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Answering Critical Questions on Mining in the Philippines

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Abstract

To attain a perceived acceptable quality of life, the mining industry plays a crucial role as the demand for minerals and energy increases while ore quality decreases. On the other hand, the social and environmental footprints which mining companies leave behind are deemed unacceptable by the communities affected. In general, the concept of sustainable development where people are expected to take actions using leading technologies without compromising the ability of future generations to meet their own needs is placed in the backseat, with business interests at the front. This phenomenon is not limited to the Philippines but has been observed worldwide. The collaborative effort of stakeholders has crafted the Philippine Mining Act of 1995 to address the needs of both the company and the people it affects. By itself, the law is all encompassing and covers the triple bottom-line of sustainable development – the growth of the economy, environmental protection, and social responsibility. However, RA 7942 was not able to mitigate environmental degradation nor was it able to contribute to poverty alleviation and preservation of cultural communities. The implementation aspect also encountered problems since there has been institutional overlaps and lack of delineation of function between the Mines and Geosciences Bureau (MGB) and the Environmental Management Bureau. While under the same department, the two ideally do not share the same mandates; the former is mandated to regulate mine operations while the latter monitors and assesses impacts of the industry to the environment. National Commission on Indigenous Peoples (NCIP) also has a strategic role on the ground, particularly on matters regarding land use and classification. Supposed to leverage the IP communities, the commission is held back by lack of technical and administrative personnel. In addition to that, there have been contradicting legislations released by the oversight agency, DENR, in terms of tree-cutting guidelines and double permitting. The study centered on two case studies in separate areas of the country as a reflection of the microcosm of the national operations of the mining industry. Key findings revealed concerns on bureaucracy and proliferation of graft. Securing equitable distribution of mining benefits among communities and for national interest has not yet emerged due to the absence of an audit process for the whole industry.

Keywords: Philippine mining, sustainable development, social and environmental responsibility, bureaucracy, poverty alleviation, corruption, the triple bottom-line

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Answering Critical Questions on Mining in the Philippines

Eligia D. Clemente, Sonny N. Domingo, and Arvie Joy A. Manejar[1]

1. Introduction

The Philippines has a total land area of 30 million hectares, nine million of which have high mineral deposits of gold, nickel, copper, and chromite, among others. Presently, 50 operating metallic mines, 62 non-metallic mines, 5 processing plants, and 2,397 small quarries and sand and gravel operations, employing an estimated 219,000 workers, have been doing extraction operations in the country. The mining industry's contribution to the Gross Domestic Product (GDP) is around 0.7 percent valued at PHP 78.8 billion (PSA 2017, MGB 2017).

The global financial crisis experienced from 2005 until 2009 forced mines across the world to close down (Laurence 2009). The following years saw better financial performance, particularly in Philippines when the former Department of Environment and Natural Resources (DENR) Secretary Ramon Paje opened mineral rights for nickel exploration, thereby facilitating the flow of mineral investments in the country. In 2013, the export of non-ferrous metals greatly increased the revenue of mining (PSA 2013). Albeit the economic gains from mineral extraction operations, this above developments ushered in nagging issues of environmental destruction and forest denudation. The literature also points to worrying socio-economic and sustainability issues where environmental protection failures, mining waste disposal system breakdowns, and post-disaster problems on clean-ups and rehabilitation, and suboptimal community benefits, among others, have comprised the crux of dissenting opinions about continued mining activities. The above concerns are supposedly being addressed by specific provisions in incumbent policy. Significant legislations on mining have been passed to regulate the industry and monitor mining operations, as well as mitigate potential adverse impacts to the community and environment. RA7942 or the Philippine Mining Act of 1995 affirms that all mineral resources in public and private lands within the territory and exclusive economic zone of the Republic of the Philippines are owned by the State and it is the responsibility of the State to promote their rational exploration, development, utilization and conservation while effectively safeguarding the environment and protecting the rights of affected communities. The same law effectively liberalized foreign investments in the sector, and legislated the involvement of local government units and indigenous communities in minerals exploration. Executive Order (EO) 79 in 2012 elaborated on areas that are closed to mining activities: (1) no-go zones as identified in RA 7942; (2) lands under the National Integrated Protected Areas System (NIPAS); (3) agricultural lands identified under Comprehensive Agrarian Reform Law; (4) areas under National Tourism Development Plan; and (5) critical ecosystem areas as classified by DENR (Hicks et al. 2013). These policy declarations frame the core of the explosive issues currently hounding the mining sector.

