hectares).

e) In 2020, the Ministry consulted with DHI and conveyed the urgency of assuming control over the Khichangpo Coal Mine to ensure an uninterrupted supply of coal to the domestic market. These consultations culminated in a decision to lease the Khichangpo Coal Mine to SMCL vide work order number MIN-193/DGM/2020/1345 on 26 June 2020. Subsequently, SMCL initiated site development works, investing Nu. 3.953 million, and commenced mining operations without conducting a reassessment of the coal reserves in the area. As a consequence, after six months of mining, SMCL discovered an insufficient coal reserve and was forced to halt its operations.

f) During their six months of operation, SMCL extracted a total of 256.22 MT of coal and earned only Nu. 1.59 million (256.22 MT @ Nu. 6,200) against Nu. 3.95 million investments, resulting in a loss amounting to Nu. 2.37 million.

The SMCL has responded to the findings explaining that the Khabari Dara Stone Quarry was explored to expand business when SMCL had only coal mines in hand. When the government leased gypsum and dolomite to SMCL, the stone quarry was closed down. To play an exemplary role, SMCL surrendered the quarry to DGM for allotment to other interested firms. All other assets were transferred to other cost centres except for those assets of an immovable nature.

Regarding the Khichangpo Coal Mine, SMCL explained that they took over the mine to maximise their coal supply without losing time. It was previously left undeveloped by SDEBCC. The initial FMFS expected 14,250 MT of coal reserve, but the coal reserve was exhausted after extracting 256.22 MT. The preliminary investigation deemed it infeasible to explore further in adjacent areas, as the investment cost would significantly surpass the available coal reserves. Therefore, the coal mine was discontinued, and resources were redirected to expand the Rishore Coal Mine instead.

While acknowledging the responses of the SMCL explaining the circumstances, challenges and efforts made to enhance the financial performance and operational efficiency, the results of the analysis made above indicate opportunities to forge strategies for improvement. The company's commitments to gain efficiencies and optimisation in the operations in next few years after the completion of developmental works is noted.

3.2.3. Credit Management

SMCL's Credit Policy is designed to establish clear guidelines for individual customer credit limits and the specific terms of payment provided to customers. According to this policy, the company extends a maximum credit period of 45 days from the invoice date. In cases where payment is not made within this specified timeframe, customers are subject to penalties, calculated at the working capital or overdraft loan interest rate.

However, despite the existence of this credit policy, the RAA noted several instances where the company was not able to enforce such policy resulting in a significant outstanding credit from its customers as discussed below:

a) The credit data from 2016 to 2021, as depicted in Table 11, showed an increasing trend of accounts receivables, with a minor decline in 2021. Furthermore, an analysis of receivables by mineral category indicated that the significant outstanding credit pertains to the coal segment.

Table 11: Receivables with customers over the between 2016 – 2021

Year	No. of Customer	Amount (Nu.)	Coal sales	% against Coal sales	Receivable from DCCL (Nu.)	DCCL Receivables against receivable from coal	DCCL Receivables against overall receivable
2016	1	47,403,264.32	47,403,264.32	100%	47,403,264.32	100%	100%
2017	3	103,900,097.44	103,900,097.44	100%	96,118,250.45	93%	93%
2018	3	207,036,830.69	207,036,830.69	100%	192,628,825.87	93%	93%
2019	10	289,057,881.92	287,422,260.17	99%	275,527,523.34	96%	95%
2020	18	449,497,378.27	430,519,294.98	96%	417,468,986.23	97%	93%
2021	27	338,929,980.32	290,364,110.92	86%	269,197,987.63	93%	79%

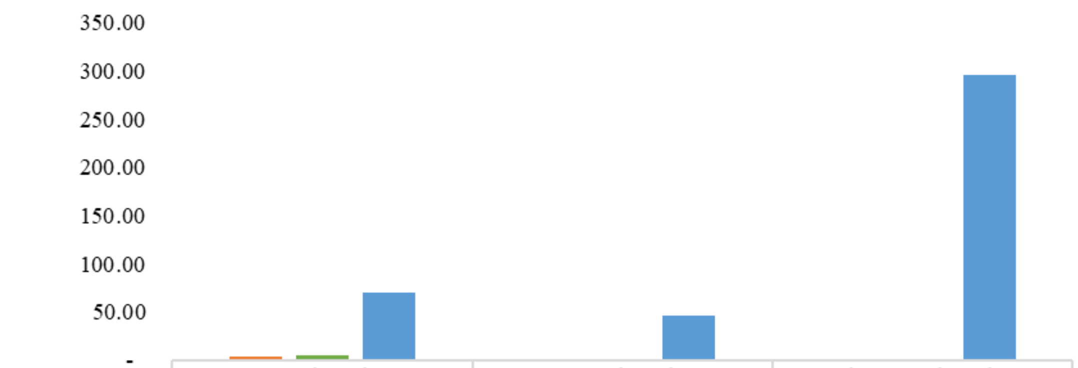
Data Source: *Computed and furnished by the SMCL.*

b) Further, the aging analysis shown in Figure 17 indicated a significant amount of Nu. 295.73 million, constituting 87% of the total receivables, has been due beyond 90 days.

c) It was also noted that the company had not imposed penalties on these overdue accounts, contradicting the intended provisions of the credit policy.

d) Moreover, the RAA noted a lack of practice in collecting advance payments from domestic customers when goods valued at more than Nu. 5 million are dispatched in deviation to the company's credit policy.

Figure 17: Aging analysis of accounts receivables



	0-30 days due	30-90 days due	Above 90 days due
AWPL	4.09		
Lhaki Cement	5.64	0.13	
DCCL	70.3	46.47	295.73

Data Source: *Furnished to the RAA by the SMCL.*

Thus, the significant amount of account receivables lying outstanding beyond the allowable period has affected the liquidity position of the company as it was apparent where the company had to resort to short-term borrowings, ranging from Nu. 50 million to Nu. 100 million, to meet its operating cost. Also, the fact that the receivables remained uncollected for a longer period provides to show that credits were not regulated as per the policy.

The SMCL explained that the receivables mainly stem from domestic coal clients, especially DCCL, which alone constitutes 80% of SMCL's domestic coal market. SMCL avoids extending credit facilities to external clients. Initially, DCCL and other clients were unwilling to buy SMCL's coal due to its low quality. To encourage purchases, the 45-day credit period was relaxed. SMCL escalated the matter to the Board but Board acknowledged that the root cause of the issue lies in the significant receivables held by DCCL from hydropower projects and other national initiatives. This has left SMCL in a dilemma. However, the proportion of receivables from the sale of coal in relation to the total receivables has declined from 100% to 86% over the years, as shown in the Table 11. However, SMCL is committed to expedite the collections from DCCL. It achieved a breakthrough in 2021 with a one-time payment of Nu 300 million. Monthly payment was also renegotiated from Nu. 35 million to Nu. 55 million.

