

A descriptive study on safety and working conditions in selected large-scale surface mines in the Philippines

by

Miraluna S. Tacadao

International Labour Organization
Country Office for the Philippines

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Foreword (ILS)

The Philippines' ratification of the Health and Safety in Mines Convention, C. 176 in 1998 reflects the commitment of the government and its social partners to comply with minimum global standards on health and safety of workers engaged in all types of mining: surface or underground and large- or small-scale. It is important to ensure that our existing national policies, rules and regulations, and even practices at the mine sites are consistent with the minimum international labor standards. While it is true that there is no one-size-fits-all approach, it is important to continuously aim to seek for ways on how to better guarantee a safer and healthier working environment for mine workers.

It is in this context that this research was undertaken by the Department of Labor and Employment-Institute for Labor Studies (DOLE-ILS) to provide information on the extent as to how the required measures, in law and practice, are observed in the Philippines. Moreover, the study aims to guide policy and decision makers on the issues that constrain the country's compliance with international instruments. Hopefully, the information gathered through this research undertaking would serve as inputs to the development of responsive and relevant policies and programs that would address decent work deficits in the mining sector.

Let me thank the International Labour Organization (ILO) for their support in this research initiative. This is an affirmation of our mutual commitment to work together toward the attainment of our common agenda of promoting the safety and health of our workers in the mining sector.



Ahmima Charisma Lobrin-Satumba
Acting Executive Director III
Institute for Labor Studies

Foreword (ILO)

Both surface and underground, mines are experiencing continued heavy loss of life due to problems of occupational safety and health and catastrophic events associated with the unique and constantly changing working environment.

At the 82nd session of the International Labour Conference in 1995, the International Labour Organization (ILO) adopted ILO Convention No. 176 and Recommendation No. 183 to address the questions of safety and health in mines.

The Philippines commitment to address issues on occupational safety and health in mines was demonstrated through the ratification of ILO Convention No. 176 in 1998.

The ILO welcomes the research undertaken by the Institute for Labor Studies (ILS) under the Department of Labor and Employment (DOLE) covering useful practices to promote improved application of the Convention.

The ILO looks forward to further use of this study as an instrument to carry our policy reforms as well as better enforcement of labour standards in the mining sector, which may entail closer collaboration with other government agencies as well as the Mining Industry Tripartite Council.

Through this study, the ILO remains hopeful that the recommendations will enhance the working conditions and safety measures for the workers in this mining sector.



Khalid Hassan

Director

International Labour Organization (ILO)
Country Office for the Philippines

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The author would like to express sincere gratitude to the management and workers of mining companies for their participation in the research, as well as to the Mines and Geosciences Bureau (MGB) for their assistance on the conduct of fieldwork. Special thanks is also extended to all individuals, organizations and agencies who have shared their inputs for the study. Lastly, the preparation and implementation of this research project could not have been possible without the support of Institute for Labor Studies (ILS) and the International Labour Organization (ILO).

Table of contents

Foreword.....	iii
Acknowledgements.....	v
List of tables.....	viii
List of figures.....	ix
List of boxes.....	ix
Abbreviations.....	x
Abstract.....	1
1. Introduction.....	1
1.1 Research problem.....	2
1.2 Research objectives.....	3
1.3 Conceptual framework.....	3
1.4 Methodology.....	3
1.5 Significance of the study.....	6
2. Industry overview.....	6
2.1 Hazards in mining.....	8
3. International standards.....	12
4. Legal framework.....	15
5. Working conditions.....	19
5.1 Work arrangements.....	19
5.2 Work hours.....	19
5.3 Wage, social welfare and training benefits.....	20
5.4 Self-organization and collective bargaining.....	21
6. Application of mine safety policies.....	22
6.1 Safety and Health Programme.....	22
6.2 Leadership and administration.....	22
6.3 Central Safety and Health Committee.....	23
6.4 Organizational rules.....	24
6.5 Management and employee training.....	24
6.6 Good housekeeping and occupational safety.....	25
6.7 Health and control services.....	27
6.8 Provision of personal protective equipment (PPE).....	28
6.9 Monitoring and reporting.....	28
6.10 Environmental risk management including emergency response programme.....	29
6.11 Communication system/recording system.....	30

7.	Workers awareness in relation to their rights and mine safety standards.....	30
8.	Good practices observed.....	31
9.	Areas of cooperation and policy options.....	34
10.	Ways forward.....	47
10.1	Promote rights at work.....	47
10.2	Promote social justice.....	47
10.3	Enhance social protection.....	47
10.4	Greening the industry.....	48
	References.....	49

List of tables

Table 1. Questionnaires.....	5
Table 2a. Philippine metallic mineral production (2014-2016).....	7
Table 2b. Philippine metallic production (Jan-June 2016 and Jan-June 2017).....	7
Table 3. Mining industry economic contribution.....	8
Table 4. Summary of mine accidents (2001-2015).....	8
Table 5. Summary of mine accidents by type of mining method (2012-2015).....	9
Table 6. Cases of occupational injuries with workdays lost in establishments employing 20 or more workers in mining and quarrying.....	10
Table 7. Safety performance of mining and quarrying.....	12
Table 8. Key preventive and protective measures at a mine.....	14
Table 9. Work schedule.....	20
Table 10. Safety and health programme.....	22
Table 11. Leadership and administration.....	23
Table 12. Central Safety and Health Committee.....	24
Table 13. Organizational rules	24
Table 14. Management and employee training.....	25
Table 15. Good housekeeping	25
Table 16. Health and control services.....	27
Table 17. Provision of personal protective equipment (PPE).....	28
Table 18. Monitoring and reporting	29
Table 19. Environmental risk management including emergency response programme	30
Table 20. Adherence to international standards	32
Table 21. Recognition to performance and accomplishment	32
Table 22. Hazard prediction.....	33
Table 23. Safety awareness campaign.....	33
Table 24. Women's participation.....	34
Table 25. Areas of cooperation and policy options	36
Table 26. CEACR's observation and policy recommendation	38

List of figures

Figure 1.	Input-process-output model.....	3
Figure 2.	Scope of the study.....	4
Figure 3.	Timeline of activities.....	5
Figure 4.	Extraction process flow.....	17
Figure 5.	Mine site departments.....	18

List of boxes

Box 1.	Overview of mining operations.....	17
Box 2.	Mining site organizational chart.....	18

Abbreviations

BED	Bureau of Energy Development
BWC	Bureau of Working Conditions
C176	Safety and Health in Mines Convention, 1995 (No. 176)
CBA	Collective Bargaining Agreement
CEACR	Committee of Experts on the Application of Conventions and Recommendations
CMT	Crisis Management Team
CRO	Community Relations Office
CSHC	Central Safety and Health Committee
DAO	DENR Administrative Order
DENR	Department of Environment and Natural Resources
DO	DOLE Department Order
DOE	Department of Energy
DOLE	Department of Labor and Employment
EITI	Extractive Industry Transparency Initiative
EIA	Environmental Impact Assessment
EO	Executive Order
ERT	Emergency Response Teams
FIFO	Fly In, Fly Out
FTAAS	Financial of Technical Assistance Agreements
GDP	Gross Domestic Product
HIRAC	Hazard Identification, Risk Assessment and Control
IEC	Information, Education and Communication
ILC	International Labour Conference
ILO	International Labour Organization
IRR	Implementing Rules and Regulations
ITCs	Industry Tripartite Councils
KYT	Kiken Yochi Training
LLCOs	Labour Law Compliance Officers
LLCS	Labour Laws Compliance System
MAO	Mines Administrative Order
MEPEO	Mine Environmental Protection and Enhancement Office
MGAR	Monthly General Accident Report
MGB	Mines and Geosciences Bureau
MMT	Multipartite Monitoring Team
MPSA	Mineral Production Sharing Agreement
MSESDD	Mine Safety, Environment and Social Development Division
MiTIC	Mining Tripartite Industry Council
OSH	Occupational Safety and Health
PD	Presidential Decree
PPE	Personal Protective Equipment
PMIEA	Presidential Mineral Industry Environmental Award
PMSEA	Philippine Mine Safety and Environment Association
PSA	Philippine Statistics Authority
RA	Republic Act

RTWPBS	Regional Tripartite Wages and Productivity Boards
SHE	Safety, Health and Environment
TIPCs	Tripartite Industrial Peace Councils
WAIRs	Work Accident/Incident Reports

A descriptive study on safety and working conditions in selected large-scale surface mines in the Philippines

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Miraluna S. Tacadao¹

ABSTRACT

In 1998, the Philippines was the 5th country to ratify the Safety and Health in Mines Convention, 1995 (No. 176) which outlines the international framework on standards concerning the safety and health of workers in mines. To effectively enforce the said Convention, DAO No. 2000-98 or the Mine Safety and Health Standards was issued. Drawing on elements of C176, this study seeks to examine policies and regulations that govern mine safety and analyze the working conditions of those engaged in the industry. Using qualitative data, the research results underscore that both employers and workers have duties and responsibilities to undertake to ensure safe and healthy workplaces. Further, based on the findings, the research puts forward policy options such as strengthening inspection and safety audits, formation of tripartite councils, and harnessing relevant statistics for a coherent implementation of an industry specific occupational safety and health (OSH) policy. This comprehensive and integrated approach is necessary to address the multifaceted challenges confronting the mining sector.

1. INTRODUCTION

The Philippine mining industry has the potential to become one of the biggest players in the world. The Philippines is a leading producer of mineral commodities such as nickel (the world's largest producer in 2014), gold (20th) and chromite (17th), and produces copper, zinc, iron and silver (EITI, 2016). Being one of the world's richest countries in mineral resources, there is a significant potential to contribute to economic growth and development. However, the industry is facing various challenges and issues because of the hazardous nature of mining.

The OSH Standards (as amended, 1989) considered "hazardous workplaces" as those that are characterized by a "nature of work that exposes the workers to dangerous environmental elements, contaminants or work conditions including ionizing radiation, chemicals, fire, flammable substances, noxious components and the like." Specifically, it included workers who are engaged in mining. Many of the jobs in the mining sector are considered precarious. Mine workers are constantly facing risks as they are highly exposed to large, heavy and powerful equipment, explosives, airborne dust and noise and vibrations. When underground, there is no natural light or

¹*The views and opinions in this study/research are those of the authors and do not necessarily reflect the official views of the International Labour Organization (ILO). Findings are meant to stimulate dialogue, and do not imply an expression of opinion, direct recommendation or any form of endorsement on the part of the ILO.*

ventilation, exposure to explosive gases, electrical and cutting equipment and even seismic activity. Unfortunately, some have resulted to accidents and deaths.

The 2030 Agenda for Sustainable Development (2015) affirms that decent work is key to achieving sustainable development and safe and secure working conditions are fundamental parts. The importance of safety and health at work is distinct in many international instruments. The International Labour Organization (ILO) adopted several international labour standards which provide essential tools and guidelines for governments, employers and workers to ensure and promote a safe and healthy working environment. Likewise, several ILO Conventions were adopted on health and safety by specific branches of economic activity and protection of workers against specific risks. For mining, the Safety and Health in Mines Convention, 1995 (No. 176) (C176 or referred as the Convention) was adopted to regulate the various aspects of safety and health for mines.

OSH has been a central issue and a long-standing concern, especially in hazardous industries such as mining. The Philippine Development Plan (2017-2022) highlights OSH, as among the strategies in the Chapter on Accelerating Human Capital Development to achieve improved productivity. Similarly, the Department of Labor and Employment's (DOLE) eight-Point Labour Agenda complements the PDP given the Department's mandate to protect rights at work as one of the pillars of decent work.

1.1 Research problem

In 1998, the Philippines was the 5th country to ratify C176. To effectively enforce the provisions of the Convention, the Department of Environment and Natural Resources (DENR) issued Administrative Order No. 2000-98 (Mines Safety and Health Standards). The Order was promulgated to promote a culture of safety and health in the mining industry while providing strict enforcement of safety and health measures.

The ILO's supervisory system regularly examines the application of Conventions ratified by member-states and formulates comments containing specific recommendations to ensure the full application of the said Conventions. The Committee of Experts on the Application of Conventions and Recommendations (CEACR), for example, made specific observations and requests for supplementary information on the application of C176 during the 104th Session of the International Labour Conference (ILC) in 2015. Specific recommendations to amend or adopt enabling legislation were in the following areas: (a) plans of workings; (b) safe design and construction of mines and provision of electrical, mechanical and other equipment; (c) measures and procedures on establishing a name recording system of all miners working underground; and (d) the right of workers and their representatives to report accidents and hazards to the authority.

In the Philippines, large-scale mining dominates the industry in terms of production, revenue and legal privileges (Jurado, 2015). It is highly mechanized and generally produces for the export market. Mining activities, however, present not only economic opportunities for the country but also major challenges, particularly in the promotion of OSH for workers in this sector. Hence, distinctive employment conditions and its hazardous nature require a safety culture environment.

Considering the various mining laws and policies (e.g. Republic Act (RA) No. 7942 or the Philippine Mining Act of 1995 and its Implementing Rules and Regulations (IRR), DAO No. 2000-98 and Executive Order (EO) No. 79) as well as competent authorities over mining industry, mine safety and working conditions are issues that call for more decisive and rational approach. Hence, a study on mine safety and working conditions on large-scale surface mines was undertaken as it

may provide information (e.g. good practices, challenges) aside from rules and policies into application and conformity with the provisions of the Convention.

1.2 Research objectives

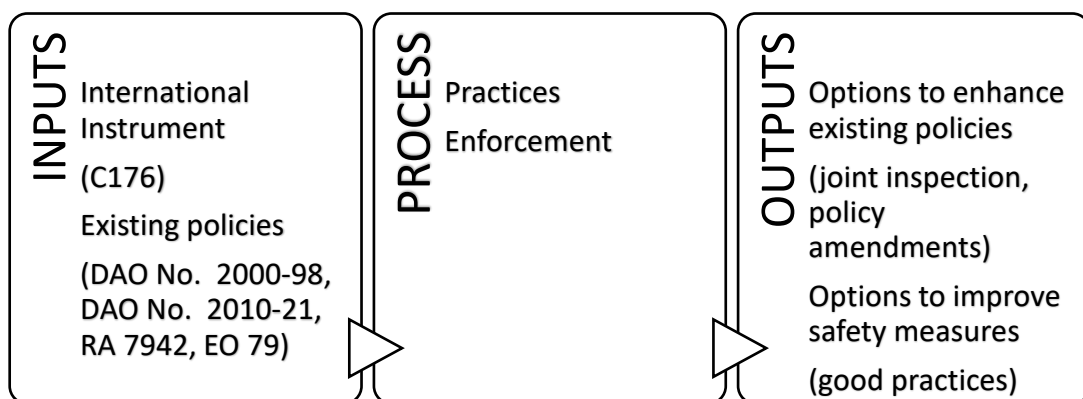
Generally, the study seeks to examine the existing policies and regulations that govern mine safety and analyze the working conditions of those engaged in the industry. Specifically, the study intends to achieve the following:

- a) To describe the working conditions and the existing work arrangement practices;
- b) To map regulatory practices and identify gaps, challenges, and models/partnerships that hinder or promote safety in mining; and
- c) To provide policy recommendations or options that could enhance the working condition and improve safety and health measures in the mining industry.