The policy direction of the national government is clear. "The protection of the environment must be made a priority ahead of mining and all other activities that adversely affect it, one way or another, and the policy is non-negotiable," stated by current President Duterte in his 2017

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State of the Nation Address. To deliver, DENR Secretary Roy Cimatu, building on the stringent approach of his predecessor Secretary Regina Lopez, has directed initiatives and efforts towards the improvement of environmental conditions not only in mining areas but in other places as well.

1.1.Objectives

With the global realization that sustainable developments in mining can be possible with the concurrence of both the companies and the communities where the mining area is situated, issues such as business integrity, environmental and social responsibility as well as the provision for positive legacies have been identified as critical components of the development plan of a mining company (IRMA, 2013). This study assisted in the assessment of the Philippines' readiness to adopt and adhere to the said components.
In general, the study looked into the state of mining in the country and provided insights on rebalancing environmental, commercial, and welfare concerns. Specifically, the study:

- assessed current policy on mineral exploration and extraction and their grounding;
- conducted industry analysis to look at the contribution of the mining sector;
- addressed critical issues being raised on continued mining operations in the country; and
- provided recommendations on possible augmentations and implementation arrangements.

1.2. Significance of the Study

It is integral to determine whether the economic significance of the industry was translated into social development and poverty alleviation, and environmental protection. The findings for such will become a valid foundation in evaluating the industry, inform policy direction, and create better instruments in improving the industry.

1.3.Research Design

The case study design framework for this endeavor is considered the most suitable due to the operational variations employed by the company to treat the respective ores for extraction and the different treatment technologies for processing. Some companies which have passed audit have experienced no major problems since open pit mining was not employed. Depending on the ore, some minerals such as copper-based sulfides are found well below the surface and can be retrieved only through underground techniques. A common ground, however, is the final depository of tailings for disposal, the tailings dam. In some cases, mining companies maintain different tailings facilities for mine tailings and mill (or extractives) tailings. Since these dams directly impact the communities located within the perimeter of the mining area, the operations and maintenance should be an important point to consider particularly during mine closure.
Since the objectives of the project are geared towards addressing the concerns of all stakeholders in the industry, a needed neutral ground for starting to address the issues being faced will be of value. Some of the constraints encountered during the implementation of the project included data gathering deficiencies due to the Data Privacy law. In this case, secondary data collected through other sources will be used to augment the primary data collected through the key informant interviews (KII) and focus group discussions (FGD).

1.4. Project Scope and Limitations

Due to the short duration of the project and the inclement weather encountered during the field visits, only a limited number of mines were visited. Areas visited included the regions of Caraga, MIMAROPA, CAR, and Central Luzon. MIMAROPA, on the other hand, has an abandoned mine with health issues on metal poisoning. The oldest mines in the country are found in CAR and predates mining laws such as Presidential Decree No. 463 of 1974 and Republic Act 7942 of 1995. Environmental issues were rampant in Region 3 to the extent that there were numerous cases of mines suspended in the last three years due to violations.

2. Related Literature

Mining is an essential part of the global world and is expected to be more forthcoming in the next years. The Extractives Industry (Mining and Mineral Processing) have always been considered as contributor to various environmental and socio-cultural impacts around the world (Moran, 2014). The destruction and contamination of air, land, and water in mining areas as well as the geographic displacement and disruption in the cultural organizations of indigenous peoples have been evident in mining areas, and addressing these issues have been in the mining agenda since the 1990s. Sustainable mining gained a following during this time with the intention of coming up with strategies to push for sustainable development in the industry (Azepagic, 2003). In 2002, the Global Mining Initiative (GMI) took concerted action to address the challenges and come up with strategies for the sustainable development of the industry (GMI, 2002). Similar activities were done by the US Sustainable Mineral Roundtable (SMR, 2002), the Canadian Metals and Minerals Initiative (NRCan, 2002), and the European Industrial Minerals Association (IMA-Europe, 2002). These initiatives have provided sustainability indicators for the use of organizations as a framework for measuring the sustainable development efforts of the industry in addressing economic, social and environmental issues commonly experienced in mining areas being developed or currently operating.