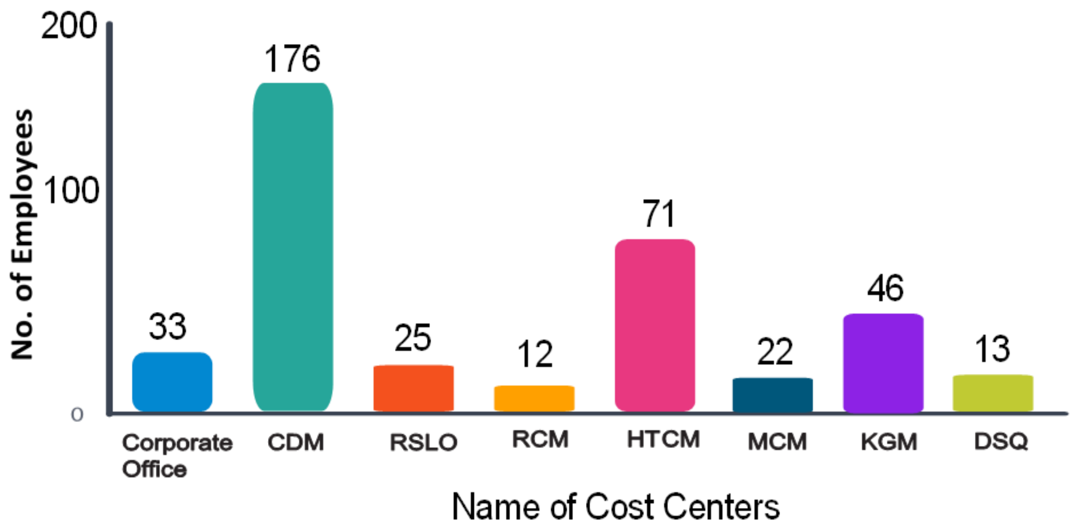
While progress has been made in addressing outstanding receivables from DCCL, the fact remains that the SMCL has not consistently enforced its credit policy and has not taken proactive measures to manage receivables effectively across all customer segments.

3.3. Human Resource Management and Development

Human resources play a critical role in driving the overall performance of the company. The overall capability of human resources should be sustained through a streamlined process of recruitment, development, and administration of its workforce. It is also important to ensure to maintain a motivated workforce to contribute towards organisational goals and objectives.

The HR administration of the SMCL is governed by its HR Manual 2016. It prescribes the process for all HR management and development activities. The company is currently manned by **398** employees as on the date of the audit. The distribution of employees across the cost centres and headquarter are shown in Figure 18.

Figure 18: Distribution pf employees by cost centres



Data Source: *Furnished to the RAA by the SMCL. (CDM = Chunikhola Dolomite Mine; RCM = Reshore Coal Mine; HTCM = Habrang & Tshophangma Coal Mine; MCM = Majowa Coal Mine; KGM = Khothakpa Gypsum Mine; DSQ = Dzongthung Stone Quarry).*

The highest number of employees are in Operation level (O), followed by Support Service level (S) and Managerial positions. The company also has 28 wage workers and 19 General support categories. It is staffed by 4 executives (3 General Managers and 1 Executive).

The RAA noted following gaps in the HR management and development of the company:

3.3.1. Human Resource Master Plan

a) Human resource planning is a process of evaluating the HR need of the company for both the present and future, and maintaining a steady supply of skilled employees. It consists of various steps such as analysing the labour supply in the market, forecasting the labour demand of the company, balancing the labour requirement of the company and planning to achieve future demand of the company.

b) Recognising the importance and need for the development of the HR Master Plan, SMCL identified this as one of the activities or initiatives in the CSP 2019-23. However, the company is yet to come up with the long-term HR Master Plan.

c) Although the company has been in operation for more than seven years, it was not understood as to why the company was not able to come up with the roadmap to manage its most valuable asset – the people. The company should have considered this document as critical to guide the company in aligning its HR strategies to its business objectives and goals.

The SMCL justified that they did not pursue the development of an HR Master Plan for several reasons. Firstly, SMCL was initially established with a lone coal mine. Secondly, the Dzongthung Stone Quarry was a time-bound project contingent upon the commencement of KHEL. Thirdly, Gypsum and Dolomite served as interim operations for SMCL without clear directives from the government regarding their long-term operation. However, in April 2022, the government granted long-term operation rights for Gypsum and Dolomite and consequently included the HR Master Plan as one of the KPIs in the APC of 2023. SMCL has now successfully developed the HR Master Plan.

The RAA acknowledges the development of the HR master plan recently after the concerns were raised by the RAA. While the initiatives were as recent as finalisation of this audit report, the RAA commends the initiative of the company in developing the document which is critical for supporting the going concern of the company. However, the operationalisation of the document is subject to review.

3.3.2. Recruitment & Job Assignment

a) Recruitment should be carried out based on the HR requirement identified in the HR master plan because recruitment of manpower without identifying needs would result in hiring people who may not be relevant to the positions and responsibilities which may undermine overall performance of the company.

b) In the absence of the HR roadmap, the company did not have HR strategies entailing manpower requirements at various position levels. The recruitments made by the company were based on ad hoc requirements. *For instance,* 36 *attenders/mine mates* were recruited for the Chunikhola Dolomite Mine although there was a requirement of only one attender, which was approved by the 37th board meeting.

c) The RAA also noted cases of mismatch between the position for which employees were recruited and actual job assignments. *For instance,* employees recruited as *security guards* were given the task of trip recorder. Some of the cases of mismatch between the position title and job assigned noted in the field visit to the cost centre are represented in Table 12.

d) Thus, the lack of defined job responsibilities has led to diffusion of responsibilities in addition to the challenges of resource allocation. This experience was apparent when a large number of staff was recruited without documented rationale or basis.

Table 12: Mismatch of position title and job assigned

Sl. No	Position Title	Current Job	Cost centre
1	Mines foreman	Data Assistant/billing	Habrang
2	Security	Trip recorder	Habrang
3	Caretaker	Cook	Habrang
4	Caretaker	Security guard	Habrang
5	Caretaker	Security guard	Habrang
6	Asst. quality controller	Lab asst. / sampler	Habrang
7	Asst. quality controller	Asst. sales manager	Habrang
8	Security guard	Trip recorder	Tsophangma
9	Security guard	Trip recorder	KGM
10	Security guard	Driver	CDM to HTCM

Data Source: *Computed based on the analysis of information furnished by the SMCL.*

The SMCL responded that they have directly absorbed the employees from Druk Satair Corporation Limited (60 heads in 2019) and Jigme Mining Corporation Limited (143 heads in 2020-2021) during the interim takeover of gypsum and dolomite operations to avoid layoffs. Thus, recruitment was not on need-based. The excess employees observed by the RAA were those redeployed from Dzongthung Stone Quarry.

The SMCL also clarified that the Attenders and Mining Mate are two different positions. Attenders are responsible for manual tasks without requiring any qualifications. In contrast, Mining Mate (min Class X) supports Mine Foremen and Supervisors in overseeing machine operations, transportations, and operational safeties. During the 37th Board Meeting, approval was sought to create the position of Mine Attendants for Habrang Coal Mine, Tsophangma Coal Mine, Dzongthung Stone Quarry and Khothakpa Gypsum Mine. Details about the qualifications and job responsibilities were also presented to the Board.