1.3 Conceptual framework

As conceptual framework, the input-process-output model was used in the study. As inputs, the existing policies were examined to ascertain whether or not these rules are reflective of current industry practices. Based on observations, expected outputs are the set of options or policy recommendations to enhance the existing policies and to improve safety measures in the industry (Figure 1).

Figure 1. Input-process-output model



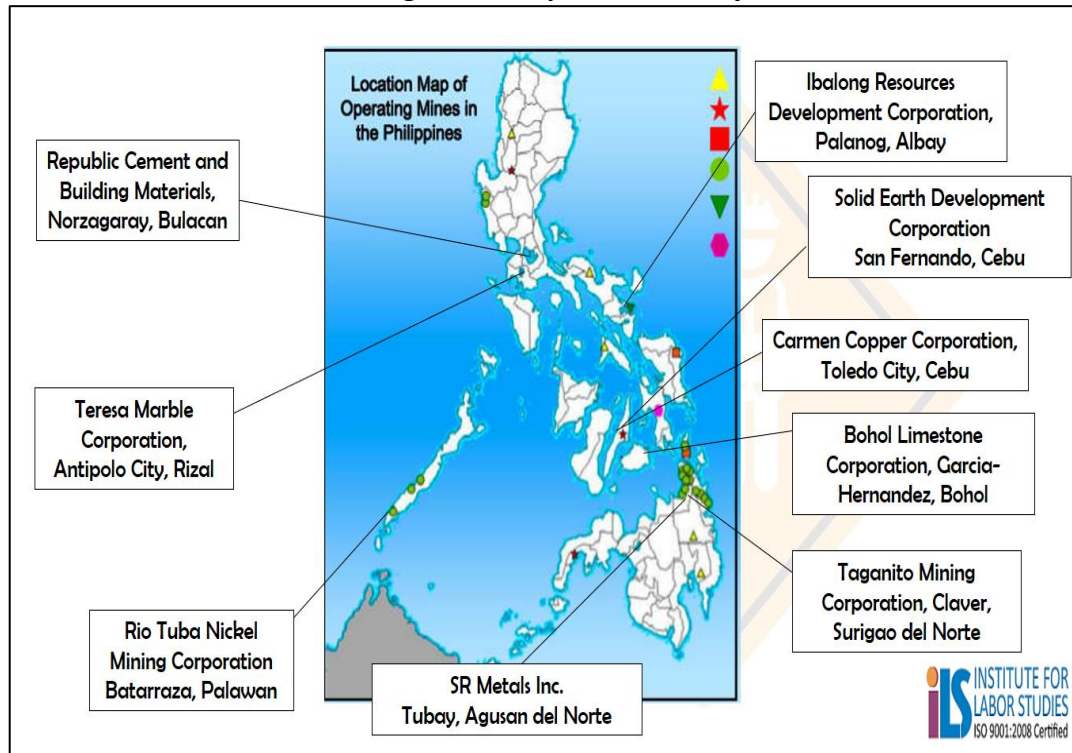
1.4 Methodology

1.4.1 Scope and limitation. C176 applies to all mines but excludes exploration for, and extraction of minerals, in oil and gas. In the Philippines, there are separate authorities regulating the extractive industries. The mining industry (metallic and non-metallic mines) is being regulated by the Mines and Geosciences Bureau (MGB) of the DENR, while the coal mines sector is under the Department of Energy (DOE). Further, coal mining has separate issuances that govern its operations.

Given the limited time and resources, the large-scale mining industry (metallic and non-metallic) is targeted to be covered by the study. It included surface and underground mines. Considering the research objectives and series of consultations with MGB, particularly with the Mine Safety, Environment and Social Development Division (MSESDD), metallic companies were identified and selected based on the initial list which passed the mining audit of former

DENR Secretary Regina “Gina” Lopez. On the other hand, non-metallic companies were identified based on the recommendations of MGB. Thus, a total of 14 mining companies (three underground; 11 surface) were identified and listed (eight metallic; six non-metallic). However, due to security reasons, one mine site was excluded from the list. Only 13 mining companies were communicated to participate, where only nine surface mines (four metallic; five non-metallic) agreed to take part and approved a mine visit² (Figure 2).

Figure 2. Scope of the study



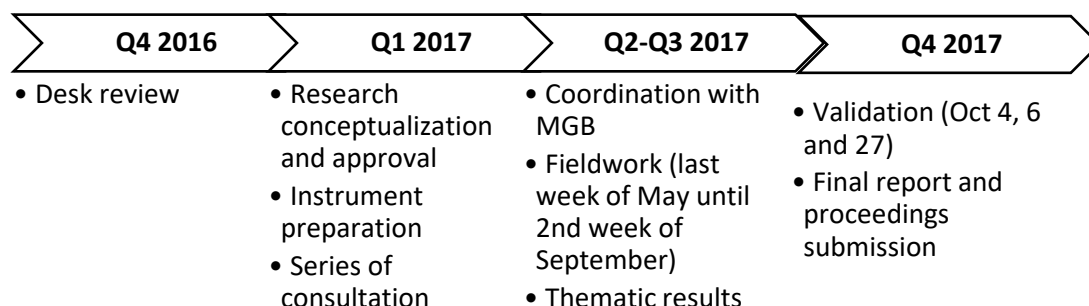
1.4.2 Data collection. Using a mixed-method approach, the study consisted of the following data-gathering methods (Figure 3):

- a) Desk review involving a review of existing national policies on mine safety in the Philippines;
- b) Key informant interviews with safety officers/inspectors, human resource managers and occupational health personnel (i.e. company doctors and nurses) and survey of workers and their representatives (if unionized). It was the company’s discretion to identify workers from different units or areas of operation to be surveyed. However, it was highly encouraged that workers would be selected that directly work in the mine sites (e.g. dump truck drivers, heavy equipment operators, quarry aides, spotters, miners);
- c) Physical observation through mine site visit; and

²Metallic and non-metallic refer to the type of commodity mined, while surface and underground refer to the method of extraction. All participating mining companies are into commercial operations. Metallic companies are engaged in nickel (three) and copper (one) mining, while non-metallic companies are into quarry operations (limestone, marble).

- d) Validation workshop with participating companies, MGB and DOLE regional offices, bureaus and attached agencies and focus group discussions with workers' groups to solicit comments, inputs and additional information.

Figure 3. Timeline of activities



1.4.3 Research instrument. Semi-structured questionnaire was designed based on the DAO No. 2000-98 (Mine Safety and Health Standards) and DAO No. 2010-21 (IRR of RA 7942) vis-à-vis C176 (Table 1).

Table 1. Questionnaires

Respondent	Information
Human resource managers	• Company's general profile (location, classification, commodity, manpower, certification i.e. ISO and OSHAS)
Safety men/women <i>Note: Members of the Safety and Health Committee based on DAO No. 2000-98</i>	• Safety and health organization • Organizational rules and policies • Management and employee training • Working conditions/Occupational health • Health and control services • Safety measures (plans of working, communication and recording system) • Risk management (including emergency response and rescue) • Reporting and monitoring • Citations and awards <i>Note: Most questions are based on the mining audit checklist used by MGB Central Office particularly the Mine Safety and Health aspect.</i>
Workers and workers' representatives <i>Note: Workers representative i.e. labour union officer/s, worker's association</i>	• Awareness on the rights and responsibilities of workers in mines as stipulated in DAO No. 2000-98 and C176 • Company rules and practices in ensuring safety and health standards • Safety systems (i.e. communication and recording)

1.5 Significance of the study

OSH is an essential element in achieving the Decent Work Agenda. This study is part of the 2017 research agenda of the Institute and is likewise enrolled in the five-year DOLE research agenda which got the concurrence and support of the Secretary. Though the scope cannot be treated as representative of the entire mining industry, the study intends to provide information on the existing policies and its application in observance of safety and health standards in the Philippines Mapping of regulatory practices which provided an opportunity to identify challenges, good practices, areas for cooperation, as well as policy options that could enhance the working conditions and improve safety and health measures in the mining industry. While the study made use of the provisions of C176 as guide, the research was not designed to assess the country's compliance with the Convention.

2. INDUSTRY OVERVIEW

The Philippine mining industry has the potential to become one of the biggest players in the world. Mineral reserves, such as nickel, gold, copper and cobalt sulfide are the top minerals in the country where value is reaching billions of pesos. Major mining operations are present in Cordillera Administrative Region (CAR), Region IV-B (MIMAROPA), Region V (Bicol), Region VII (Central Visayas), Region VIII (Eastern Visayas), Region XI (Southern Mindanao) and Region XIII (CARAGA). Currently, there are 50 metallic and 62 non-metallic mines and five processing plants (two gold, two nickel and one copper smelter) operating in the country. Likewise, there are 2,397 small quarries and sand and gravel operations covered by permits issued by various local government units (MGB, 2017).

In 2016, metallic mineral production value incurred an 8 per cent shortfall, or lower by Php9.28 billion (Table 2a). According to MGB (2016), the lackluster performance can be attributed to poor base metal price, string of mine suspension and mine imposed non-operations due to unfavorable weather conditions, low metal price and/or maintenance status. However, mining industry gained by 4.28 per cent or Php2.08 billion during the first half of 2017 (Table 2b). During the same periods, gold continued to dominate the production scene, while nickel direct shipping ore together with mixed nickel-cobalt sulfide took the second spot, followed by copper. The remaining percentage came from the consolidated output of silver, chromite and iron one.

The mining sector's share in the gross domestic product (GDP) is quite small, only 0.6 per cent on an average. In 2015, contribution to GDP fell as total revenue declined to Php80.9 billion from Php90.7 billion in 2014. In 2015, there are 236,000 workers employed in mining and quarrying industries, where 0.6 per cent are from the mining industry. It further declined to 219,000 in 2016 (MGB, 2017) (Table 3). This is relatively low compared to agriculture, the services sector or other industries. The low impact of the extractive industries to the economy, especially that of the metal extraction sector could be attributed to the fact that there is little processing done to the raw ores, resulting in low value-added (EITI, 2016). However, it was estimated that about four indirect jobs may be generated in the upstream and downstream sectors (MGB, 2016).

Table 2a. Philippine metallic mineral production (2014-2016)

Mineral production	2016		2015		2014	
Precious metals	Quantity	Value	Quantity	Value	Quantity	Value
Gold (kgs)	22,674	44,847,185,443	20,643	34,240,250,925	18,423	32,970,404,193
Silver (kgs)	34,216	917,313,821	29,780	647,017,112	23,005	616,436,586
Base metals						
Copper concentrate (DMT)	335,665	17,759,919,078	337,185	18,920,613,393	349,269	22,757,540,739
Copper content of concentrate (MT)	83,649		83,835		91,922	
Mixed nickel-cobalt sulfide (DMT)	79,093	15,070,210,662	84,995	19,088,985,863	87,280	20,311,015,241
Mixed nickel-cobalt sulfide (metal) (MT)	45,613		49,151		50,647	
Nickel direct shipping ore (DMT)	24,652,913	21,767,137,849	32,304,313	36,602,813,255	33,127,757	62,701,769,864
Nickel content of ore (MT)	296,060		415,366		393,262	
Chromite (DMT)	25,745	182,618,406	15,502	113,527,965	47,056	337,103,559
Iron ore (DMT)	6,549	12,273,594	41,942	226,760,752	153,775	455,257,143
Total		100,556,658,853		109,839,969,265		140,149,527,324

Source: MGB (2017).

Table 2b. Philippine metallic production (Jan-June 2016 and Jan-June 2017)

Mineral production	Jan-Jun 2017		Jan-Jun 2016	
Precious metals	Quantity	Value	Quantity	Value
Gold (kgs)	11,635	22,886,734,978	12,195	22,685,788,846
Silver (kgs)	16,467	459,403,077	17,742	432,610,131
Base metals				
Copper concentrate (DMT)	138,689	8,957,523,566	177,679	9,010,834,967
Copper content of concentrate (MT)	33,687		44,813	
Mixed nickel-cobalt sulfide (DMT)	46,444	10,084,885,422	37,604	6,889,404,412
Mixed nickel-cobalt sulfide (metal) (MT)	26,789		21,673	
Nickel direct shipping ore (DMT)	8,638,542	8,369,588,044	11,380,700	9,620,009,021
Nickel content of ore (MT)	110,099		136,265	
Chromite (DMT)	6,778	53,148,222	11,683	76,872,166
Iron ore (DMT)		0	6,549	12,273,594
Total		50,811,283,309		48,727,793,136

Source: MGB (2017).

Table 3. Mining industry economic contribution

	As of Q2 2017	2016	2015	2014
Mining contribution to GDP (%)	0.7	0.6	0.6	0.7
Gross value-added in mining at current prices (in billion Php)	50.5	87.2	80.9	90.7
Mining employment contribution (%)	0.5	0.5	0.6	0.6
Total employment in mining and quarrying	179,000	219,000	236,000	235,000

Source: MGB (various years).

2.1 Hazards in mining

Mining is one of the most dangerous industries. The dangers that occur in mining include accidents which may result in significant loss of life, as well as health hazards that miners face on a day-to-day basis. Hence, there are distinct requirements to ensure safety and health in mine sites. The MGB keeps a record of all occupational accidents and illnesses occurring in a mine. The employer or his duly representative is required to give notice to the authorities (Director or their duly authorized representative/s) whenever an accident occurs in a mine resulting to the death of, or in serious physical injury, to one or more persons. Based on the records of MGB, there are 9,485 mine accidents reported since 2001 (Table 4).

Table 4. Summary of mine accidents (2001-2015)

Fiscal year	NLTA	LTA		Total number of accidents
		Non-fatal	Fatal	
2001-2002	273	131	5	136
2002-2003	226	103	11	114
2003-2004	213	93	11	104
2004-2005	310	110	17	437
2005-2006	382	100	10	492
2006-2007	646	100	14	760
2007-2008	564	121	11	696
2008-2009	828	147	17	992
2009-2010	793	170	12	963
2011-2012	725	54	6	785
2012-2013	1,126	69	17	1,312
2013-2014	1,217	70	15	1,303
2014-2015	1,302	70	20	1,392
Total	8,705	1,338	166	9,485

Source: MGB (2016).