Sustainable development in the mining industry has thus been focused on the triple bottomline of sustainable development. Dubinski (2013) clearly identifies in Figure 1 three key areas in its implementation program which can qualify it as sustainable: technical and economic activities ensuring economic growth, ecological activities ensuring the protection of the environment, and social activities meaning care for the employee at the workplace and community development in the area of the mining environment These aspects are all clearly mapped out and covered by current legislations.

Figure 1. Elements that contribute to sustainable development

On top of this, Laurence (2011) emphasizes the need to include two other key areas to watch out for: mine accident and closure, and technology. In his study of the root causes of mine closures, he has identified an alternative model for sustainability which includes safety issues and technological efficiency as critical for the longevity of a mine operation. Mine accidents have been few and far between, but each accident emphasizes the dangers of working in a mine and is thus getting more than enough media coverage, internationally most of the time, to merit a second look at the mine and force closure. The second aspect is on technological developments and innovations to improve the efficiency of processing. Researchers have long been focusing on the life on an orebody as a depleting asset. With the advances in technology currently taking place, more efficient processes have been developed for getting more out of the ore or taking the mineral out more efficiently thus creating better economies for the mine or perhaps lengthening the life-of-mine for better community relationship. Prematurely closed mines often place their tailing materials on hold for future processing and these materials are often contained in open areas and dammed up. With the changes in climate, dam designs have failed to live up to its expectation as to longevity and once a heavy downpour causes an overflow, the community is sure to suffer the effects.

Figure 2. Sustainable mining practices to prolong mine life (Laurence, 2006)

2.1. Sustainability issues in the global scene

Indicators for social development are used to quantify sustainability issues relevant to the industry. In looking at the life cycle of minerals from "cradle to grave" Azapagic (2004) lists down the key issues in economics, environment and social phases for the mining industry and this is shown in Table 1 below.

Table 1. Key sustainability issues for the mining and minerals sector

Economic Issues	Environmental Issues	Social Issues
Contribution to GDP and wealth creation	Biodiversity loss	Bribery and corruption
Costs, sales, and profits	Air emissions	Creation of employment
Distribution of revenues and wealth	Energy Use	Employee education and skills development
Investments (capital, employees, communities, pollution prevention and controls, mine closure)	Global warming and other environmental impacts	Equal opportunities and nondiscrimination
Shareholder value	Land use: management, and rehabilitation	Health and safety
Value added	Nuisance	Human rights and business ethics
	Product toxicity	Labor/management relationship
	Resource use and availability	Relationship with local communities
	Solid waste	Stakeholder involvement
	Water use, effluents and leachates (including acid mine drainage)	Wealth distribution