The RAA intends to underscore the significance of recruitment and job assignments based on requirements as worked out in HR Master Plan and HR strategies. Any HR management and development activities need to be strategically guided to ensure alignment to the company's goals.

3.3.3. Position Levels and Remuneration

a) Having equal, fair, and transparent job grading, promotion and payment structure is imperative for the company to motivate and maintain a productive workforce. The company's HR Manual should clearly specify the employee category and grading system to enable appropriate HR management processes. Further, maintenance of proper employee grading structure is important as the benefits and remunerations are tagged with the grades of the employees.

b) According to *annexure 2.1* of the HR Manual, there are 18 different grades that fall under six broad position categories. The position categories and corresponding grades are shown in Table 13.

Table 13: SMCL Position category and grading structure

Sl. No	Position category	Grade
1	Executive	E3 – E1
2	Managerial	M3 – M1
3	Supervisory	S3 – S1
4	Operational	O7 – O1
5	GSC	NA
6	ESP	NA

Data Source: *HR Manual 2016, SMCL*

c) As per the Manual, employees recruited for respective position categories shall be designated the initial/lowest grade of the category and progress gradually to the highest grade. Although the manual provides clarity on position categories, grades and remunerations, inconsistencies in designating grades and fixing salaries were observed as discussed below:

- There were discrepancies in the grades of employees, especially in lower-level positions. The security guard, weighbridge assistant, crusher operators and blasters fall under the 'Operational' category as per the HR manual. However, there are also employees of the 'Operational' categories under GSC indicating that proper mapping of grades was not carried out as per HR manual**.** The RAA also noted that the assigning of grades and positions during the recruitment were not as per the HR manual. *For instance*, the prescribed entry grade for security guards is O7, but there have been instances where security guards were placed in grades higher than O7. Similar cases were also found for other categories of employees such as the driver, weighbridge assistant, blaster, mining mate, dispatcher etc. This has distorted the seniority of the existing employees of the SMCL which would fuel disgruntlement among the employees.

- Huge differences in the amount of salaries paid for employees in same category and grades were noted as shown in the Table 14. The difference mainly happened due to not streamlining the employees' positions and grade to the HR Manual after taking over the mining sites from private mining companies. Instead, SMCL continued with the salary structure of previous mining companies (Jigme Mining and Druk Satair) which the company has claimed to have resorted to facilitate seamless transfer.

- Such differences were also prevalent amongst the cost centre. Not adhering to the HR manual has resulted in inconsistency application of categorisation and grading of employees and this has led to discrepancies in the renumerations of employees.

Table 14: Details of employee's payment

SL. No	Grade	Salary Difference	
		Min	Max
1	E3	18,898	58,658
2	M2	6817	41,735
3	M3	30,985	37,960
4	S1	15,363	34,860
5	S2	24,820	32,780
6	S3	22,565	25,390
7	O2	18,650	25,390
8	O3	16,955	22,055
9	O4	16,185	18,495
10	O5	14,715	17,165
11	O6	12,740	15,300
12	O7	11,580	16,510
13	GSC1	11,055	13,440
14	ESP	8,700	9,140

***Data Source**: Provided to the RAA by the SMCL.*

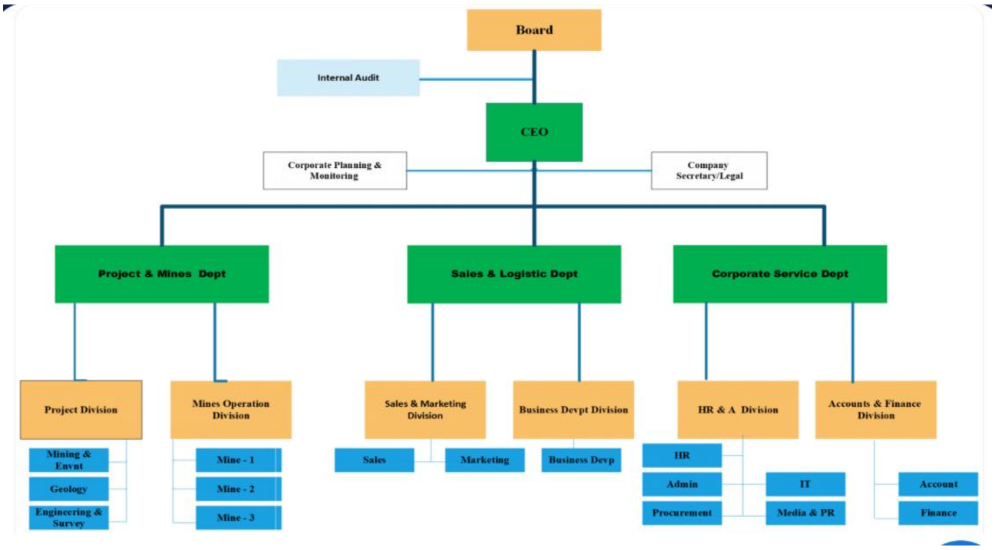
The SMCL has responded that the uniform grading system has been ensured for those employees recruited by SMCL. The discrepancies in the grading and remunerations exists only for those employees taken over from Druk Satair and Jigme Mining. They were absorbed and placed in different levels in different remuneration package to protect their grade/seniority held in previous companies. Pay revisions of 2019 and 2022 have compensated the issues but automatic position elevation without fulfilling the minimum qualification will not be possible. However, efforts were made to upgrade their grade by drawing equivalency between the qualification requirement and the years of experience. The discrepancies will be gradually resolved.

While acknowledging SMCL's commitment to rectify the discrepancies, it is essential to ensure compliances to HR Manual in terms of grade and salary fixation to avoid distortion in the entitlements, seniority, and disgruntlement among employees which would affect their morale and performance. This would ultimately lead to undermining overall performance of the company.

3.3.4. Unfilled Positions

The existing organogram of the company, approved by the Board, consists of three departments under CEO, and six divisions and various units under respective department as shown in Figure 19.

Figure 19: Organisational Structure of SMCL



Source: *Furnished to the RAA by the SMCL.*

The RAA noted that the existing structure is not as per the structure defined in the organogram as discussed below:

a) As opposed to three departments, the company has appointed only one Director for the Sales and Logistic Department.

b) The Project and Mines Department is currently looked after by one of the heads of divisions under it. Similarly, the Corporate Service Department is looked after by the head of HR and Administration Division.

c) The Accounts and Finance Division, supposedly placed under the Corporate Service Department, directly reports to CEO.

d) The divisions shown under the Sales and Logistic Department were not yet created and the functions of these divisions are directly looked after by the Director.

The above gaps indicate that the existing organisational structure is not responsive to the requirements of the company. This might hinder clear communication and delineation of responsibilities undermining efficiency and effectiveness of the overall operation of the company. Further, it also indicates that the company lack succession plan to ensure sustainability of human resource capabilities and continuity of services.

The SMCL responded that the two senior level positions were left unfilled due to uncertainty of SMCL's existence given the unclear policy of the Government. The Sales and Logistics Department required the creation of a Director-level position to effectively deal with gypsum clients in Nepal and Northeast India. The SMCL understands that filling vacant positions will ultimately improve efficiency and effectiveness in its service delivery. Thus, SMCL will conduct OD Exercise involving third party to have independent review.