NLTA: Non-Lost Time Accident³; LTA: Lost Time Accident⁴

*Data gathered during the fiscal year 2010-2011 was insufficient.

³“Non-Lost Time Accident” refers to those that will not prevent the injured person from reporting to his designated work on the working day following the day of injury and thereafter (DAO NO. 2000-98).

⁴“Lost-Time Accident” refers those that will prevent the injured from reporting to work on the working day following the day of injury and thereafter. Also, to be considered as lost-time accident is when the injured person, after reporting to work on the working day following the day of injury, fails to continue his normal work due to complications and accident resulting to permanent injuries or disabilities. Counting of days lost shall start from the time the injured person fails to report for work (DAO NO. 2000-98).

Based on MGB records, the number of reported accidents increased over the years. The number of non-fatal accidents with no loss of working time increased from 725 in 2011-2012 to 1,126 in 2012-2013. During the same period, non-fatal accidents with loss of working time increased from 54 to 69, while fatal accidents almost tripled from six to 17. Some of notable accidents during this period was when the wall of the Semirara open-pit coal mine collapsed due to heavy rains claiming the lives of five miners in 2013. A similar episode happened in 2015 at the same site in Semirara, Antique resulting to deaths and missing miners⁵.

Records of MGB also indicated that surface mining has the most number of accidents reported followed by underground mining for the past years. Underground mining and surface mining have recorded 23 and 21 fatal mine accidents, respectively (Table 5). However, the type of accident was not indicated.

Table 5. Summary of mine accidents by type of mining method (2012-2015)

Mining method/ operation	NLTA	LTA		Total number of accidents
		Non-fatal	Fatal	
Cement	433	34	3	470
Quarry	55	16	2	73
Exploration	329	10	1	340
Underground	824	86	23	933
Surface	1,943	51	21	2,015
Mineral processing	161	12	2	175
Total	3,745	209	52	4,006

Source: MGB (2016).

NLTA: Non-Lost Time Accident; LTA: Lost Time Accidents.

Safety performance by industry was measured in a survey conducted by Philippine Statistics Authority (PSA) in 2014. Covering the periods of 2011 and 2013, a total of 46,655 and 47,440 occupational accidents⁶ was recorded, respectively. This resulted in an increase of 0.3 per cent in the number of cases of occupational injuries⁷ from 48,975 in 2011 to 49,118 in 2013. Relative to the 2011 survey results, cases of occupational injuries in mining and quarrying with workdays lost increased from 108 to 136 in 2013 (PSA, 2015).

⁵Burgos, N., '3 dead, six missing as part of Semirara mining pit collapses', *Inquirer.net*, 17 July 2015, <http://newsinfo.inquirer.net/705819/3-dead-6-missing-as-part-of-semirara-mining-pit-collapses#ixzz4xMtBPsn2> (accessed 10 October 2016).

⁶Occupational accident refers to an unexpected and unplanned occurrence, including acts of violence arising out of or in connection with work which results in one or more workers incurring a personal injury, disease or death. It can occur outside the usual workplace/premises of the establishment while the worker is on business on behalf of his/her employer, i.e., in another establishment or while on travel, transport or in road traffic (PSA).

⁷Occupational injury refers to an injury which results from a work-related event or a single instantaneous exposure in the work environment (occupational accident). Where more than one person is injured in a single accident, each case of occupational injury should be counted separately. If one person is injured in more than one occupational accident during the reference period, each case of injury to that person should be counted separately. Recurrent absences due to an injury resulting from a single occupational accident should be treated as the continuation of the same case of occupational injury not as a new case (PSA).

In 2013, the cases of occupational diseases⁸ in establishments employing 20 or more workers doubled at 171,787 from 85,483 in 2011. High increases were very much evident in mining and quarrying at 983.7 per cent (from 854 to 9,255 cases) (PSA, 2015). Various cases of occupational injuries were also recorded particularly for mining and quarrying (PSA, 2016) (Table 6).

Table 6. Cases of occupational injuries with workdays lost in establishments employing 20 or more workers in mining and quarrying

Type of occupational injuries	2011		2013	
	Number	% to total	Number	% to total
Superficial injuries and open wounds	51	47.2	64	47.1
Fractures	32	29.6	30	22.1
Dislocations, sprains and strains	10	9.3	5	3.7
Traumatic amputations	1	0.9	7	5.1
Concussions and internal injuries	5	4.6	7	5.1
Burns, corrosions, scalds and frostbites	6	5.6	6	4.4
Acute poisonings and infections	2	1.9	2	1.5
Foreign body in the eye	2	1.9	-	-
Others	-	-	15	11.0
Sub-total (Mining and quarrying)	109	0.52	136	0.66
Total (Occupational injuries)	20,635		20,702	

Part of the body injured	2011		2013	
	Number	% to total	Number	% to total
Head	13	12.0	14	10.3
Neck	3	2.8	2	1.5
Back	8	7.4	3	2.2
Trunk or internal organs	11	10.2	8	5.9
Arm and shoulder	25	23.1	26	19.1
Wrist and hand	20	18.5	26	19.1
Lower extremities	20	18.5	31	22.8
Whole body or multiple sites equally injured	9	8.3	25	18.4
Sub-total (Mining and quarrying)	109	0.52	136	0.66
Total (Part of the body injured)	20,635		20,702	

Cause of injury	2011		2013	
	Number	% to total	Number	% to total
Falls of persons	16	14.8	14	10.3
Struck by falling objects	32	29.6	33	24.3
Stepping on, striking against or struck by objects, excluding falling objects	30	27.8	27	19.9
Caught in or between objects	6	5.6	12	8.8

⁸Occupational disease refers to an abnormal condition or disorder other than one resulting from an occupational injury caused by exposure over a period of time to risk factors associated with work activity such as contact with certain chemicals, inhaling coal dust, carrying out repetitive movements. This refers to a new case recognized, diagnosed and recorded during the year (PSA).

Over-exertion or strenuous movement	18	16.7	26	19.1
Exposure to or contact with extreme temperatures	1	0.9	6	4.4
Exposure to or contact with electric current	3	2.8	8	5.9
Exposure to or contact with harmful substances or radiation	2	1.9	2	1.5
Others	-	-	8	5.9
Sub-total (Mining and quarrying)	109	0.52	136	0.66
Total (Cause of injury)	20,635		20,702	

Agent of injury	2011		2013	
	Number	% to total	Number	% to total
Buildings, structures	14	13.0	7	5.1
Prime movers	1	0.9	2	1.5
Distribution systems	-	-	5	3.7
Hand tools	16	14.8	19	14.0
Machines, equipment	22	20.4	20	14.7
Conveying/transport/packaging equipment or vehicles	16	14.8	19	14.0
Materials, objects	31	28.7	60	44.1
Chemical substances	2	1.9	4	2.9
Human, animals, plants, etc.	4	3.7	-	-
Others	2	1.9	-	-
Sub-total (Mining and quarrying)	109	0.52	136	0.66
Total (Agent of injury)	20,635		20,702	

Source: Labstat Updates, PSA (2016).

Based on the mining and quarrying industry profile⁹, by type of occupation, the labourers and unskilled workers are the ones mostly affected by occupational injuries, accounting for seven out of every ten injuries (69.9 per cent or 95). This was followed by plant and machine operators and assemblers (13.2 per cent) and technicians (8.8 per cent) (PSA, 2016).

Safety performance in mining and quarrying has lower frequency and incidence rates. Mining and quarrying posted lower frequency and incidence rates than the total industry frequency rate of 2.03 and incidence rate of 4.91 in 2013. The overall severity rate or workdays lost of cases of occupational injuries resulting to temporary incapacity¹⁰ was posted at 15.46 per cent in 2013. It is a notable decline of 9.32 percentage points from 24.78 in 2011. However, the severity rate (15.46 per cent) recorded is higher with all industry severity rate of 10.79 per cent in 2013. The drop-in severity rate can also be translated to a decline in the average number of workdays lost of

⁹Statistics in this report were culled from the results of the 2013/2014 Integrated Survey on Labour and Employment (ISLE), a nationwide sample survey covering 8,399 establishments with 20 or more workers conducted by PSA.

¹⁰Temporary incapacity refers to case where an injured person was absent from work for at least one day, excluding the day of the accident, and: (a) was able to perform again the normal duties of the job or position occupied at the time of the occupational accident; or (b) will be able to perform the same job but his/her total absence from work is expected not to exceed a year starting the day after the accident; or (c) did not return to the same job but the reason for changing the job is not related to his/her inability to perform the job at the time of the occupational accident (PSA).

temporary incapacity cases. Mining and quarrying (14.53 per cent) are among those observed with longer duration in average workdays lost (PSA, 2016) (Table 7).

Table 7. Safety performance of mining and quarrying

Safety performance	2013	2011	Difference
Frequency rate ¹¹ of cases of occupational injuries with workdays lost	1.28	1.33	-0.05
Incidence rate ¹² cases of occupational injuries with workdays lost	3.09	3.56	-0.47
Severity rate ¹³ of occupational injuries resulting to temporary incapacity	15.46	24.78	-9.32
Average workdays lost ¹⁴ of temporary incapacity cases of occupational injuries with workdays lost	14.53	20.76	-6.23

Source: Labstat Updates, PSA (2016).

3. INTERNATIONAL STANDARDS

ILO has been in the forefront in efforts to improve the conditions of work, the prevention of accidents and the protection of mine workers. Since 1945, the ILO's Coal Mines Committee has been recognized as tripartite forum in addressing social and labour issues in mining. Safety and health has been the primary concern. In 1990, the Coal Mineworkers Charter was published which is a collection of ILO's Coal Mines Committee's conclusions and resolutions and included two consolidated texts dealing with various aspects of labour and social conditions in the coal mining industry. Though the Charter is not legally binding, it was considered as a minimum international social code with substantive parts such as: recruitment; training; general conditions of employment; social services and welfare; safety and health; labour-management relations; technological improvements and their social consequences; and productivity (ILO, 1994).

A number of ILO standards have a direct or indirect implication on safety and health in mines. Specific to mines, are the Underground Work (Women) Convention, 1935 (No. 45); the Hours of Work (Coal Mines) Convention (Revised), 1935 (No. 46); the Labour Inspection (Mining and Transport) Recommendation, 1947 (No. 82); the Minimum Age (Underground Work) Convention, 1965 (No. 123), and Recommendation (No. 124); and the Conditions of Employment of Young Persons (Underground Work) Recommendation, 1965 (No. 125). Some of these are no longer appropriate to the present mining industry. Other ILO instruments on the protection of workers from safety and health hazards in the working environment which, although not specific to mines, are equally applicable to them, which include: Night Work (Women) Convention(Revised), 1948 (No. 89) [and Protocol, 1990]; the Radiation Protection Convention, 1960 (No. 115); the Guarding of Machinery Convention, 1963 (No. 119); the Working Environment (Air Pollution, Noise and Vibration) Convention, 1977 (No. 148), and

¹¹Frequency rate refers to the number of disabling injuries per 1,000,000 employee-hours of exposure (PSA).

¹²Incidence rate refers to cases of occupational injuries with workdays lost per 1,000 workers (PSA).

¹³Severity rate refers to workdays lost of cases of occupational injuries resulting to temporary incapacity per 1,000,000 employee-hours of exposure (PSA).

¹⁴Average workdays lost refers to workdays lost for every case of occupational injury resulting to temporary incapacity (PSA).

Recommendation (No. 156); the Occupational Safety and Health Convention, 1981 (No. 155), and Recommendation (No. 164); the Asbestos Convention, 1986 (No. 162); and the Chemicals Convention, 1990 (No. 170). While the provisions of these standards also apply to mines, they do not specifically address the particular hazards, such as the dangers resulting from the transient nature of operations, or the sudden geological and other changes that jeopardize workers' safety (ILO, 1994).¹⁵

Stressing the importance of a preventative safety and health culture and a management systems approach, the Promotional Framework for OSH Convention, 2006 (No. 187) was adopted by the ILC at its 95th Session. The Convention aims to promote continuous improvement of occupational safety and health to prevent occupational injuries, diseases and deaths, by the development in consultation between employers and workers, of a national policy or programme. This is in accordance to Occupational Safety and Health Convention, 1981 (No. 155) which provides for the adoption of a coherent national policy on occupational safety, occupational health and the working environment, in consideration of national conditions and practice, and in consultation with employers and workers. The 2002 Protocol complements Convention No. 155 by establishing requirements and procedures for a system of recording and notification of occupational accidents and diseases, and publication of related annual statistics. These international instruments strengthen the requirements to ensure and promote safe and healthy working environment.

During the 81st Session (1994) of the ILC, safety and health in mines was discussed. Due to the constantly changing working environment, mines have experienced problems of occupational safety and health and catastrophic events that even caused deaths. The need for an international standard was considered due to the following reasons: (a) value to workers, employers and governments of an instrument or instruments that address areas where existing instruments are deficient and; further consolidate such standards for the benefit of the sector-specific regulatory authorities; (b) recognition to the economic importance of mining; and (c) exposure to hazards in mining that have an adverse effect on health (ILO, 1994).

A year after, the Safety and Health in Mines Convention, 1995 (No. 176) was adopted during the 82nd ILC Session in Geneva, Switzerland. The Convention regulates the various aspects of safety and health characteristic for work in mines, including inspection, special working devices, and special protective equipment of workers. It also prescribes requirements relating to mine rescue. At present, there are 32 member-States that ratified C176.

Based on C176, the term *mine* covers “any surface or underground sites where the following activities take place: (a) exploration for minerals, excluding oil and gas, that involves the mechanical disturbance of the ground; (b) extraction of minerals, excluding oil and gas; and (c) preparation, including crushing, grinding, concentration or washing of the extracted material.” Moreover, it also covers “all machinery, equipment, appliances, plant, buildings and civil engineering structures used in conjunction with the activities referred into.”

¹⁵ILO Convention Nos. 115, 148, 155, 162 and 170, Recommendation Nos. 82, 125, 156 and 164 are up-to-date Conventions and Recommendations which is ready for ratification by member States and/or one that has been examined by the ILO Governing Body and deemed to be still relevant. The Hours of Work (Coal Mines) Convention (No. 46) was withdrawn on 2000 by the 88th General Session because it had only been ratified by two member-States (Argentina and Spain) and had therefore failed to come into force. ILO Convention No. 123 and Recommendation No. 124 are outdated. Other instruments have the following stages: ILO Convention No. 119 need to be revised; ILO Convention No. 45 has an interim status; and ILO Convention No. 89 has an interim status but its Protocol (1990) is an up-to-date instrument.