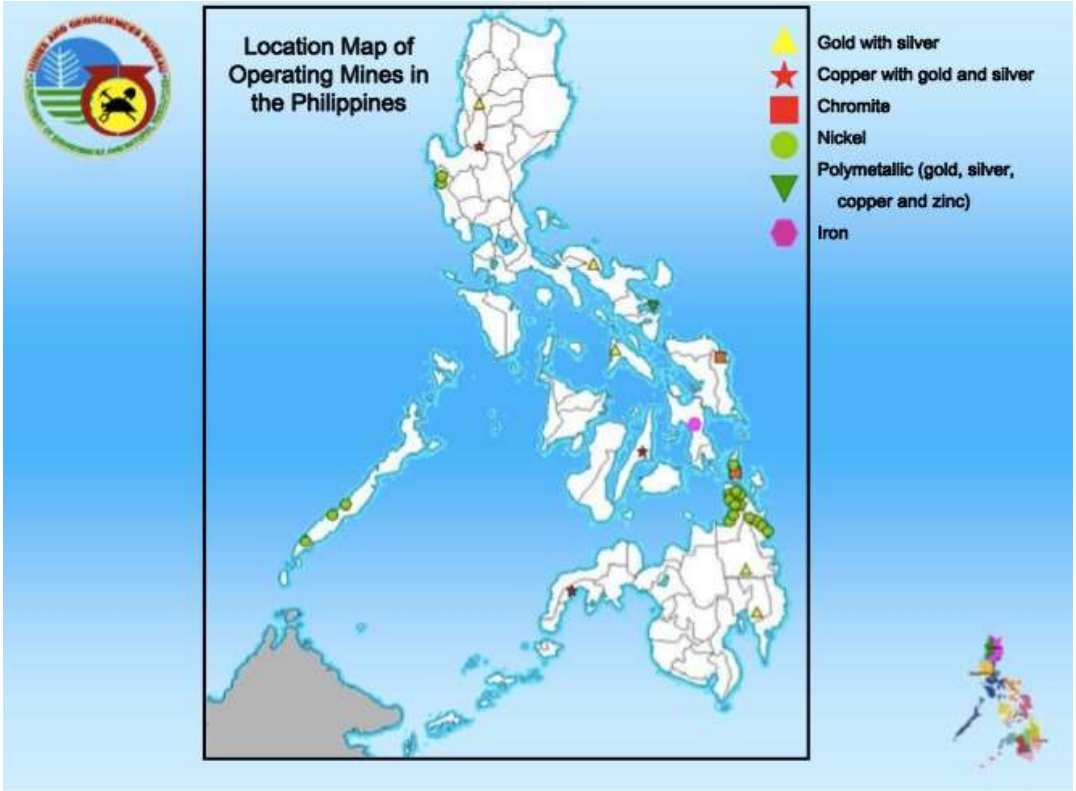
The economic benefits of mining are rarely realized in local communities which almost always are on the receiving end of the problems associated with mineral extraction and processing (Hirons et.al. 2014). Unsustainable mining practices such as unmitigated land degradation, deforestation, chemical leakages, water resources and quality management, air and noise pollution, and human rights abuses (Ballard and Banks 1997; Ruggie 2007; Bebbington and Bury 2009) are evident particularly in developing countries. Most developing countries with rich mineral ores create tax incentives and relaxed oversight functions for mining in order to attract investors (Akabzaa 2004). In the UN Human Development Index, these countries have occupied the lowest levels while topping the Transparency International's list of Corruption Perceptions Index.

The wide range of literature available on the concept of sustainable development in the mining and minerals industry identifies four major issues which were well discussed by the Initiatives for Responsible Mining Assurance (IRMA). The four issues identified include business integrity, environmental responsibility, social responsibility and providing for positive legacies. The last issue is deemed critical in most developing countries where indigenous peoples have been found to be displaced in mining communities. In this context, a similar situation can be found in the Philippine setting where issues on Indigenous Peoples (IP) rights are evident. IRMA principles were assessed whether these were integrated into the legal frameworks for the Philippine mining industry.

2.2. The Philippine mining industry at a glance

Due to its strategic location at the Western edge of the Pacific Ring of Fire where volcanic activities actively cause mineralization of the land, the Philippines has been blessed with an abundance of natural resources which covers a total land area of 30Mn hectares, 9 Mn of which have been identified to contain high mineral deposits (mineral reserves). Dr. Carlo Arcilla of the National Institute of Geological Sciences attributes this to the abundance of copper-gold rich porphyry systems under the land surface and the nickel laterite crowding its tropical soils. Figure 3 shows the mineral occurrences all over the country.

Figure 3. Metallic mineral map of the Philippines. Source: DENR-MGB Central Office



According to the Australia New Zealand Chamber of Commerce (ANZCHAM) in a 2016 report, the estimated value of Philippine reserves can go as high as 1,367US$Bn as seen in Table 2 below. The highest reserves in terms of tonnage is copper followed by gold while in terms of value, this was dominated by gold, nickel, and copper.