The justification of the company is noted. However, the concern raised by the RAA was on adequacy of the organisation structure in responding to the needs of the company and the risk it might pose to the effective operation of the company. The assurance provided by the company to conduct OD Exercise may address the concern and enhance the relevance of the structure in terms of supporting its functions.

3.3.5. Training and Development

Capacity building is a systematic process to improve employees' knowledge, skills, and capability necessary to perform better at work.

The training and development process involve different stages. It starts from identifying the training need till the evaluation of performance as presented in Figure 20. The process is continuous in nature and the completion of one cycle is not the end of the process.

Figure 20: HR Training cycle

The training and development programmes should be developed based on the capacity development needs and job responsibilities of individuals. Training should be provided as it enhances the abilities of employees in achieving the short-term and long-term goals of the organisation as well as improving personal competencies.

However, the RAA noted that the company has not carried out any training needs assessment to identify knowledge and skills gaps and has not developed HR capacity development plan to address these gaps. It provided to show that the company limits training and development interventions due to resource constraints.

The SMCL responded that the company was formed in 2015 with only one coal mine which started to generate revenue only in 2017. The Dzongthung Stone Quarry operated as a time-bound project to meet local demands. Gypsum and dolomite mines were given to SMCL for interim operation, lacking clear government policy. Operating these gypsum and dolomite on an "interim basis" necessitated a cautious approach, refraining

from making substantial investments in long-term plans, including HR planning, recruitment, and development. Therefore, long-term planning and investment in HR capacity development has not been made. However, opportunities have been given for short term trainings, meetings and workshops for skills development.

In order for the company to enhance skills and competence of its employees and sustaining the development effort and interventions over time, the RAA intended to highlight the issues related to capacity developments essentially to institutionalise system of conducting training need assessments and administering the professional development of its employees.

3.3.6. Bonuses and Performance-based Variable Allowance (PBVA)

a) The PMS guidelines 2017 provides overall framework for managing the performance of its employees. The guideline outlines the process of developing annual compact for teams and individuals and the monitoring and evaluation framework.

b) The PMS is used to evaluate performance of the employees for various incentives and development interventions.

c) The company provides annual bonuses to the employees based on the overall performance of the company. The bonuses are approved by the Board based on the financial situation of the company and it is considered as recognition for employees' contribution towards company's performance. The bonus pay-out is calculated based on 20% company's achievement, 20% department level compact achievement and 60% individual performance appraisal ratings.

d) In addition to the bonuses, employees are also paid PBVA based on an achievement of the APC of the company as per the conditions specified in the PMS guidelines as outlined in Table 15.

Table 15: PBVA pay-out against compact achievement

Compact Achievement	PBVA Payments	
	CEO	Employees
≥ 95.00	Full (25% or as specified in their contracts)	15%
76% - 94%	Prorate 1.25% for every point of achievement	Prorate 0.75% for every point of achievement
≤ 75.00%	0	0

Data Source: *PMS guideline 2017, SMCL*

e) On review of PBVA payments, the RAA noted that the basis for PBVA is not the individual performance rating but on the corporate level performance rating. It was found that all employees were paid uniform PBVA irrespective of their individual ratings. *For instance*, employees rated below the 75% threshold were paid an amount equivalent to the compact achievement range of 76% to 94%. Furthermore, 185 employees rated between 75% to 95% were paid the full amount instead of prorated payment and 138 employees rated >=95% were also paid full instead of 15% as shown in Table 16.

Table 16: Actual PBVA payment made to employees for the year 2021

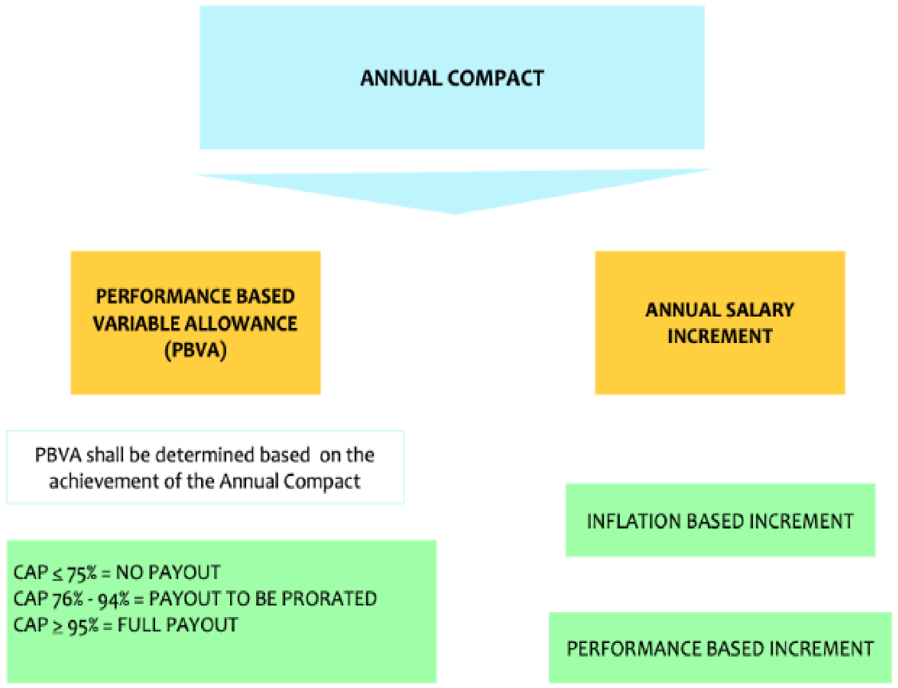
Performance rating	No of Employees	Amount payable as per PMS guideline 2017	Actual Amount paid (Total – Nu.)
<=75	3	0	1,21,248 (full)
76% - 94%	185	Prorated amount (0.75% for every point of achievement) *(the formula is not clear)*	5,017,202.4 (full)
>= 95	138	15%	3,632,476 (full)
Total			**8,649,678.40**

Data Source: *Computed by the RAA based on the information provided by the SMCL.*

f) The current system of paying PBVA does not differentiate performers from non-performers and thus does not ensure objective recognition and motivation of the performers, and setting performance benchmark for those who do not meet the expectations.