Furthermore, the application of C176 shall be prescribed by national laws and regulations and may be supplemented by technical standards, guidelines or codes of practice. These national laws and regulations shall designate the competent authority that will monitor and regulate the various aspects of safety and health in mines. Moreover, laws and regulations shall provide for the following: inspection of mines; procedures of reporting and investigating fatal and serious accidents, occurrences and disasters; compilation and publication of relevant statistics (i.e. accidents, occupational diseases); and suspend or restrict mining activities on safety and health grounds. It must also ensure that appropriate plans of workings are provided by the employer before the start of operation, regularly updated for any significant modifications and the availability of this at the mine site. Part III of the Convention outlines the preventive and protective measures at the mine. It explicitly stated the responsibilities of the employers and the rights and duties of workers and their representatives (Table 8).

Table 8. Key preventive and protective measures at a mine

Responsibilities of employers	Rights and duties of workers and their representatives
• Shall assess the risk and deal with it in the following priority: (a) eliminate the risk; (b) control the risk at source; (c) minimize the risk (i.e. safe work systems); and (d) in so far, the risk remains, provide for the use of personal protective equipment. • Shall take all necessary measures to eliminate or minimize the risks to safety and health in mines under their control. • Shall prepare an emergency response plan for any industrial and natural disasters. • Shall take appropriate measures to eliminate or minimize the risks resulting from exposure to hazards (i.e. physical, chemical or biological). • Shall establish a system to accurately known the probable location of persons working underground. • Shall ensure the provision of regular health surveillance of workers exposed to occupational health hazards specific to mining. • Shall coordinate the implementation of all measures concerning the safety and health of workers and shall be held primarily responsible for the safety of the operations, whenever two or more employers undertake activities at the same mine.	• Right to report accidents, dangerous occurrences and hazards to employers and competent authority. • Right to be informed of workplace hazards that may affect their safety. • Right to collectively select safety and health representatives that would represent them on all aspects of workplace safety and health. • Duty to comply with prescribed safety and health measures. • Duty to take reasonable care of own safety and health, including the proper care and use of protective clothing, facilities and equipment. • Duty to report to immediate supervisor any situation which they believe could present a risk to their safety or health. • Duty to cooperate with the employer to permit compliance with the duties and responsibilities placed on the employer.

Source: C176.

4. LEGAL FRAMEWORK

(Discussion includes small scale mines and coal mines to better understand that different laws and separate authorities govern mine safety and health in the Philippines.)

The 1987 Philippine Constitution enshrines the state policies on the “right to health of the people and instill health consciousness among them” and the “right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature”. The Philippine legal system provides various standards to maintain a viable mining industry and ensure environmental protection and safety (La Vina, et. al., 2012).

During the Spanish occupation, mining law and policy began to take shape in the Philippines. The Philippine Bill of 1902 recognized the significance of the country’s minerals and natural resources that most of its provisions are into extraction and utilization. During the Marcos’ presidency, environmental regulation and protection were first made integral to the national policy on mining. In 1974, Presidential Decree (PD) No. 463 or the Mineral Resources Development Decree was issued recognizing mineral production as a major support of the national economy. Moreover, it authorized the Director of Bureau of Mines (now, MGB) to inspect the activities regarding safety inspection, among others, mineral conservation and pollution problems within a mining claim or lease (La Vina, et. al., 2012).

In 1984, PD No. 1899 was issued establishing small-scale mining as a new dimension in mineral development. The Decree defined small-scale mining as “artisanal”, that does not make use of sophisticated mining equipment, involves minimal investment on infrastructures and processing plant, relies on manual labour and owned, managed or controlled by an individual or entity qualified under existing mining laws, rules and regulations. This was reinforced by RA 7076 or the “People’s Small-Scale Mining Act of 1991” that governs small scale mining operations in the country. It seeks to promote, develop, protect and rationalize viable small-scale mining activities to generate more employment opportunities and provide an equitable sharing of the nation's wealth and natural resources. Later, the IRR was issued through DAO No. 1992-34. Recently, DENR issued DAO No. 2015-03 or the Revised IRR of RA 7076. Pursuant to Chapter VII, Section 27, safety and health of workers in small scale mining operations must abide by the provisions of DAO No. 97-30, otherwise known as the “Small-Scale Mine Safety Rules and Regulation”, approved Annual Safety and Health Programme and other pertinent rules and regulations.

In 1995, RA 7942 or the Philippine Mining Act of 1995 was signed by then President Fidel V. Ramos. RA 7942 is the main policy/legislation which governs the exploration, development, processing and utilization of mineral resources in the Philippines. The legislation provides two approaches in forming and finalizing mining contracts namely, the Mineral Production Sharing Agreement (MPSA) and the Foreign Technical Assistance Agreement (FTAA) (Raymundo, 2014). The DENR is the primary agency responsible for the enactment of RA 7942. Chapter XI, Sections 63 to 71 is the Safety and Environmental Protection which include provisions on mine safety and environment; mine labour, inspection and supervision; report of accidents; conduct of Environmental Impact Assessment (EIA); and rehabilitation. The IRR (DAO 1995-23) was released in August 1995. With several amendments made in the IRR, DAO No. 2010-21 or the Revised IRR of RA 7942 was issued to consolidate all amendments. Chapter XV, Sections 142 to 165 is the Mine Safety and Health.

In 1998, the Philippines was the 5th country to ratify C176. To give effect on the provisions of the Convention and pursuant to Section 8 of RA 7942 and Book IV Rule II of the Philippine Labor Code (Occupational Health and Safety), DAO No. 2000-98 or the Mine Safety and Health Standard was issued. The Order was promulgated to achieve the following objectives: (a) to promote a culture of safety and health in the mining industry; (b) to provide strict enforcement of safety and health measures; (c) to provide effective monitoring systems, inspections, investigations and inquiries to improve health and safety; (d) to establish tripartite linkages in promoting safety and health matters; (e) to promote training and human resources development; and (f) to comply with international obligations relating to mine safety and health. The Order shall govern all employers, employees, contractors, permittees, service contractors and other entities engaged in any exploration, mining, quarrying, mineral processing and other allied or related operations. Likewise, DAO No. 2000-98 outlines the employer's responsibilities and workers and workers representatives' rights and duties in ensuring mine safety. Further, it supersedes Mines Administrative Order (MAO) No. MRD-51, Series of 1991, otherwise known as the "Mine Safety Rules and Regulations." The MGB is the main authority that implements mine safety rules and regulations.

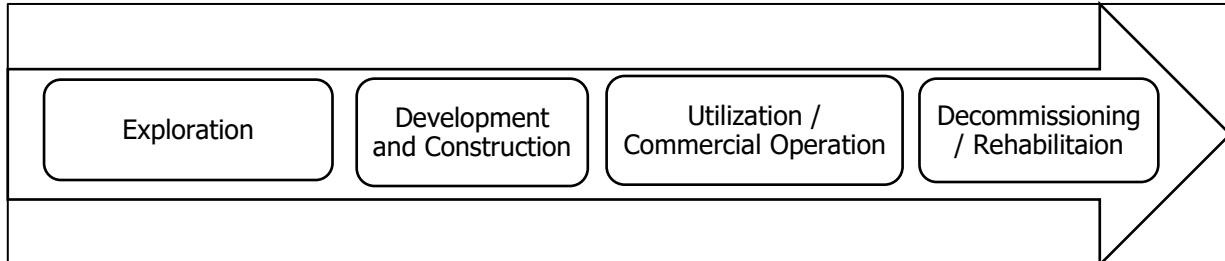
In 2012, President Benigno Aquino III issued EO No. 79 to institutionalize and implement reforms in the Philippine mining sector providing policies and guidelines to ensure environmental protection and responsible mining in the utilization of mineral resources. It aims to improve environmental mining standards and increase revenues to promote sustainable economic development and social growth, both at the national and local levels. DAO No. 2012-07 or the IRR of EO 79 was issued but later amended through DAO No. 2012-07-A. Environmental standards in mining shall be ensured in coordination with local government units as prescribed by various environmental laws and regulations. In 2015, DENR has issued DAO No. 2015-07 mandating all mining contractors to secure ISO 14001 Certification. The Order institutionalizes an environmental management system that ensures the adherence of local mining operations to international standards.

For coal mining, there are separate issuances that govern its operations. Presidential Decree No. 972 or The Coal Development Act of 1976 provides for the active and systematic exploration, exploitation, development, disposition and utilization of Philippine coal resources. This decree introduced the Philippine coal service contract system and established the appropriate guidelines for coal operations. This was later amended by PD No. 1174. Moreover, Bureau of Energy Development (BED) Circular No. 1, Series of 1978 governs coal mine safety rules and regulations pursuant to Section 9 of PD No. 972. Safety rules are prescribed for underground and surface mine operations covering requirements for exit, escape ways, submission of mine maps, ventilation, allowable limits of toxic and explosive gases. Provisions of control of coal dust, ground support, rescue organization for emergency situations, fire protection, handling of explosives, health and sanitation facilities and other miscellaneous safety rules were also provided. Moreover, all holders of coal operating contracts and special operating permits are required to ensure that these rules and regulations are complied with. Non-compliance with these rules and regulations shall constitute sufficient ground for cancellation of all coal operating contract or special operating permit. Furthermore, BED Circular No. 81-11-10 or Guidelines for Coal Operations in the Philippines set rules and regulations to where relevant health and safety provisions are Sections V (Additional Coal Mines Safety Rules and Regulations) and VIII (penalties for violations of the Coal Operators including Safety Rules and Regulations).

Box 1. Overview of the mining operations

Mining operations are complex. It consists of various interconnected projects, operating simultaneously. To better understand, an overview of mine life cycle (extraction process) is described and the associated key activities (Figure 4).

Figure 4. Extraction process flow



Source: Researcher's illustration.

Exploration. It is the process of searching for valuable minerals and quantifying their occurrence. The stage also involves comprehensive technical (e.g. geo-scientific and engineering operational factors such as mine design) and socio-economic analysis (e.g. environmental impacts and stakeholder issues) to determine if the envisaged project is suitable for mining development and production.

Development and construction. This stage includes pre-construction and mine construction work and commences after all necessary permits and approvals have been obtained. During mine construction, the most significant activity is the establishment of underground or surface mine workings to provide direct access. Depending on several factors, including size of operation, the location, proposed mining and milling processes to be used, most on-site facilities and utilities may include:

- Transportation facilities (e.g. roads to the site, on-site roads, airstrip, rail line or port facility);
- Ore handling and processing facilities;
- Mine waste disposal facilities;
- Water management and wastewater treatment systems;
- Power infrastructure, including power distribution system and any on-site generation facilities;
- Shops, offices, warehouses and accommodations;
- Fuel supply and storage;
- Vehicle storage and maintenance facilities;
- Explosives storage facility;
- Water supply, potable water treatment and distribution system; and
- Sewage and waste disposal.

Utilization and commercial operation. Typically, this stage is the central stage in the mining cycle. It includes both ore extraction and ore processing and associated activities to produce a product for market. The phase may extend continuously over a period of several years to decades while in other sites, the mine operations phase may include short or extended periods of inactivity due to changes in market conditions.

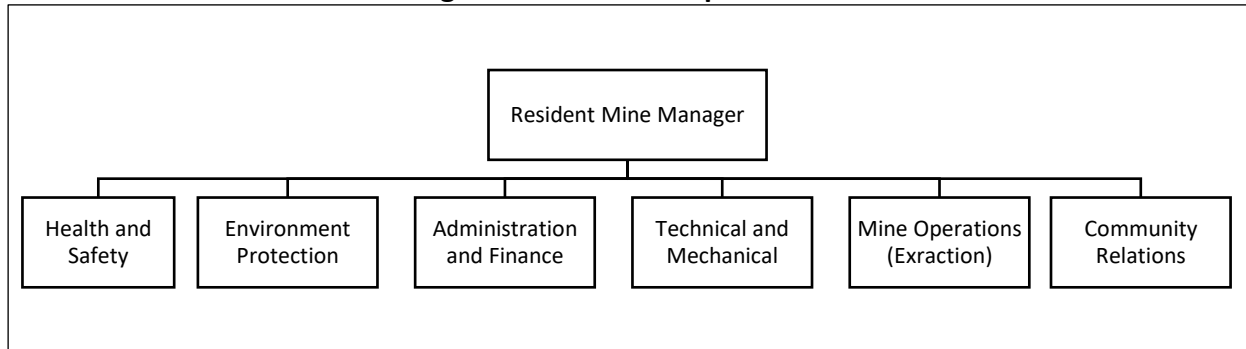
Decommissioning/final mining stage/rehabilitation. When ore minerals are completely exhausted, or no longer profitable, mines may be closed. In some cases, mines close temporarily and put into a "care and maintenance" status, also known as temporary suspension. During this phase, much of the work is related to environmental protection and rehabilitation to reverse any adverse effect of mining operation.

References: EITI (2016), Canada's Environmental Code of Practice for Metal Mines (2009)

Box 2. Mine site organizational chart

Given the different activities in mining operations, mine sites have various departments/offices. In the Philippines, typically, the structure comprises functional areas such as mining production, human resources, environmental protection, health and safety, technical services, and finance and administration (Figure 5).

Figure 5. Mine site departments



Source: Researcher's illustration.

- The Resident Mine Manager is the overall head and in-charge of the management of the site;
- The Health and Safety Department maintains a safe work environment;
- The Environment Protection/Management Department addresses environmental concerns through adequate and sustainable programmes (Section 173 of DAO No. 2010-21 requires Contractors/Permit Holders to include in the mine organization a "Mine Environmental Protection and Enhancement Office (MEPEO), which shall set the level of priorities and marshal the resources needed to implement environmental management programmes.");
- The Community Relations Office works closely with host communities to create and implement integrated development programmes that focus on sustainability (Section 136-C of DAO No. 2010-21 requires Contractor/Permit Holder/Lessee shall incorporate in its organizational structure a Community Relations Office (CRO) that is primarily tasked to marshal the resources needed and serves as facilitator/coordinator for the successful implementation of the Social Development and Management Programmes, and the Programmes on Development of Mining Technology and Geosciences and on Information, Education and Communication (IEC) Programme for greater public awareness and understanding of responsible mining and geosciences);
- The Administration/Clerical Office is responsible for providing administrative support such as human resources, general administration, payroll/accounts, accommodation/site management and communications;
- The Technical Services Department are responsible for electrical supply, construction and road works, pier/seaport and site facilities maintenance;
- The Mechanical Department is responsible for the maintenance of equipment (heavy and light equipment) and shop services used in mine operations (extraction); and
- The Mine Operations/Division oversees activities (i.e. excavation, processing, storage and maintenance) in and around the mine site to facilitate the production of a mineral product. The Assay Laboratory Section provides sample preparation facilities and a wide range of mineral testing services.