The SMCL responded that the SMCL Board and DHI BCPM jointly decides on payment of PBVA during Annual General Meeting. PBVA is paid based on achievement of overall APC targets irrespective of individual performance ratings; in accordance with PMS Guidelines 2017. The system of PBVA payment is as per the Figure 21

Figure 21: Linkage between incentives and performance compact



Source: *Furnished to the RAA by the SMCL.*

On other hand, an annual bonus is paid at the end of year as per performance rating comprising 20% company's achievement, 20% department level compact and 60% individual appraisal rating. The bonus pay-out is as per achievement of company's overall achievement as shown un Table 17:

Table 17: Bonus pay-out criteria

Compact Achievement	Bonus pay-out
>= 95.00%	2 months basic pay
85.00& - 94.99%	1.5 month basic pay
75.01% - 84.99%	1 month basic pay
<= 75.00%	No bonus

Data Source: *SMCL's response*

The SMCL has committed that on the way forward:

- **The previous system of paying bonus will be discontinued starting from 2023. The bonus amount of 2 months is approximately equal to 16.67% of the monthly basic salary and hence the new PBVP amount will be 31.67% (15% PBVP + 16.67% bonus).**

- **Integration of PMS in eMines is included as one of the KPIs in the Company's APC to objectively assess the performance of the employees and reward the performing employees.**

The revision of PBVA system initiated by the company is appreciated. The RAA intended to point out the gaps in terms of rewarding employees based on performance to persuade the company to opt for a more robust and objective performance management system that would align to its objectives of incentivising and motivating employees for better performance. The efficacy of the system would depend on how the principles of PMS are integrated through a revised guideline as well as the actual implementation of the system.

3.4. Compliance to Social and Environmental Norms

One of the mandates of SMCL under the AoI stipulates to play an exemplary role in making the mining and mineral sector environmentally responsive and socially acceptable.

As per the strategic plan, SMCL would carry out responsible mining to achieve the broad-based benefits sharing of the mineral sector. SMCL aspires to bring a paradigm shift in resources utilisation, environment stewardship and community engagement. The company aspires to initiate general CSR activities to benefit general communities and also encourage community engagement by extending economic benefits.

Further, SMCL, as the state agency, has obligation to fulfil the legal requirements on environment conservation. The company intends to conduct an environmental impact assessment to integrate and identify mitigation measures that are included as a project component for implementation throughout the project cycles.

The RAA reviewed the compliances to the environment and social obligation of the company and noted some instances of shortcomings which are discussed below:

3.4.1. Occupational Health and Safety

The primary goal of Occupational Health and Safety (OHS) is to safeguard workers from accidents, injuries, and exposure to hazardous chemicals. Through OHS policy, SMCL is committed to protecting its employees by creating and maintaining a feasible working environment that is constantly safe and abiding by the principles laid down in the policy. With respect to the OHS, following are the safety concerns:

a) ***Inspection and Appointment*****:** Chapter 10 (Occupational Health and Safety), Clause 10.10 (a & b) of the HR Manual 2016 stipulates that the SMCL and workers' health and safety representatives must submit a quarterly report on self-inspection to the Department of Labour (DoL). However, there is no record of such inspection reports being submitted to DoL indicating non-enforcement of the HR Manual by SMCL. This otherwise would have indicated implementation of health and safety measures in the workplace. Further, the company has not identified workers' health and safety representatives from all the mining sites except for Habrang and Tshophangma Coal Mines.

b) ***The Emergency Management Plan*****:** Clause 63 of OHS policy requires the preparation and implementation of a Workplace Emergency Action Plan and Clause 12 of the OHS stipulates that *'the concerned manager of the mine/quarry/office shall develop a comprehensive emergency/evacuation framework*.' The Health and Safety Plan of each office shall conform to the framework regarding action to be taken in case of fire, gas, floods, bomb threats, or robbery.

The policy also highlights that *implementation of drills shall be conducted as per the emergency/evacuation framework developed by the manager to ensure that each employee knows how to react in events of emergency.* Additionally, Clause 5(C) of the policy requires the SMCL to implement emergency management plans/procedures.

Despite those requirements, all the mining operation sites do not have emergency plans/procedures in place. Moreover, emergency drills were not initiated to ensure preparedness for the disasters at the sites.

c) ***Workers found without safety gears*:** Mining is a high-risk activity with high vulnerability for occupational hazards. For the safety of the employees, SMCL has provided PPE for protection from the hazards. However, workers were found without proper safety gears as depicted in Picture 1.

Picture 1: Regular workers without proper PPE (safety gloves, protective googles, reflective jackets and ear plugs etc.)

d) ***Employee Health Screening*:** Regulation on OHS and Welfare requires that employees working in industries involving hazardous processes shall undergo a periodic medical examination by a qualified medical professional. The periodic medical examination of workers should be six months.

The RAA noted that out of seven mining sites, only two sites i.e., Habrang and Tshophangma coal mines, had carried out medical screening of their employees in the year 2021. The details of the medical screening conducted is given in Table 18.

Table 18: Status of medical screening conducted

Sl. No.	Mining Sites	Medical Screening	Remarks
1	Chunikhola Dolomite Mine	✗	Never
2	Khothakpa Gypsum Mine	✗	Never
3	Habrang Coal Mine	✓	Once in 2021
4	Tshophangma Coal Mine	✓	Once in 2021
5	Reshore Coal Mine	✗	Never
6	Majuwa Coal Mine	✗	Never
7	Dzongthung Stone Quarry	✗	Never

Data Source: *Computed by the RAA based on the direct observations during the site visits.*

e) **First Aid Box and First Aider:** The Regulation on Occupational Health, Safety and Welfare 2022 stipulates that *"when there is more than 20 persons employed in a workplace, the company should appoint first-aiders who shall be readily available* *during working hours. Thereafter the ratio of one first-aider for every 50 persons employed in the workplace or part thereof."* Considering the total number of employees, SMCL is expected to have appointed seven trained first-aiders for all sites to cater to safety and health issues during the event of a disaster. However, there are no trained first-aider/safety officers deployed at the mining site. Further, Clause 8 of the OHS Policy stipulates that the SMCL should provide a first aid boxes at the workplace which shall be available and accessible for the treatment of injured employees at the workplace. The first aid boxes shall contain suitable first aid equipment which includes at least the equipment listed under Schedule 3 of the Regulations on OHS and Welfare.

While there are first aid boxes provided at the mine site, the RAA found that first aid boxes were empty without any medicines and other equipment as depicted in Picture 2.

Picture 2: First Aid without suitable aid equipment.

Based on the above findings, there are concerns related to the occupational health and safety that would potentially arise from non-compliance to the OHS standards. This may undermine the preparedness to deal with the disaster as well as ensuring the safety of the workers and preventing multitude of impacts of disasters.

i. **Regarding the inspection and appointment, the SMCL responses that, except for Khothakpa Gypsum Mine and Habrang & Tshophangma Coal Mines, they have failed to submit quarterly report on self-inspection of employees to the DoL as required by the HR Manual. However, SMCL has complied to annual inspection of OHS carried out by the officials of DoL.**

   Khothakpa Gypsum Mine and Habrang & Tshophangma Coal Mines have received certificate of recognition for "Adopting good OHS practices at workplace" & "Excellent Occupational Health & Safety Practices" from Ministry of Industry, Commerce and Employment on following dates:

- **Khothakpa Gypsum Mine: 28th April 2018 & 28th April 2023**
- **Habrang & Tshophangma Coal Mines: 28th April 2023**

The SMCL, however, commits to revise the existing OHS policy and HR Manual in line with the OHS rules & regulations of the government.

ii. **Regarding the Emergency Management Plan, the SMCL responded that they have recently reconstituted the OHS Committee in April 2023. The OHS focal persons and other relevant officials of all cost centres were also trained on the emergency plan, evacuation procedures and response plans by resource persons from DoL. Henceforth, all cost centres shall be mandatorily required to comply with the OHS policy of the company and the rules & regulations including preparation of the Emergency Management Plan and mock drills.**

iii. **Regarding the workers without safety gears, the SMCL responded that all site employees are provided with PPE, however, due to extreme weather conditions in some sites, the safety gears are ignored by the employees for their comfort. The SMCL, through the OHS Committee, and the Management, are advocating the importance on use of PPE for their safety. The SMCL shall incorporate the requirement of orientation of OHS to the new recruits while revising the HR Manual of the company.**

iv. **Regarding the employee health screening, the SMCL responded that annual health screening of the employees in the large sites such as Khothakpa Gypsum Mines and Habrang & Tshophangma Coal Mines have been regularly carried out. Given the small staff strength, the employees of For Dzongthung Stone Quarry and Reshore Coal Mine were advised to get the check-up from the nearest hospital. Henceforth, SMCL will ensure employees undergo health screening bi-annually in all cost centres.**

v. **Regarding the First Aid Box and First Aider, the SMCL justified that the procurement of first aid kits were centralised at corporate office in Samtse. This has caused delays in restocking the first aid kits in the cost centres. However, SMCL has committed to decentralise the procurement of first aid kits to respective cost centres to keep the boxes filled at all time.**

The RAA acknowledges various measures initiated to address the concerns raised by the RAA. However, the RAA reiterates that health and safety of the workers engaged in disaster prone worksites are given high priority in terms of adhering to the OHS policy and regulations.

3.4.2. Management of the Explosive Inventories

Using explosives have been the primary method of breaking, loosening and removal of hard surfaces for the extraction of minerals. The use of explosives requires a proper standard procedure in place to ensure rightful use and prevent accidents. According to the Mines and Minerals Management Regulation 2002, all transport, storage and use of explosives on the site shall be carried out in compliance with the Ministry of Home Affairs Explosives Rules, 1989.

The RAA noted inadequacies in the storage and usage of explosives as discussed below:

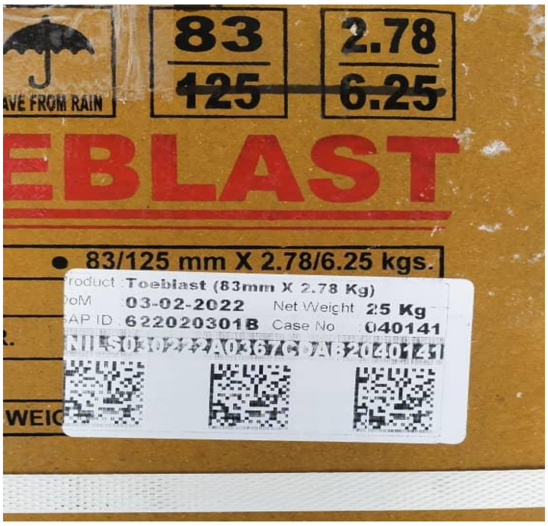
- On 29 January 2022, Chunikhola Dolomite Mine, Gomtu, Samtse received 10 MT of explosive (Toe blast 83 mm) from Tshophangma Coal Mine, Samdrupchholing, Samdrup Jongkhar. Out of 10,000 kgs, 7,150 kgs of explosive cartridges could not be used due to hardening and losing their sensitivity and strength.

- Later SMCL had to dispose off the expired quantity of explosives after receiving approval from the Department of Law and Order, vide approval No. GA-DLO (3)-1/6752 dated 15 April 2022 thereby resulting in financial loss of Nu. 493,350 excluding transportation and handling charges.

- The report on the destruction of expired explosives showed that the shelf life had already crossed **six months period** *(manufacturing date was 21 May 2021)* when transported to Chunikhola Dolomite Mine.

- The explosive inventory of Tshophangma Coal Mine revealed that the cost centre received 20,000 kgs (Toe blast 83 mm) of explosives in May 2021 and by the mid of January 2022, there were still 14,135 kg of explosives balance stock at the mine site. These indicates a lack of proper storage for explosives and a mechanism in place to conduct periodic review of stock for timely mobilisation of the explosives among the cost centres in order to reduce cases of expired explosives.

Picture 3: Example of expired toe blast



The RAA also noted a lack of inventory management procedure in handling the explosive. The existing procedure does not ensure the practice of the First-In-First-Out (FIFO) method, where explosives acquired first are used earlier or first. The explosives are issued randomly and not based on the manufacturing date (6-month expiry as shown in Picture 3). *For instance*, the explosive stock of the Khothakpa Gypsum Mine and Tshophagma Coal Mine indicated a lack of segregation and issue made according to manufacturing date was not found.

Further, stocks of explosives were stored in the same room. There was no segregation of old and new stock received to ensure that old stock is used first. The segregation of stock would ensure that old stocks are issued first.

Inadequate inventory management and storage of explosives would pose risk of accidents and explosions leading to loss of life, injuries, and significant property damage.

The SMCL responded that in Tshophangma Coal Mine, on average of 12 drill holes were blasted with daily consumption of about 300 kg of toe blast, and monthly consumption of about 7500 kg. Therefore, 20,000 kg of toe blast was purchased in May 2021 which would have lasted about three months but could only use 5,865 kg till January 2022 due to breakdown of drill machine at the mine. A new drill machine was procured in October 2021 to replace the old one. Due to covid-19 pandemic, the inventory transfer was difficult and were not processed. In Khothakpa Gypsum Mine, D-cord was used until January 2019 and the use of D-cord was replaced by NED due to the complaints received on its impact in the nearby community. The balance stock of D-cord was left in the magazine until 2023, and it was transferred to Tshophangma Coal Mine on June 2023. In Chunikhola Dolomite Mine, Khothakpa Gypsum Mine and Tshophangma Coal Mine, as confirmed from the site offices, the FIFO method of utilising the explosives is strictly being carried out.

The RAA maintains its stance that inadequate inventory management and storage of explosives pose significant risks, including the use of expired materials and insufficient storage practices, endangering the lives of workers. In view of the issues pointed out, the impending risk cannot be ruled out unless appropriate measures are initiated to ensure proper storage of the explosives.

3.4.3. Compliance to Environmental Regulations and Norms

As per the conditions laid out in the environment clearance provided by the erstwhile National Environment Commission and DGM, the mining operators are required to ensure proper checks and balance in enforcing environmental regulations through proper monitoring and reporting mechanism. Additionally, one of the mandates of SMCL, as per the AoI, is to be an environmentally responsive mining operator. The review of the compliances to the environmental regulations, the RAA noted the following issues that need to be addressed:

i. Monitoring and environmental Audit

- As per the Terms of References (ToR), the Environmental Officer, SMCL is required to carry out regular environmental audits to ensure that environmental requirements are adhered to. In line with the ToR, the designated environment officer of the company regularly visits the mining sites and conducts physical verification on checking the status of environmental compliances. The inspection reports, containing the recommendations to address the issues observed during the physical inspections, are submitted to the management. However, on review of the reports and the implementation of the recommendations, the RAA noted that most of the concerns raised were not addressed.

ii. Dust and noise pollution management

- By the nature of the operation, the mining sites produce a huge amount of dust and noise which has impact not only on the mining workers but also on the nearby communities. As such, the mining operators are required to maintain the air and noise levels within the acceptable standard. The acceptable standard of dust and noise emission is specifically mentioned in the environmental standard 2020 and environmental assessment guideline for industries 2012. The implementation requirement of the same standard is provided in subsequent documents such as the MMMA 1995, final feasibility study of mines and environment clearance provided to the mining operators.