Another important aspect is downstream processing, such as smelting of mineral concentrates or refining of metals, and production plants. There are mining sites which have processing facility (i.e. nickel processing) or production plant (i.e. cement, marble) located nearby where raw materials are sourced out.

References: Skills and Compensation Survey in the Mining Industry (2016), Responses from interviews

5. WORKING CONDITIONS

Working conditions cover a broad range of topics and issues. Usually, it is regarded as the work environment and the time (hours of work, rest periods, work schedules) to remuneration, collective bargaining as well as physical conditions of the workplace.

5.1 Work arrangements

Mining activities vary in nature. While the mining sector used to employ directly nearly all those working in a mine, there is an observed trend for companies to outsource certain technical functions, administrative/maintenance functions, as well as sometimes formerly considered core functions. Following this trend, a number of mines have started to decide whether to employ workers either directly or indirectly through service contractors and agencies depending on the function (i.e. excavation, transport, office work, mechanical, security, etc.) they are asked to perform. Workers hired through agencies¹⁶ are usually on maintenance (e.g. janitors), security and production. Meanwhile, outsourced workers or contracted out¹⁷ are often involved in operations (i.e. drilling, blasting, hauling, shipment).

In this research, it has been observed that there seems to be an apparent distinction in terms of work arrangement between metallic and non-metallic mining companies. Metallic companies have a mix of workers (directly hired and hired through service contractors) on its mining activities and seasonal in nature. There are companies that do not mine during rainy seasons. For instance, activities are mostly into maintenance and environmental works. There is a core group of regular workers that conduct such activities and augment the workforce as necessary during dry seasons by seasonal hires and contractors. For non-metallic companies, quarry operations are usually outsourced or contracted out. The mine supervisor is directly hired and there are service contractors for a specific job (i.e. blasting, hauling, drilling, etc.). Given this employment arrangement, DOLE's role is to review the contracts and ensure that it complies with DO No. 179-17 or the Rules in Contracting and Subcontracting as well as the contractor's provisions on health and safety of its workers.

Since most of mining sites are in remote areas especially in metallic mining, companies employ locals from the host and nearby communities and indigenous people. Processing facilities and production plants (i.e. cement plant, nickel processing plant) are usually under a different management. Hence, these workers are excluded from the total employment of the mining company.

5.2 Working hours

Typically, mining companies have a 48-hour work week (Monday to Saturday). However, working hours vary depending on the area of operation (Table 9). A typical day for a miner (worker in the mine site) is at least ten hours of work. Although it is beyond the normal work hours (eight hours), any excess is considered an overtime and compensated. Night shift differential is given for

¹⁶Workers hired through agencies/contractors are workers employed by the agency/contractors to perform or complete a service pursuant to a service agreement, within the premises of the company. They are excluded from the total employment of the company (PSA).

¹⁷Outsourcing/contracting out refers to an arrangement whereby a principal agrees to put out or farm out with a contractor the performance or completion of a specific job, work or service with a definite or predetermined period, regardless of whether such job, work or service is to be performed or completed within or outside the premises (DO No. 174-17).

work performed between 10 p.m. and 6 a.m. Workers are also entitled for meal period and rest day (day off).

Table 9. Work schedule

Work area	Hours of work	Work schedule
Mine operations (e.g. excavation)	Average of 8-10 hours	• Three shifts: 7 a.m.-3 p.m.; 3 p.m.-11 p.m.; 11 p.m.-7 a.m. • Two shifts: 6 a.m.-6 p.m.; 6 p.m.-6 a.m. • One shift (quarry): 8 a.m.-5 p.m.; 7 a.m.-4 p.m.
Mill operations	8 hours	One shift: 8 a.m.-4 p.m.
Port areas	12 hours	6 a.m.-6 p.m.
Mine site offices	8 hours	8 a.m.-5 p.m.; 7 a.m.-4 p.m.
Plant operations	8-10 hours	Two-three shifts

Source: Responses from focus group discussion and interviews.

Companies also adopt flexible working arrangements, such as rotation of workers and fly in, fly out (FIFO). Rotation are usually for miners, while FIFO are for technical skilled or skilled professionals. Since mining companies are situated in remote areas, the staff stay at the work site for a specific period of time, then fly back home during rest days.

5.3 Wage, social welfare and training benefits

During interviews, companies claimed that they are compliant with minimum wage rules. Daily minimum wage rates are determined through Regional Tripartite Wages and Productivity Boards (RTWPBs) in different regions. Moreover, regular employees are provided with government mandated social welfare benefits (paid leaves, overtime pay, night shift pay, 13th month pay, retirement pay, separation pay). Compulsory benefits (SSS, PhilHealth and Pag-IBIG benefits) are also provided. However, it is interesting to note that top-paying occupations in the industry are not labour intensive, but professionals such as lawyers, several types of managers, engineers, geologists, among others (Itkin, 2005).

Aside from government mandated benefits, many companies provide additional incentives such as free medical (e.g. annual physical examination) and dental services at the company-run hospital/clinic. Insurance benefits (e.g. health card) and executive check-ups for most supervisors and managers, and few are extended to regular and non-regular employees. Some provide their employees (mostly are not locally hired and technical skilled/professionals) with free housing or accommodations, transportation to and from work and recreational facilities.

Another prominent practice in the mining industry is an intergenerational employment. Most of the regular workers interviewed (32 workers) have at least ten to 15 years of working in the company. Some of them have their parents or relatives working in the company, while others are employed during its starting years. Hence, mandatory retirement benefits, severance and death benefits are part of the benefit package. Apart from regular benefits, training is provided to enhance the employee's work skills. Training courses include topics on equipment operation and maintenance, occupational safety and health, environment, supervision and leadership, and personal development.

5.4 Self-organization and collective bargaining

Based on interviews, from those companies included in this study, there were four companies with labour unions, while the unorganized applies labour-management committee. Although CBAs are unique and vary in local circumstances, there are economic provisions and non-economic provisions. Economic provisions include monetary value of wage increase, retirement plan and additional benefits. On the other hand, non-economic provisions include labour management cooperation, grievance procedures, and other provisions without monetary value.

A. Monetary

- Wage increase.
- Sharing of medical costs for employees and their legitimate dependents.
- Additional benefits to the existing retirement plan (e.g. eligibility to receive a sack of rice for a year; medical allowance for a year; retirement assistance).

B. Training and education

- In-plant seminars sponsored by the company.
- Union representation in labour seminars, conventions and other labour-related activities if required and to be considered as official business.
- Work skills development.

C. Health and safety

- Medical, dental and hospitalization benefits.
- Annual physical exams for all employees.
- Free use of ambulance.
- Free use of physical fitness facilities/recreational facilities.
- Accident investigation and reporting.
- Not required to work under condition which are unsafe and unhealthy beyond the normal hazards of work.
- Joint investigation on serious accidents and recommendations and findings of joint committee to presented to the resident mine manager.
- Joint inspections.
- Proper labeling of chemical containers.

However, it is interesting to note that in some mining firms, the number of workers employed by contractors is nearly half or even more than the number of permanent staff especially in quarry operations. This pattern suggests a lean workforce on which bulk of the workers are on contract and in less secure forms of employment that tend to exhibit decent work deficits (e.g. lower wage and inadequacy in occupational safety). Another issue with low union density in the mining industry may be attributed to union busting. During the focus group discussion with workers group, as part of the validation process, it was raised that some mining areas are militarized zones.

6. APPLICATION OF MINE SAFETY POLICIES

Using the MGB's audit checklist, safety and health practices were described vis-à-vis the existing policy and requirement. The following practices were observed:

6.1 Safety and Health Programme

Before (15 days) every calendar year, all mining companies are required to submit an Annual Safety and Health Programme that covers all areas of operation. It includes, but not limited to: (a) leadership and administration; (b) organizational rules; (c) management and employee training; (d) good housekeeping; (e) health control and services; (f) provision for personal protective equipment; (g) monitoring and reporting; (h) environmental risk management including emergency response programme; and (i) occupational health and safety management. Service contractors are also required to submit to its principal a safety and health programme, where the latter shall monitor and ensure the compliance with existing rules and regulations. There is a safety and health policy, which is a written statement detailing the company's commitment to health and safety. This is strategically located at work areas (i.e. front gate) and signed by the resident mine manager. The details of the policy cover all aspects of the company (Table 10).

Table 10. Safety and health programme

Policy	Requirement	Practice
Section 144 of DAO No. 2010-21 (IRR of RA 7942)	Approved Safety and Health Programme	▪ Submission of a Safety and Health Programme annually covering its area of operations. ▪ Reviewed and approved by MGB.
	Safety and Health Policy	▪ Usually signed by the highest official onsite of the company's Chief Executive Officer (CEO). ▪ Strategically located on the work areas.

Source: Responses from focus group discussion and interviews.

6.2 Leadership and administration

Typically, the Safety and Health Office is an independent office and usually under the supervision of the Resident Mine Manager. The Safety and Health Office is primarily responsible to the formulation and effective implementation of the company's safety and health program, and ensures that all rules and regulation pertaining to safety are enforced.

The Safety and Health Office is usually headed by a safety engineer with safety inspectors. The classification of mines¹⁸ and service contractors determines the requirement of having full time or part time safety engineers and safety inspectors. These safety engineers and safety inspectors must be registered and issued with permit from MGB. Some are DOLE-accredited safety officers. Due to limited number of personnel in some companies, dual roles are also practiced. Safety officers are also health officer, security officer or Mine Environment Protection and Enhancement Officer (MEPEO). Section 173 of DAO No. 2010-21 requires contractors/permit holders to incorporate in their mine organization structure a Mine Environment Protection and Enhancement Office. The MEPEO sets the level of priorities and marshal the resources needed to implement environmental management programmes (Table 11).

Table 11. Leadership and administration

Policy	Requirement	Practice
Section 3 of DAO No. 2000-98 (Mines Safety and Health Standards)	Establishment of a Safety and Health Office	▪ An independent office which is directly under the supervision of the Manager. ▪ Primary responsible for the safety and health programme.
Section 146 of DAO No. 2010-21 and Section 2 of DAO No. 2000-98	Presence of Safety Engineers/Safety Inspector	▪ Depending on mine classification, safety engineers/inspectors enforces the rules and regulations on safety. ▪ Dual role is also common especially in non-metallic companies due to limited number of personnel.

Source: Responses from focus group discussion and interviews.

6.3 Central Safety and Health Committee

The Central Safety and Health Committee (CSHC) is constituted and conducts regular monthly meetings. The Committee is composed of the resident mine manager, safety engineer, department managers/heads, company nurse or physician, representative from each service contractors and worker's representative. Usually, the workers are represented by the union president. For unorganized, department heads identify who will attend and represent the workers during the meeting. The committee provides a forum for consultations between the members in developing and implementing measures designed to ensure the safety and health at mines.

Aside from CSHC monthly meeting, there are other safety meetings conducted through PEP talks and toolbox meetings. Tool box meetings are daily meetings among workers and their respective supervisors for instruction, discussion and proper briefing on the planned work, the assessment of past work, the possibility or actual occurrence of accidents at the site, tips and suggestions on how to prevent possible accidents and other related matters (DO No. 13, 1998). Usually, this 15-minute meeting is reminders and the first agenda item of the day before the deployment/start of work (Table 12).

¹⁸Mines are classified (Class A, B, C or D) according to the number of employees including that of service contractors (Section 2 of DAO 2000-98).

Table 12. Central Safety and Health Committee

Policy	Requirement	Practice
Section 5, Rule 21 of DAO No. 2000-98	Presence of a Central Safety and Health Committee (CSHC)	- Composition is highest official of the mine, union members/worker's representative, company physician/nurse, representative from the service contractor and safety engineer/inspector. - Membership is also extended to department heads and managers. - Conducts monthly safety meetings and other safety meetings (i.e. PEP talks, tool box meetings).

Source: Responses from focus group discussion and interviews.

6.4 Organizational rules

It is the responsibility of the employer to adopt and enforce a set of safety rules and regulations applicable to each work area. These are safety rules printed in handbooks or booklets that the workers can refer to for guidelines, protocols and procedures to ensure safety. These booklets are translated into common dialect (e.g. Bisaya, Cebuano and Tagalog) (Table 13).

Table 13. Organizational rules

Policy	Requirement	Practice
Section 5, Rule 21 of DAO No. 2000-98	The Safety and Health Rules and Regulations manual and handbook, includes SOPs and protocols.	- Printed booklets are distributed to workers which they can refer to for guidelines, protocols and procedures to ensure safety. - Sometimes, these booklets are translated into the common dialect (i.e. Bisaya, Cebuano, Tagalog).

Source: Responses from focus group discussion and interviews.

6.5 Management and employee training

All employees (management and rank and file) are provided with training and it is incorporated in the annual safety and health program. Both development and technical training relating to specific job functions, skills development or management tracks are provided. Trainings range from first aid, firefighting, mine rescue, chemical handling, emergency evacuation procedures, basic OSH training/ OSH in mines, Hazard Identification, Risk Assessment and Control (HIRAC) and specific to tasks (i.e. machine operation, defensive driving). Newly hired are also given pre-deployment and safety orientation from the human resource and safety departments, respectively (Table 14).

Table 14. Management and employee training

Policy	Requirement	Practice
Section 9 of DAO No. 2000-98	Training on Safety and Health for all levels and management.	▪ Mandatory trainings on safety and health is provided (i.e. first aid, firefighting, etc.). ▪ Included in the Annual Safety and Health programme.
Section 5 of DAO No. 2000-98	Conduct of safety induction/ orientation.	▪ Visiting rules apply at the mine site (i.e. Company issued access pass/IDs, strictly no visitor allowed without the escort from the safety and security). ▪ Orientation or induction by the Safety and Health Department is a requirement.

Source: Responses from focus group discussion and interviews.

6.6 Good housekeeping and occupational safety

It is the employer's responsibility to provide necessary facilities for a safe, sanitary and healthful working conditions (Table 15). Good housekeeping measures involve hygiene and sanitation. Proper housekeeping is maintained through the following:

- All work areas are clean and free from any obstruction.
- Proper disposal of non-hazardous waste by segregation (biodegradable, non-biodegradable, hazardous)
- Sanitation facilities such as toilets in mine site offices/field are maintained and clean.
- Implementation of 5S (sort, set in order, shine, standardize, sustain) at workplaces
- Provision of potable water and eating areas in mine site offices.
- Observance of no smoking in certain areas.