- The SMCL conducts a noise level assessment once in a year and submits the report to the environment regularity authority (erstwhile National Environment Commission). The RAA is not able to comment on the sufficiency and effectiveness of the reporting with the current frequency of such assessment.

- Similarly, in the case of monitoring the air quality at the mining sites, the use of dust control methods adopted by SMCL was found to be inadequate in terms of detecting and assessing the level of fugitive dust emitted from the mining operations. It was noted that SMCL has not installed adequate pollution abatement equipment for the plants as required and agreed upon in the environment clearance. Moreover, air quality testing was also conducted once a year. Picture 4 shows air pollution from the dolomite crushing plant remained not monitored and controlled.

Picture 4: Dust particles emitting from crushing plant at Chunikhola Dolomite Mine.

iii. Sludge and mineral waste management

- Sludge or the by-product of the crushed minerals should be managed properly considering its impact on the environment. The residue of the crushed minerals emitted in river not only contaminates the water for human consumption but also affects the aquatic species.

- Thus, the mining operators are required to:

  ∗ Characterise treatment sludge to determine whether there are potential leaching concerns;
  ∗ Avoid the disposal of sludge especially having acid and other harmful chemical contents;
  ∗ Dispose of sludge in a physically secured facility which will maintain the chemical stability of the sludge; and
  ∗ Treat and monitor wastewater that causes an impact on the environment.

♣ During the field visit, the RAA observed that at the Chunikhola Dolomite Mine, the effluent discharged from the dolomite crushing machine was not properly managed. Although there are a few ponds made near the crusher plant which were intended to treat and manage the dolomite sludge, the poorly managed ponds have resulted in an overflow of dolomite sludge into the nearby river and contaminating the river as

Picture 5: Sludges overflowing from the treatment plant to the Chunaikhola River below.

Treatment plant filled with minerals (Overflow)

The overflown effluent passed to the secondary sediment pit. (Found overflown)

The overflown effluent from the secondary sediment pit further flows into the river. (Contamination)

Picture 6: Effluents from residential colony and dolomite crushing plant at Chunaikhola

Untreated residential sewage flowing into river

Tailings from dolomite crushing plant flowing into river.

♣ shown in Pictures 5 & 6, SMCL lacks efforts towards ensuring compliance to the environmental requirements stipulated in the environment clearance and regulations. Non-compliances to such requirements have serious ramifications to the environment and local communities living near the mining sites.

The SMCL responded that annual compliance monitoring of mines and quarries are carried out by DGM and Department of Environment & Climate Change on annual basis as well as on the need basis including during the Environment Clearance renewal period of every project. Further, the company also initiates self-monitoring of mines in all cost centres annually. Based on such monitoring, environment focal persons were appointed for the respective cost centres, environmental monitoring equipment were procured and the company spends huge amount on environment management. Restoration activities, including plantation, are conducted after complete extraction of mineable deposits. Memorandum of Understanding was also signed between Green Bhutan Corporation Limited and SMCL on 5 August 2023, for restoring and rehabilitating the mined-out areas.

The SMCL acknowledged the RAA's observations that noise level assessments were not carried out on daily basis and ambient air quality conducted once a year. However, the SMCL submited that it has now procured and distributed Air Quality Monitoring Equipment along with Noise Level Meter. This will enable regular and timely monitoring, thus fulfilling the reporting requirements of DECC and DGM.

The SMCL also explained that it has procured high-end/advanced plant equipment and fugitive emissions are controlled using dedicated water tankers and also enforces the use of effective PPEs at all workplaces/mine sites. Moreover, it has converted all existing diesel-operated crusher to electrical-operated by 2023 to reduce the impact due to emission from fuel.

Regarding the issues related to sludge and mineral waste at Chunikhola Dolomite Mine, the SMCL stated that the operation of mines in SMCL involves simply crushing of natural rocks into smaller sizes and there is no addition of any chemicals in it. Therefore, it does not pose any risk of pollution of water with chemicals/heavy metals. The effluent from dolomite mine is treated through the three-chambered sedimentation tanks which already exist in the project area & sediments disposed-off in the OB dump yard areas once it reaches 80% of its capacity; further, two-chambered sedimentation tanks are also constructed below the existing road to arrest the spillage of sediments during the monsoon seasons and managed through same approaches.

The SMCL further submitted that the human waste (sewage) are managed using septic tanks connected with soak pit. The sewage is cleared yearly or need basis with the support of Samtse Dzongkhag Municipality. To further strengthen the system, the company will provide all colonies with adequate sanitation facilities.

The RAA emphasises the necessity of regular environmental audits to assess compliance and identify areas for improvement. It underscores the importance of strengthening monitoring, timely data collection, risk identification, and corrective actions. Collaboration with government bodies provides an opportunity to supplement the internal practices of SMCL, ensuring consistent adherence to environmental standards and preventing compliance lapses.

CHAPTER 4: RECOMMENDATIONS

Based on the audit findings, the RAA has developed recommendations to address the issues identified and guide the relevant agencies to initiate corrective actions. It also highlights some of the areas where the audited agencies require to consolidate efforts in addressing a range of issues identified in the operations of SMCL in particular and mining sector in general. The SMCL and DGM may review the relevancy and appropriateness of these recommendations for further improvements. The recommendations are as discussed below:

A. *Strategic*

4.1. DGM should classify strategic minerals considering the potential of the mining sector for the socio-economic development of the country.

As per the Mineral Development Policy 2017, the ministry is required to review and update the list of strategic minerals periodically based on industries that exist as well as with potentials to develop other manufacturing capabilities. The classification of the minerals into strategic, industrial and construction would provide basis for making informed choices in resource allocation, economic development, and other national priorities. For a mining companies like SMCL, which is mandated to develop strategic minerals, an updated classification of existing minerals is crucial in formulating its strategic objectives based on which the whole business operations of the SMCL can be aligned. However, there is a lack of classification of minerals which has not only hampered the strategic management of the minerals in the country but also impeded the investment decisions of SMCL.

Thus, there is a need to enforce the requirements of Mineral Development Policy 2017 to review and update the strategic minerals periodically.

4.2. SMCL should do a periodic update of CSP aligned to the revised FMFS targets, AoI objectives, and DHI Roadmap.

The RAA noted lack of congruence between the targets of FMFS and CSP in which the sum total of production capacity and annual targets of FMFS were not in agreement with the targets set in CSP. Such a gap provides an indication that the intended targets/production capacity of mines as per its feasibility reports were not factored into its CSP resulting in production gaps. There was also a lack of clarity of strategies of CSP in terms of incorporating elements of AoI. The unclear linkages between the strategic intents, KPIs and strategies will impede the achievement of outputs, tracking progress, decision making, and ultimately in delivery of its core mandates.