Table 15. Good housekeeping

Policy	Requirement	Practice
Section 60 of DAO No. 2000-98	Good housekeeping in the workplace.	▪ Involves hygiene and sanitation. ▪ Implementation of 5S, waste management, workplaces are free of obstruction and proper disposal of wastes. ▪ Provision of welfare facilities in mine site offices/field. ▪ Observance of no smoking on certain areas.

Source: Responses from focus group discussion and interviews.

There is toilet provision (portalet) in the field, however, it is seldom used due to distance and mobility in the field. With regard to drinking facilities, workers usually bring their own water bottles in their trucks/heavy equipment. There are also make-shift sheds to protect from extreme heat during warm weather and sudden rains. With regard to occupational health measures, the following are observed:

- Noise emitted at any work area (through blasting or machine operations) is reduced as practical as possible. Workers are required to wear suitable device to reduce noise intensity (ear plugs).
- Welders and chemical handlers are provided with goggles/spectacle for eye protection.
- Illumination is provided in the area. For 24 hours operation at the mine site, lamp posts are available aside of the light emitted from the equipment.
- To address traffic congestion issues, there are designated parking areas for trucks and heavy equipment in mine ridges
- Mine and haulage roads are maintained to ensure the safe, smooth and uninterrupted flow of traffic in the mine and the operation of its vital component infrastructures.
- Provision of fire extinguishers
- Material safety data sheet are maintained available for each toxic and hazardous materials
- Regular water sprinkling along exposed areas especially during dry seasons and covering haulage trucks with tarpaulin or canvas for dust mitigation measures.

Since the study only focuses on surface mines, there is an observance of road safety policy and equipment operation by the following:

- Observance of speed limit (e.g. mine site: 30 kph, 10-25 kph).
- Alcohol screening through breath analyzer.
- Maintenance of a reasonable distance (e.g. 50 metres).
- Following of road safety signages.
- Mandatory wearing of seat belts.
- No spotter, no dumping rule.
- Defensive driving and simulation training is a requirement.
- Only duly qualified and authorized persons shall be permitted to assist, operate and maintain any machine or equipment.
- Proper maintenance of motor vehicles and heavy equipment to decrease air pollutants.

Blasting operations are applied in hard rock zones. There are four companies found to have blasting operations. Blasting schedules are required to be posted beforehand (usually 12:00 noon, 3:45 p.m.), and only authorized persons are allowed in the area. Blasting shelters are provided to protect all workers endangered by fly rocks from blasting.

6.7 Health and control services

It is the responsibility of the employer to provide hospitalization, medical facilities, including the transportation to the hospital and provide full treatment to employees injured and those suffered from occupational related diseases during the performance of their work. Depending on the mine classification, the employer shall provide his workers with emergency medical and dental services (Table 16). There are two hospitals and seven clinics visited. The hospital is strategically located inside the camp and townsite, while the clinic is either inside or adjacent to the work areas. While some have more than 10 doctors and 30-50 nurses, usually, there is one doctor and three-five full-time nurses. Dental services are also rendered either by full- and part-time dentists. These medical facilities primarily served the workers, while hospital services extend to family members and the community.

Table 16. Health and control services

Policy	Requirement	Practice
Section 64 of Rule 864-866 of DAO No. 2000-98	Presence and provision of emergency medical and dental services	▪ Presence of medical facilities (hospital or clinic) within the work area with deployed personnel (doctors and nurses); the number and specification of which depends on the classification of mines. ▪ Appropriate standby emergency transport vehicle. ▪ First aid kits strategically located in workplace and designated first aiders per department/work area. ▪ Health services extend to the community.

Source: Responses from focus group discussion and interviews.

Mine sites that have clinics only, usually enter into an agreement with the nearest medical facility/hospital located not more than five (5) kilometers away from the mine site, or which can be reached within 25 minutes of travel. Moreover, there must be a standby emergency transport vehicle (some have ambulance) for the immediate transfer of the sick/injured worker to the hospital.

Aside from medical facilities, first aid kits were strategically located in workplaces, with minimum quantity of medicines and medical supplies. Provision of medical examinations were also given to workers free of charge (i.e. pre-employment exam, annual periodic exam, relation to work medical exam). Special medical exams are by request. Workers under service contractors were also catered to these facilities. In case of accidents, the service contractor is liable. When asked if they have health surveillance of workers exposed to occupational health hazards, there are roving nurses that conduct health visits to the mine sites. Likewise, health personnel (nurse) were also part of the inspection team.

6.8 Provision of personal protective equipment (PPE)

PPEs are provided to all employees at no cost. These are provided in accordance to the type and condition that the employee is exposed to. Standard PPE include a skull guard/hard hat, eye goggles/spectacles, dust/chemical respirator/mask, earmuff/ear plugs, hand gloves, high visibility vest, rainboots, raincoat, and safety shoes (Table 17).

To ensure the standards of the PPEs, suppliers are required to submit certifications. Moreover, the Health and Safety Office has guidelines in replacement either for lost or damaged PPEs. Usually, the worker requests replacement through their supervisors and endorsed to safety office. The safety office verifies the replacement request. Companies conduct mandatory replacement of PPEs, after its life span even it is still working. One company provide anti-napping device to its truck drivers.

Table 17. Provision of personal protective equipment (PPE)

Policy	Requirement	Practice
Sections 5, Rule 21 and Section 63 of DAO No. 2000-98	Provision of PPEs	▪ Provision of appropriate PPE at no cost to the workers. ▪ Guidelines in replacement of PPE ▪ Management of inventory and ensuring standards.

Source: Responses from focus group discussion and interview.

6.9 Monitoring and reporting

Inspections of mine sites are regularly done by safety inspectors to ensure worker's compliance with the company safety rules and regulations (Table 18). Daily inspections, weekly safety audits and random/unscheduled inspections/audits were conducted. Inspection reports are generated and submitted to the safety manager, while major issues and concerns are discussed during CSHC meeting for mitigating measures. Likewise, daily and monthly meetings are conducted to monitor the issues and concerns of the employees related to health and safety.

The conduct of risk assessment is another fundamental activity of the Health and Safety Office. It particularly focuses on risks regarding work and surrounding environments where the work is performed. Risks assessments are done with regards to dust, chemical, hazardous substances, electrical/mechanical energies, fire and work environment (building, structure, noise, ventilation).

Another distinct company practice is the constitution of a SHE Patrol (Safety, Health and Environment Patrol). The SHE Patrol is composed of the human resource manager, safety manager, environment protection officer, safety inspector and contractor's representative. Patrols are carried out randomly and unscheduled, allowing all sites to be visited. Reports are also posted in bulletin boards, discussed during general assembly/toolbox meetings, or department meetings.

Table 18. Monitoring and reporting

Policy	Requirement	Practice
Section 5 of DAO No. 2000-98	Inspection Protocol and Guidelines and conduct of Safety and Health Inspection (SHE)	▪ Daily inspection; weekly safety audit of work area; SHE patrols by safety committee member and contractors. ▪ Written inspection reports and safety concerns discussed during CHSC meetings.
Section 155 of DAO No. 2010-21 and Section 5 of DAO No. 2000-98	Accident Report Incident/Accident Investigation	▪ System of reporting: Employee-Immediate Supervisor-Section Head/Safety Office. ▪ Submission of monthly general accident reports to MGB, copy furnished to DOLE-BWC. ▪ Required to report to MGB within 24 hours in any case of incident, or accident causing or creating the danger of loss of life or serious physical injuries.

Source: Responses from focus group discussion and interviews.

In case of accidents, causing death or creating the danger of loss of life/serious physical injuries, as well as damage to property, companies are required to report to MGB within 24 hours. At the company level, the system of reporting has the following flow employee – immediate supervisor – section head/safety office. Accident must be investigated followed by the submission of a report. Other reportorial requirements are explosive consumption including transaction reports, accident reports, work-related illnesses, among others.

6.10 Environmental risk management including emergency response programme

The employer is responsible in institutionalizing an emergency response preparedness programme for reasonably foreseeable industrial and natural disasters. The emergency response and preparedness programme is included in the Annual Safety and Health Programme (Table 19). Companies formed and trained teams to quickly respond to calls of emergency and disaster assistance. Emergency Response Teams (ERT) are assigned in all major departments. The members of ERT are usually trained on basic firefighting and medical rescue/first aid and they are called the front liners. The teams were assigned to be the first responder to emergencies within their department's jurisdiction. For mining companies with large workforce, they have sub-teams such as first aid, firefighting, oil spill, ore spill, support team and rescue team. The Crisis Management Team (CMT) are composed of managers. Due to limited number of personnel, not all companies have mine rescue team. Nevertheless, companies with over a hundred employees has 35-50-member rescue team. These rescue teams were also dispatched to respond to disasters such as typhoons and earthquakes. A fire truck and ambulance (or standby vehicle) must be always available in case of emergency.

Table 19. Environmental risk management including emergency response programme

Policy	Requirement	Practice
Section 49 of DAO No. 2000-98	Preparation of emergency response and preparedness programme Presence of an emergency response team (ERT)	▪ Submission of programme that includes organization of a crisis management team (CMT). ▪ ERTs are front liners, while CMT are the management. ▪ Mine rescue teams were also dispatched to respond to disasters.
Section 49, Rule 638 of DAO No. 2000-98	Conduct of emergency drills	▪ Emergency drills (i.e. fire drills, earthquake drills, insurgency drill) are conducted to determine the effectiveness of the programme. ▪ Quarterly or semi-annual conduct of drills.

Source: Responses from focus group discussion and interviews.

Aside from safety trainings, crisis management workshops (e.g. drills) are also conducted to prepare the employees to handle emergency situations, such as evacuation/insurgency, earthquake and fire. These drills are conducted quarterly to determine the effectiveness of the programme. Rule 357 of DAO NO. 2000-98 requires neighboring mines to organize a Mutual Aid Mine Rescue Emergency Programme. Some answered that coordination with local government unit and MGB is observed.

6.11 Communication system/recording system

Some of the provisions of C176 specifically pertain to underground mine operations, although some practices can also be of benefit to surface mines such as communication, recording of persons and coordination systems. For communications, the usual means is through hand held radios and mobile cellphones. Field supervisors are provided with hand held radios. One distinct company practice is the establishment of a base communication at the mine look out area. Meanwhile, to establish the names and location of all persons who are within the mine site, during toolbox meetings/pep talks, work is discussed and distributed according to groups, with supervisor or team leader in charge of a certain area. Another distinct practice is the presence of a work distribution board. The work distribution board serves as a recording and monitoring system, to determine work assignments as well as equipment.

7. WORKERS AWARENESS IN RELATION TO THEIR RIGHTS AND MINE SAFETY STANDARDS

Both C176 and DAO No. 2000-98 outline the rights and duties of workers and their representatives in ensuring safety. The following aspects were examined and assessed: access to information and training; participation in workplace safety and health; and compliance to prescribed safety and health measure. Results of survey among 57 workers and 12 union officers elicited the following observations:

- Through CBA, it is the right of the worker, through its representatives to participate in inspection and investigation activities, as well as to report accidents and any dangerous occurrences.
- Workers are represented by the union president during CSHC monthly safety meetings. If the firm is unorganized, those who have been assigned by the department heads attend the meetings.
- Many workers are not aware that they can obtain reports or request of investigation reports, when there is cause for concern on safety and health grounds.
- Information is disseminated (i.e. inspection/investigation reports) by posting reports in bulletins, and through conduct of general assembly and joint meetings between management and union.
- There are workers who have not heard or know the details of DAO No. 2000-98. Hence, it is important to look at the technical capacities and level of participation of workers in the action plan/efforts in ensuring mine safety.
- Safety rules are commonly stated in English and not available at the mine site.
- Formulation of company safety rules and regulations is management discretion.
- Issues with service contractors are usually regarding wages and PPEs (i.e. below minimum wage, charges or limited PPEs, no insurance/health card).

Though the results of the survey are limited, relevant inputs are raised during the focus group discussion with workers group.

- Explore the relationship of labour-relations, particularly the role of trade unions in collective bargaining to ensure safety in workplaces.
- Explore the linkages or the supply chain as a regulatory mechanism
- Advocacy for an industry-wide bargaining to assure standards covering all mine workers (including non-union members and unorganized firms) and to measure the effectiveness of the policies in place. However, there is a dilemma of a “one-size fits all package.”
- Low union density in the mining industry may be attributed to union busting. However, rampant contractualization (work arrangement) is a contributing factor.
- On transparency, it must not only include financial aspect (i.e. paid taxes and royalties, revenues generation, etc.) but also on ensuring safety and health through spending’s and programmes.

8. GOOD PRACTICES OBSERVED

Health and safety is the number one priority in mines. Mine operators want a workplace free of fatalities, injuries and disease. Although the good practices observed may have different outcomes depending on implementation, these are lessons to be learned. However, a code of practice should not be confused with a best practice or even good practice. Being in a code, generally make the practice mandatory rather than optional. Based on the information gathered, good practices observed are the following:

Adherence to International Standards. In 2015, DAO No. 2015-07 mandates all mining contractors to secure ISO 14001 Certification within one year from the date of the Order (Table 20). The ISO 140001 establishes a framework for managing (through the development of formal processes and procedures) the environmental aspects of an organization. Key elements of the standard are grouped into five major areas: environmental policy, planning, implementation and operation, checking and corrective action, and management review (Ingraham, 2013).

Table 20. Adherence to international standards

Policy	Requirement	Outcome
DAO No. 2015-07	Mining contractors are required to secure ISO 14001 Certification	▪ Institutionalization of processes. ▪ Ensuring adherence of local mining operations to international standards.

Source: Policy review and responses from interview.

Within the scope of the study, there are seven mining companies which are ISO 14001 certified, with one in the process of transition to the current version (2015) while two are in the process of obtaining certification. Further, there are three mining companies that are OSHAS certified and one with an ongoing application. OSHAS 18001 is an internationally-applied British Standard for occupational health and safety management systems. These certification processes require extensive documentation, coverage and coordination, and must be cascaded down to all employees for full participation and compliance. Companies expect that such certification provide an impetus to intensify environmental protection initiatives and work safety culture that works within current systems, personnel and operational structure.

Recognition of Performance and Accomplishment. In 1997, President Fidel V. Ramos signed EO No. 399 to recognize “outstanding levels of dedication, initiative and innovation in the pursuit of excellence in environmental management by exploration, mining and other related entities involved in various aspects of mineral utilization.” Thus, the Presidential Mineral Industry Environmental Award (PMIEA) was established (Table 21). The recognition is conferred showing exemplary practices in safety and health, environmental protection and rehabilitation, and community and social development and management. Annually, the Philippine Mine Safety and Environment Association (PMSEA) conducts National Mine Safety and Safety Conference, with awards given to deserving companies engaged in mining activities under the following categories: Mineral Exploration, Quarry Operation, Surface Mining Operation, Underground Mining Operation and Mineral Processing.

Table 21. Recognition to performance and accomplishment

Policy	Requirement	Outcome
Executive Order No. 399 (s. 1997)	Establishment of the Presidential Mineral Industry Environmental Award	Promotes the safety culture and in various aspects of mineral utilization to be environmentally and socially responsible mining operators.

Source: Policy review and responses from interview.

The practice of recognition within the mining sector gives the initiative for the players to promote its safety culture and environmental management and protection. At the enterprise/company level, workers are recognized (i.e. Best Employee of the Month/Year, Sikat Dapat) for the good work, which increases worker's satisfaction, productivity, motivation to better improve performance and encourages workers' engagement. In the same way, implementing formal safety recognition programmes can be away of encouraging employees to adopt safe behaviours.

Hazard Prediction. The Kiken Yochi Training (KYT) or risk anticipating training is a method that originated from Japan and was first practiced in 1976. The training was developed through the participation of all staffs in safety matter. KYT is a practice on small group discussions on hazardous factors in the workplace and work conditions. It enables workers to identify and understand the types of accidents that may arise from such factors, and to determine the danger points and action plans. KYT results in increasing workers' awareness of danger and motivation to practice in teams, share hazard formation, and improve their problem-solving capabilities. Through the activity, it will increase the OSH awareness of workers and improve safety performance (Table 22).

Table 22. Hazard prediction

Company practice	Outcome
KY (Kiken Yochi) Training (hazard prediction)	The activity motivates members to recognize and predict hazards and develops sensitivity to unsafe conditions or hazardous situations.

Source: Responses from interview.

There are two companies interviewed practicing KY training. As a practice, during pre-work meetings or other procedures (i.e. pep talks, toolbox meetings), workers are required to identify the potential hazards and their causes, such as unsafe actions or situations. Then, these dangers are documented, analyzed and discussed by the participants of the team. The activity forces the worker to think about the consequences of an accident. Workers share information on hazards, and improve their problem-solving capabilities by working to find solutions during these short meetings. The activity equipped the workers to report and be informed of kinds of unsafe conditions or behaviors that are in their immediate sphere of activity, thereby ensuring their own personal safety and the safety of others around them.

Safety Awareness Campaign. The rules set out simple, easy to understand and clear “dos” and “don’ts” that serve as guide and a reminder on activities with the highest potential safety risk (Table 23). These rules are created from industry lessons to ensure consistent behaviors are followed to prevent the kind of incidents that could result in a serious injury or fatality, as well as to ensure consistency across operations.

Table 23. Safety awareness campaign

Company practice	Outcome
Advocacy on safety awareness (e.g. 16 Life Saving Rules, 10 Fatality Prevention Rules)	Rules to give clear and specific requirements on activities with high potential risks in clear, simple and easy-to-recall language for all stakeholders.

Source: Responses from interview.

Women's Participation. Mining is an industry which has been traditionally male-dominated, regardless of geographical location. The argument that mining is a dangerous activity has long been used to exclude women in the industry. The traditional role as primary caregiver, compounded with cultural beliefs have prohibited women from working in some sections of the mine. This is significantly the unbalance representation of males and females in occupations that reflects traditional notions of association of gender with certain occupations, wherein, men were usually associated with 'masculine' mechanical and technical occupations, while women were associated with 'softer' jobs such as office work (Sharma, 2010).

Significant effort has been observed that affords equal opportunity and strives to achieve diversity. The biases and misconceptions that may have existed towards women in the mining industry are relatively changing, and females now work in both professional and operational roles. There are now women involved in mine operations such as backhoe operators, dump truck drivers, mechanics and engineers. Pay equity is based on skills, experience and functions. However, welfare provisions are limited (Table 24).

Table 24. Women's participation

Company practice	Outcome
Women's participation in mine operations (i.e. machine operators, dump truck drivers)	▪ Providing equal opportunities and skills development. ▪ Non-discrimination or gender stereotyping.

Source: Responses from interview.

With the openness of the industry to women's participation, there is consideration for additional costs to cover unique logistical, health and safety needs. Although it was not inquired during interviews, it is very important to provide gender-sensitive training and establish informational mechanisms to improve gender awareness and gather information on gender aspects of company operations.

9. AREAS OF COOPERATION AND POLICY OPTIONS

Currently, there are various policies and different practices that govern mine safety in the Philippines. With the recent adoption of RA 11058 or "An Act Strengthening Compliance with Occupational Safety and Health Standards and Providing Penalties for Violation Thereof", the following are identified as areas of cooperation and policy options:

On government coordination. The OSH Standards outline administrative requirements, general safety and health rules, technical safety regulations, and other measures to eliminate or reduce OSH hazards in the workplace. However, the Standards explicitly excluded mining. On the other hand, DENR issued DAO NO. 2000-98 or the Mine Safety and Health Standards to promote a culture of safety and health in the mining industry, which the MGB has the exclusive jurisdiction over mines. With the recent adoption of RA 11058, it gives an opportunity to bridge the two regulations. DO No. 198-18 or IRR of RA 11058 covers "all establishments, projects, sites, and all other places where work is being undertaken in all branches of economic activity," except the public sector. Likewise, the Rule explicitly includes mining and consider as one of "workplaces commonly associated with potentially high-risk activities." Hence, the adoption of the measure gives an opportunity to strengthen policy coherence and enforcement and coordination mechanisms.

During the validation, it was recommended that DOLE and MGB collaborate in conducting the inspection in mines to cover the working conditions and health aspects (i.e. monitoring of health programmes and its effectiveness). Labour inspectors may not be experts in mine inspection, and MGB may not have familiarity in TB and HIV Programmes, Drug Assessment, etc. Moreover, there is difficulty in accrediting mine safety officers. Mine safety officers are under MGB's accreditation and DOLE cannot test competence and practice. Based on DO No. 16-2001 on accreditation of OSH practitioner, there must be at least three (3) years of relevant experience on occupational safety and health.

Industry-specific checklist may be developed in consultation with related professionals, such as mining engineers or geologists. A general list of compliance indicators is not applicable to all industries; hence, an industry-specific checklist is recommended for the applicability of standards to particular industries (Lumactud, 2016).

Further, the passage of RA 11058 has institutionalized an inter-governmental mechanism. Section 31 of RA 11058 mandates the DOLE to institute a mechanism for coordination with other government agencies, including local government units which will regularly convene to monitor the effective implementation of the law. It is comparable to an earlier initiative of an Inter-Agency Memorandum of Agreement/Understanding on Safety and Health in Mines which aims to harmonize the mandates of different agencies in relation to health and safety in mines. This is an institutionalized kind of function that doesn't focus the knowledge in one agency but a collaboration of knowledge and insights from the agencies involve in the industry, subjected to tripartite consultation.

On Monitoring. Aside from the inter-governmental coordination and mechanism provided by RA 11058, DAO 2010-21 or the Revised Implementing Rules and Regulations of RA 7942 or the Philippine Mining Act forms a Multipartite Monitoring Team (MMT) for environmental monitoring and audit. DAO 2015-17 defines the MMT as an independent entity whose membership represents primarily the stakeholders/public that is intended to assist the DENR in monitoring environmental impacts and compliance with environmental laws and commitments, as a third-party entity. The MMT scheme is intended to enhance participation and transparency. Currently, the team is composed of representatives from DENR (MGB and EMB), Contractor/Permit Holder, host communities, host Indigenous Peoples, and environmental non-government organization (NGO) and conducts quarterly monitoring, or more frequently as may be deemed necessary.

With the current set-up, the primary objective of MMT is to monitor proper environmental management and social development in mining projects. Given that mining is a complex industry, the inclusion of DOLE on the worker's welfare aspect is a policy option. With DOLE's inclusion in MMT, it may contribute to a holistic view and assessment of the industry that includes the welfare of the miners. OSH is only one of the components and working conditions is usually hardly monitored.

Social dialogue is another central element. DOLE Department Order No. 111-11 mandates the creation of Industry Tripartite Councils (ITCs) and Tripartite Industrial Peace Councils (TIPCs) in the national, regional and local levels. An ITC is composed of workers and employer's representatives and chaired by a DOLE Undersecretary. Moreover, government agency/ies directly concerned with the industry must be represented. Currently, mining ITC exists and is active in CARAGA region. The establishment of the Mining Tripartite Industry Council (MiTIC), will serve as a social dialogue platform for tripartite consultation among labour, employer and government sectors in the formulation and implementation of labour and social policies.

On processing of relevant statistics. Submission of OSH reports and an updated labor inspection system is provided by RA 11058. Likewise, employers are required to furnish MGB with Monthly Report of Accident or Sickness, Monthly General Accident Report and minutes of Central Safety Committee meetings (Section 156 of DAO NO. 2010-21). These monthly employer's report of accident or sickness including damage to property were also submitted to DOLE-BWC (Rule 5 of DAO NO. 2000-98).

The compilation and analysis of relevant statistics from safety and health reports are important in developing and improving existing national policies and measuring the impact of these measures. Health and safety reports (MGAR, WAIRs) as well as records of compensation claims from State Insurance Fund can be maximized for an effective coordination and exchange of information between social security and OSH institutions.

The following table summarizes specific policies that concerns the mining industry and the provisions of RA 11058 or the OSH Law that could bridge the various regulations into proposed policy option:

Table 25. Areas of cooperation and policy options

Mining policy	DO 158-18	Policy Option
Exclusive jurisdiction of DENR/MGB over mines in the conduct of safety inspection and monitoring of the safety and health program (<i>Section 66 of RA 7942 and Section 145 of DAO No. 2000-98</i>). OSH Standards explicitly excludes mining (<i>Rule 1003.04</i>)	<i>Sec. 2. Coverage.</i> The Rule shall apply to all establishments, projects and sites and all other places where work is being undertaken in all branches of economic activity including: ... c. Industries such as mining, fishing, construction, agriculture, and maritime.	• Joint inspection and safety audits by DOLE and MGB. • Industry-specific checklist • Inter-governmental coordination and cooperation
Multipartite Monitoring Team (MMT) is the monitoring arm of action plans on environmental management (<i>Section 185 of DAO No. 2010-21</i>)	<i>Sec. 31. Inter-government coordination and cooperation.</i> There shall be established an Inter-government Coordination and Cooperation Committee composed of DENR, DOE, DOTr, DA, DPWH, DTI, DILG, DOH, DICT, PEZA and all government agencies, including local government units. This committee shall regularly convene, at least once per quarter, to monitor the effective implementation of the law, as well as related programs and	• Maximize existing mechanism by including DOLE in the MMT. • Formation of a National Mining Tripartite Industrial Peace Council.

	projects intended to prevent and eliminate the incidence of injury, sickness or death in all workplaces including periodic review of the law and all OSH standards.	
Employers shall furnish MGB with Monthly Report of Accident or Sickness, Monthly General Accident Report and minutes of Central Safety Committee meetings. (<i>Section 156 of DAO No. 2010-21</i>) Submission of monthly employer's report of accident or sickness including damage to property to MGB; copy furnished the DOLE-BWC (<i>Rule 5 of DAO No. 2000-98</i>)	<i>Sec. 17. Occupational Safety and Health Reports.</i> All employers, contractors and subcontractors, shall submit to DOLE all safety and health reports, and notifications such as but not limited to annual medical report, OSH committee report, employer's work accident/ injury report (WAIR), and annual work accident/injury exposure data report (AEDR). <i>Sec. 30. Updated DOLE Computerized Inspection System.</i> DOLE shall maintain an updated labor inspection system of computerized gathering and generation of real time data on compliances, monitoring of enforcement, and a system of notification on workplace accidents and injuries.	▪ Compilation and processing of accidents/safety reports and compensation claim records can be used for an effective coordination and exchange of information.

In reference to the CEACR's specific observations on the application of C176, based on the review of existing policies and issuances, and the recent adoption of RA 11058, as well as observed practices, the following are policy options for consideration with respect to the Mine Standards (Table 26).

Table 26. CEACR's observations and policy recommendations

CEACR's comments	Existing policy/practice	Policy recommendation
<i>Article 5 (5). Plans of workings.</i> The Committee asks the Government to provide further information on the measures taken, in law and in practice, to ensure that the employer in charge of the mine prepares appropriate plans of workings before the start of the operation, and that these plans are brought up to date periodically in the event of any significant modification. The Committee notes that companies are required to submit detailed plans and work programmes to be evaluated and validated by the MGB prior to the approval of exploration permits, mineral agreement application, financial technical assistance agreements and mineral processing permits, as well as quarry operations.	As RA 7942 requires companies to submit detailed plans and work programmes prepared by a competent person (e.g. licensed Mining Engineer, Geologist), under the terms and conditions, the Permittee/Contractor/Lessee shall submit progress reports of activities and accomplishments with the corresponding Bureau/Regional Office concerned. Moreover, exploration work on the area shall be undertake based on an approved Work Programme. In case of revisions of work programmes in the light of changing circumstances, the contractor may make such changes, provided that, it shall not change the general objective of the Work Programme, and that a negative variance of at least 20 per cent shall be subject to the approval of the Director. <i>Sec. 21, Rule 21.11 of DAO 2000-98</i> requires employer to submit a Safety and Health Programme covering its area of operation 15 working days before every calendar year. <i>Sec. 4, (a)(2) of DO 198-18 (IRR of the OSH Law)</i> states that, it is the duty of the employer is to provide complete job safety instructions and proper orientation to all workers including, but not limited to, those relating to familiarization with their work environment.	While the OSH Law outlines the duties and rights of employers, workers and other person, the Mine Standards must clearly stipulate that it is the obligation of the employer to update the mine of its plan of workings and the availability of this to the mine site. Further, it must make the current mine survey plan available on request to workers at the mine.