In order to provide a clear roadmap and enhance the performance management framework of the company, there is a need for embracing a robust strategic management process through which strategic intents are well articulated and its outcomes and KPIs are clearly mapped and linked with a clear line of responsibility for divisions and individuals which can be tracked, monitored and evaluated.

B. Operational

4.3. SMCL should scale up the production of mines as per the annual production targets in the FMFS of each mine.

In terms of production of mines, the actual production falls far below the aggregate total capacity of all mines as indicated in the projection in the Feasibility Reports. For instance, for the year 2019, the total production of dolomite was 1,778 million MT against the projected production of 3 million MT. This indicates that the company has not been able to achieve its full potential in terms of producing the outputs. The RAA's premise is that FMFS reports were prepared based on the in-depth studies and analyses and the projected figures of production would have been a reasonable projection.

In order for the company to optimise production and achieve economies of scale besides the other benefits of employment creation and economic development at national level, the company needs to explore opportunities to expand its production through assessment of factors limiting its production, and exploring strategies to achieve maximum potentials.

4.4. SMCL should establish robust cost optimisation plans and initiatives.

The general norms for assessing the operational performance in manufacturing companies is through "per-unit cost". It is observed that the assessment of year-on-year operational performance of SMCL, based on per unit cost, is not consistent which the company claimed that it is not practical given its erratic operational cost behaviour annually. Therefore, SMCL should evaluate each cost factor, including labour, fuel, equipment, extraction, storage, handling, transportation, maintenance, and distribution, to identify inefficiencies and problems. SMCL should enhance its assessment based on mineral wise operational efficiency and design strategies to improve performance, optimise resource utilisation, and streamline supply chain management (both up-stream and down-stream).

4.5. SMCL should institute a system of thorough analysis of return on investments before venturing into new investment plans.

SMCL should assess risk tolerance and choose investments that align with risk. Investments decisions should be based on cost-benefit analysis along with other parameters of the assessments to inform about profitability, recovery of loss if projects get delayed in commencement or terminated and long-term sustainability that aligns to its strategic objectives. For instance, some of the mines were abandoned later despite huge investment made by the company. This had impacted the overall profitability of the company.

Thus, there is a need to institutionalise system of thorough appraisals of projects entailing substantial investment costs and risk mitigation plans.

4.6. SMCL should review and implement the credit sales policy and enhance its collection process to eliminate the risk of bad debts and ensure adequacy of its working capital.

In order for the company to regulate its credit decisions, the SMCL should review its existing practices of extending credit to its customers. The RAA noted instances of late realisation of its credit and resorting to loans to meet its operating cost requirements. A laid down process or guidelines would provide a clarity of terms of extending the credit, managing risk and timely follow up of outstanding dues.

A laid down policy would be even relevant when the company expands its operations and customer base. Besides, there is a need to strengthen its information management system as to its credit sales to aid the management in making consistent and prudent credit decisions, managing risks and ensuring timely collections of its outstanding sales.

4.7. SMCL should strengthen Human Resource Management.

To ensure alignment of HR strategies to the company's strategic intent of building and sustaining HR capabilities, RAA recommends the company to initiate the following:

i. Conduct a thorough assessment of the company's current and future HR needs, considering factors such as workforce demographics, skill gaps, and strategic goals and targets.

ii. Identify and develop HR capacity development initiatives that will contribute to achieving the company's vision and mission;

iii. Develop workforce planning outlining staffing requirements, succession planning, and talent management;

iv. Review its existing HR manual to bring consistency in job grades, positions, and remunerations; and

v. Reinforce performance management system instituted in the company to differentiate performers from non-performers.

4.8. SMCL should ensure compliance to OHS requirements and Environmental regulations.

The RAA noted instances of non-compliances to the requirements of Occupational Health and Safety measures and Environmental requirements and thus creating unsafe workspace for the workers and becoming environmentally unresponsive mining operator.

Thus, SMCL should ensure to comply with the OHS measures since OHS is mainly instituted to safeguard workers from workplace accidents, injuries, and exposure to hazardous chemical. Further, SMCL should also ensure to adhere to the environmental requirements stipulated in the environment clearance and regulations so that the company upholds the mandates bestowed in the AoI to become an environmentally responsive operator in the country.

CHAPTER 5: CONCLUSION

Recognising the potential of the mining sector's contribution to economic development and the wisdom of the government to incorporate the SMCL as government owned company, the RAA conducted a performance audit on the operation of SMCL to assess the operational efficiency and its effectiveness in delivering its mandates. The scope of the audit was limited to SMCL and related stakeholders covering the period from 1 January 2015 to 31 December 2022.

Since its inception in 2015, the SMCL has been operating four different minerals vis. dolomite, gypsum, coal, and quartzite. The company has an increasing trend of profitability, tax contribution and dividend pay-out during the period.

While noting considerable growth in assets, net worth, revenue and profits since its inception, the RAA noted gaps and shortcomings in its operations indicating opportunities for improvement. From the need to have clarity of its strategic intents and business strategies aligned to AoI and DHI roadmap to achieving operational efficiency and managing performance, the company need to reinforce its strategies to enhance its overall financial performance. Further, the company needs to focus on HR strategies to build and sustain competent and motivated workforce as well as enhance compliances in terms of occupational health and safety standards for workers and environmental regulations.

The SMCL plays a significant role in mining and mineral sector and has immense potential to bring about bigger impact in terms of contributing to the national economy. The recommendations provided by the RAA are intended to help the company to leverage its potentials to initiate improvements in areas where deficiencies and shortcomings were identified.

APPENDICES

Appendix A: Management Action Plan template

Recom. No.	Recommendation in brief	Action Plans: action taken or to be taken *(a recommendation may have one or several action plans. The actions mentioned as taken should be supported by evidences)*	Estimated implementation or start date *(the implementation date for each action plan may be different)*	Estimated completion or end date *(the completion date for each action plan may be different)*	Direct Accountability or responsibility entrusted to:		
					Name & Designation *(official responsible forimplementation of each action plan may be one or more)*	EID No.	Signature
4.1	DGM should classify strategic minerals considering the potential of the mining sector for the socio-economic development of the country.						
4.2	SMCL should do a periodic update of CSP aligned to the revised FMFS targets, AoI objectives, and DHI Roadmap.						
4.3	SMCL should scale up the production of mines as per the annual production targets in the FMFS of each mine.						
4.4	SMCL should establish robust cost optimisation plans and initiatives.						
4.5	SMCL should institute a system of thorough analysis of return on investments before venturing into new investment plans.						
4.6	SMCL should review and implement the credit sales policy and enhance its collection process to eliminate the risk of bad debts and ensure adequacy of its working capital.						
4.7	SMCL should strengthen Human Resource Management.						
4.8	SMCL should ensure compliance to OHS requirements and Environmental regulations.						

Appendix B: **Calculation of mineable reserves projected by the FMFS and status of extraction as at the end of 2022**

This appendix was attached as a separate document.

Appendix C: **Calculation of production and revenue targets as per the FMFS reports**

This appendix was attached as a separate document.

AIN: TAD-2022-274