CEACR's comments	Existing policy/practice	Policy recommendation
<i>Article 7 (a). Safe design and construction of mines and provision of electrical, mechanical and other equipment.</i> The Committee once again asks the Government to provide information concerning the responsibility placed upon employers to ensure that the mine is designed, constructed and provided with electrical, mechanical and other equipment, including a communication system, to provide conditions for safe operation and a healthy working environment.	<i>Sec. 5, Rule 21.13 of DAO 2000-98</i> states that it is the employers' duty to involve the safety engineer in the preparation of risk assessment regarding the design, alteration selection or modification of processes, construction of structures, installations of machinery and equipment. Moreover, <i>Rule 21.20</i> requires employers to maintain a system of inspection to detect all hazards of operation and report or inform all concerned of any safety hazards that may affect or endanger the latter job and operation. <i>Sec. 68 of DAO 2000-98 of DAO 2000-98</i> states the electrical and mechanical rules in mines. <i>Sec. 150 of DAO 2010-21</i> requires that no electrical and/or mechanical installation shall be undertaken inside a mining/quarrying operation compound without a permit issued for the purpose by the Regional Director concerned. Furthermore, <i>Sec. 151 of DAO 2010-21</i> states that application for installations shall be accompanied by plans and specifications; in accordance with the provisions of Electrical Engineering Law and Mechanical Engineering Law for electrical and mechanical installations, respectively; and any alteration/or addition	While the OSH Law outlines the duties and rights of employers, workers and other persons, the Mines Standards must clearly state that it is the responsibility of the employer to ensure the safe design of mines. While strict monitoring through detailed inspection could promote compliance and effective application of these provisions, a clear stipulation of roles and responsibility entail accountability.

CEACR's comments	Existing policy/practice	Policy recommendation
	of any electrical or mechanical installations shall be filed in the same manner as for a new installation. As for communication systems, <i>Sec. 11, Rule 39 of DAO 2000-98</i> requires employer to ensure that employees assigned in exploration works are provided with suitable vehicles first aid kit and appropriate equipment which shall also include communication and emergency equipment. Moreover, <i>Rules 601-607 of DAO 2000-98</i> provides offshore communications. The employer shall ensure of an emergency response preparedness programme (<i>Sec. 49, Rules 637-638 of DAO 2000-98</i>) prior to commencement of any mining operation that includes hazard identification, risk assessment and controlling measures (i.e. conduct of drills, crisis management group, etc.) As an observed practice of companies, the usual means of communications is through hand held radios and mobile cellphones or establishment of a base communication at the mine look out area. Further, <i>Sec. 4, (a)(1) of DO 198-18 (IRR of the OSH Law)</i> states that, it is the duty of the employer is to equip a place of employment for workers free from hazardous conditions that are causing or are likely to cause death, illness or physical harm to the workers.	

CEACR's comments	Existing policy/practice	Policy recommendation
<i>Article 10 (c). Measures and procedures to establish a recording system of names and probable location of all persons who are underground.</i> The Committee notes the Government's detailed information on the "Chapa" recording system and to continue providing information on the subject.	<i>Chapter VI of DAO 2000-98</i> outlines underground mining rules. Although the provision specifically pertains to underground mine operations, some practices can also be of benefit to surface mines such as communication, recording of persons and coordination systems. • To establish the names and location of all persons who are within the mine site, during toolbox meetings/pep talks, work is discussed and distributed according to groups, with supervisor or team leader in charge of a certain area. • Another distinct practice is the presence of a work distribution board. The work distribution board serves as a recording and monitoring system, to determine work assignments as well as equipment.	Clearly stipulate in the standards, especially as one of employer's responsibility to ensure that there is a system of work that includes – (a) recording system of names and probable location of all persons who are underground or surface mines; and (b) communication and monitoring system with the worker, while work is carried out.
<i>Article 12. Two or more employers.</i> The Committee requests for information or measures taken whenever two or more employers undertake activities at the same mine, the employer in charge of the mine shall coordinate the implementation of all measures concerning the safety and health of workers and shall be held primarily responsible for the safety of the operations.	<i>Sec. 142 of DAO 2010-21</i> states that it is the responsibility of all Contractors, Permittees, Lessees, Permit Holders and Service Contractors shall strictly comply with all the rules and regulations embodied under DAO 2000-98, otherwise known as the "Mine Safety and Health Standards". However, <i>Sec. 143</i> revoked that accreditation of service contractors all certificates of accreditation issued to service contractors by the Bureau and its Regional Offices.	The reinstitution of the accreditation of service contractors reduces risk and assures clients of consistent and reliable service. Moreover, an accredited contractor puts safety first and they are trained to complete projects safely by obtaining necessary permits and employing qualified people.

CEACR's comments	Existing policy/practice	Policy recommendation
	Moreover, <i>Sec. 144</i> requires a Contractor/ Permittee/Lessee/Permit Holder to submit a Safety and Health Programme covering all areas of operation. Likewise, for the entire duration of the mining contract or permit, the Contractor/Permittee/Lessee/Permit Holder shall require its Service Contractor to submit to the former a Safety and Health Programme. The former shall be responsible in the strict monitoring of the Safety and Health Programme and ensuring the compliance with existing rules and regulations of the latter. The former shall likewise be held liable for violations of existing safety and health rules and regulations committed by the latter. The newly adopted OSH Law specifically stated that, whenever two (2) or more undertakings are engaged in activities simultaneously in 1 workplace, it shall be the duty of all engaged to collaborate in the application of OSH standards and regulations.	
<i>Article 13 (1) (a). The right of workers to report accidents, dangerous occurrences and hazards to the employer and to the competent authority.</i>	<i>Sec. 6, Rule 23 of DAO 2000-98</i> outlines the employee's rights in mines. However, it is stated that the employee has the right "to remove themselves from any location at the mine when circumstances arise which appear, with reasonable justification, to pose an imminent danger to their safety and health. Provided that, they will report it immediately to their supervisor, safety engineer/	Clearly stipulate in the employees and employee's representatives' rights in DAO 2000-98, the right to report accidents, dangerous occurrences and hazards to the employer and to the competent authority.

CEACR's comments	Existing policy/practice	Policy recommendation
	inspector or worker's safety representative for evaluation. Also, <i>Rule 25 of DAO 2000-98</i> states that, it is the duty of employees and employees' representatives "to promptly report and warn fellow employees of all unsafe and unhealthy conditions that maybe encountered in the mine." The newly adopted OSH Law explicitly included that it is the worker and their representatives' right to report accidents, dangerous occurrences, and hazards to the employer, DOLE and to other concerned competent government agencies, free from any form of retaliation for reporting of any accident.	
<i>Article 13 (2) (b) (i). Participation of the social partners, particularly trade union representatives, in ensuring compliance with OSH standards in the mining industry, including in the conduct of safety and health inspection.</i>	<i>Sec. 6, Rule 24 of DAO 2000-98</i> states that, employees' representatives shall exercise their right to represent workers of all aspects in safety and health matters including, to participate in safety and health inspections and investigations to be conducted by the employer and concerned government agencies at the workplace.	The establishment of the Mining Tripartite Industry Council (MiTIC) will serve as a social dialogue platform for tripartite consultation among labour, employer and government sectors in matters relating to safety and health at the workplace.
<i>Article 13 (2) (f). The right of workers to receive notice of accidents and dangerous occurrences.</i>	<i>Sec. 6, Rule 23 of DAO 2000-98</i> states that employees shall exercise the following rights: 1) To know and be informed of workplace hazards that may affect their safety and health.	Strict monitoring of the implementation of training plan which may include mechanisms of informing workplace hazards, through orientations, periodic update sessions, annual refresher training and information dissemination.

CEACR's comments	Existing policy/practice	Policy recommendation
	2) To obtain information, relevant to their safety and health, held by the employer's representatives/ concerned government agencies. <i>Sec. 5 of DO 198-18</i> states that it is the worker's right to be informed by the employers about all types of hazards in the workplace, and be provided access to training, education and orientation on these hazards and risks.	
<i>Article 16. Penalties.</i> The Committee requests information concerning the enactment of a pending legislative measure that imposes stiffer penalties and criminalization of the violation of OSH standards.	Specifically, to non-compliance with safety and health, pursuant to <i>Sec 88, Rules 1208 and 1209 of DAO 2000-98</i>, the following are the penal provisions: 1) Any employee who violates any of the provisions of this Order or commits any unsafe act or cause condition that will endanger himself, other persons and/or company property shall, on the initiative of his employer or upon recommendation of the Director or Regional Director, be subject to disciplinary action. In case of refusal by the employer, the Director shall act on the matter accordingly. 2) <i>Pursuant to Sec. 109 and 110 of RA 7942</i>, the following are the corresponding penalties: a. Failure of the company to install corrective measures to mitigate unsafe condition as defined in the annual safety and health programme – Php5,000.00. b. Failure to submit/report fatal and serious accidents to concerned regional office within	The passage of OSH Law seeks to provide administrative and criminal penalties for non-compliance with occupational safety and health standards. Meanwhile, the Mines Standards entails a review of its penal provisions for the credibility and effectiveness of the regulation and aptly in proportion to the nature and gravity of the offense.

CEACR's comments	Existing policy/practice	Policy recommendation										
	15 days after the date of the accident – Php10,000. c. Failure to give notice to the concerned regional office within 24 hours of any fatal and non-fatal serious injuries – Php5,000. d. Late submission of reports: <table><tr><td></td><td>Basic fine/Daily fine</td></tr><tr><td>Monthly accident reports or Safety and Health Programme</td><td>1st violation – Php1,000/Php10.00 2nd violation – Php2,000/Php20.00 3rd violation – Php3,000/Php30.00</td></tr><tr><td>Monthly accident report after one month from the prescribed reporting period</td><td>1st violation – Php2,000/Php20.00 2nd violation – Php3,000/Php30.00 3rd violation – Php4,000/Php40.00</td></tr><tr><td>Any violation of other provisions not mentioned</td><td>Php1,000</td></tr><tr><td>Repeat violation based on inspection report</td><td>Php2,000</td></tr></table> Further, RA 7942 provides grounds for cancellation, revocation and termination of permits or agreement such as late or non-filing of requirements, violations of terms		Basic fine/Daily fine	Monthly accident reports or Safety and Health Programme	1 st violation – Php1,000/Php10.00 2 nd violation – Php2,000/Php20.00 3 rd violation – Php3,000/Php30.00	Monthly accident report after one month from the prescribed reporting period	1 st violation – Php2,000/Php20.00 2 nd violation – Php3,000/Php30.00 3 rd violation – Php4,000/Php40.00	Any violation of other provisions not mentioned	Php1,000	Repeat violation based on inspection report	Php2,000	
	Basic fine/Daily fine											
Monthly accident reports or Safety and Health Programme	1 st violation – Php1,000/Php10.00 2 nd violation – Php2,000/Php20.00 3 rd violation – Php3,000/Php30.00											
Monthly accident report after one month from the prescribed reporting period	1 st violation – Php2,000/Php20.00 2 nd violation – Php3,000/Php30.00 3 rd violation – Php4,000/Php40.00											
Any violation of other provisions not mentioned	Php1,000											
Repeat violation based on inspection report	Php2,000											

CEACR's comments	Existing policy/practice	Policy recommendation
	and conditions of permits or agreements, non-payment of taxes and fees, etc. The passage of OSH Law has also outlined the OSH standards. Failure to comply shall be penalized with fines ranging from P20,000 to P50,000 depending on the gravity of violation. Moreover, repeated violations of the same prohibited act shall be penalized of the corresponding fine plus an additional fine equivalent to fifty percent (50%) for every instance of repeat violation. A penalty of one hundred thousand pesos (P100,000) administrative fine shall be imposed and in addition to the daily administrative fine for the following acts: (1) Repeated obstruction, delay or refusal to the covered workplace, or refusal to provide or allow access to relevant records and documents or obstruct the conduct of investigation in determining compliance with OSH standards; (2) Misrepresentation in relation to adherence to OSH standards (ex. submission of false report or record) (3) Making retaliatory measures (ex. termination of employment, refusal to pay, reducing wages and benefits, etc.) Further, when the violation exposes the worker to death, serious injury or serious illness, the imposable penalty shall be one hundred thousand pesos (P100,000).	

10. WAYS FORWARD

Mining is a significant industry that supports other vital industries such as transportation, communication and energy. However, the hazardous nature of mining requires effective measures to ensure that workers are afforded good OSH. With all the components of mining, from work environment to methods of work, there are adverse effects that pose a threat in the safety and health of the workers.

With the Philippines ratification of Convention on Safety and Health in Mines (No. 176), it emphasizes the country's commitment to apply the standards on providing safe and healthy workplaces. While legislative action and policy issuances are important in application of these standards, strict enforcement with social dialogue is equally significant in the light that the mining industry has distinct occupational safety and health issues. It entails coordination between various authorities to permit coherent implementation of an industry specific OSH policy. As ways forward, recommendations are outlined in various aspects as policy consideration:

10.1 Promote rights at work

The passage of the OSH Law will strengthen compliance with OSH standards by emphasizing the rights and obligations of the employers, including contractor and subcontractor, workers and relevant government agencies, and providing penalties for non-compliance with Standards. However, it is recommended to have clear stipulations in the Mine Standards stressing on these.

10.2 Strengthen social dialogue

Tripartite collaborative mechanisms through the establishment of the Mining Industry Tripartite Council (MIITC) will provide a forum to develop, lead and implement a strategy for safety, health and environment in the mining industry, which may include the rights and status of women. At the enterprise level, workers must exercise their right to collectively select their safety and health representatives (DAO 2000-98 Rule 23). As workers' representative/s, they must represent workers of all aspects in safety and health matters (DAO 2000-98 Rule 24). Communication and consultation, whether through collective bargaining or labour management council, must be ensured to create a culture of collaboration, where ideas, concerns and solutions are freely shared and acted upon, and where the workforce is engaged in promoting a healthy and safe environment.

10.3 Enhance social protection

Workers in the mining industry have been exposed to occupational injuries and diseases. This underscores the importance of social protection measures that ranges from programmes or systems for the rehabilitation and reintegration of workers who have sustained occupational injuries or illnesses, or employment insurance fund or mine workers welfare fund given the industry's vulnerability to market fluctuations or disaster response in case of mine hazards and accidents. During an ILO tripartite consultation on C176 in the Philippines in 2016, the workers' group called for a mine workers' welfare fund to be established to complement the existing Mine Rehabilitation Fund.

10.4 Greening the industry

Given that mining is a temporary activity and environmental issues that beset the industry, there are multifaceted challenges that must be addressed. With the enactment of Green Jobs Act, it is imperative to have a comprehensive and integrated “just transition” approach that will help mitigate the adverse effects and maximize the benefits for all stakeholders. Under the “Just Transition Project,” occupational safety and health is one of the key areas to be considered to manage the process of structural change. Thus, it is important to have an industry analysis, review of the current OSH setting, as well as coherence in institutional arrangements (e.g. alignment with development plans).

Further, possible areas for future research are: (a) inclusion of underground mines and coal mining in the scope of the study, as these have distinct working conditions and require specific OSH measures. Likewise, coal mining is another extractive industry for power generation and has separate safety rules and regulations and governing body; and (b) labour migration in the mining industry poses challenges and opportunities, such as skills development, technology transfer, commercial growth, temporary skilled migration, among others.

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