Table 2. Philippine mineral reserves as of 2016. Source: ANZCHAM

Mineral	Tonnage (Mn)	Ave. Grade	Estimated Value (US$ Billion)
Gold	3,869.00	2.68 gmt	367.00
Copper	5,051.00	0.90 %	318.00
Nickel	783.00	2.62 %	328.00
Chromite	38.00	24.55 %	1.00
Iron	483.00	42.05 %	103.00
Manganese	3.00	45.30 %	0.10
Aluminum	434.00	27.50 %	263.00
Zinc	11.40	2.66 %	1.00
Molybdenum	306.00	0.08%	6.00
		Total Value	1,367.10

From the data on statistics gathered by the Philippine Statistics Authority (PSA) in their Annual Survey of Philippine Business and Industry (ASPBI) in 2015, the Mining and Quarrying sector consists of 261 and 228 establishments respectively, contributing to 0.1% each to the total number of establishments surveyed (220,293). Employment contribution is at 0.6% of the total employment in the country as shown in Figure 4, with an average monthly compensation of around P29,659 or slightly above the national average of P24,694 as shown in Figure 5.

Based on the data for the mining and quarrying sector, from a total of 134 establishments out of the above-mentioned 500+ total, 44.8% were from the mining and quarrying sector, and 31.4% from the mining and quarrying sector. The rest are from mining of hard coal, quarrying of stone, sand and gravel, etc. These figures are shown in the pie chart of Figure 6.

Employee distribution in the industry at the regional level shows that the top four regions are Central Visayas, Caraga, Davao and CAR, in that order. The average annual compensation of employees was pegged at PhP356,000.

Figure 4. ASPBI results of economic survey

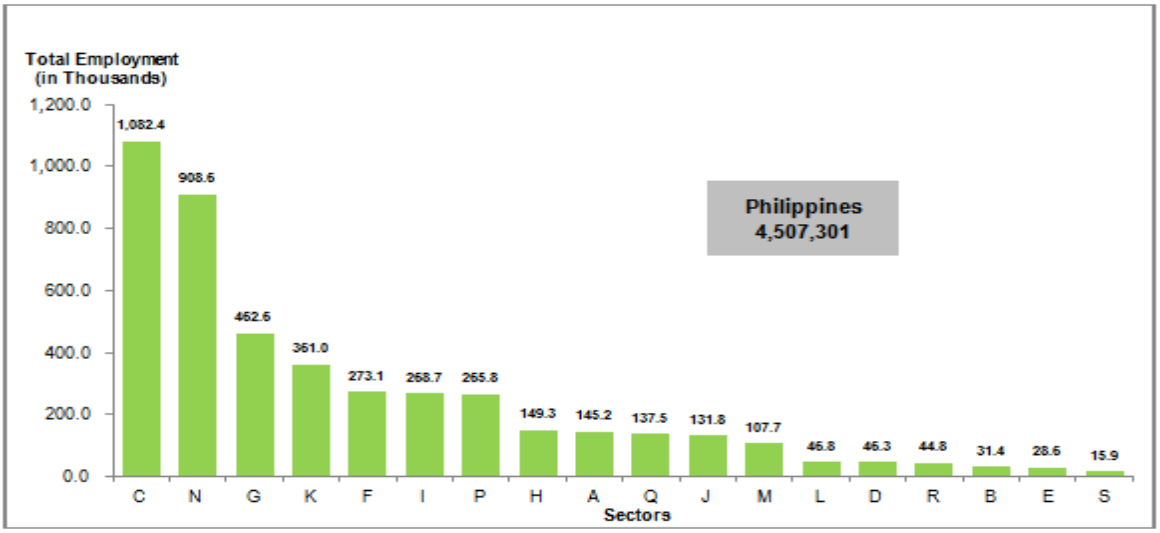


Figure 5. Average monthly compensation per employee

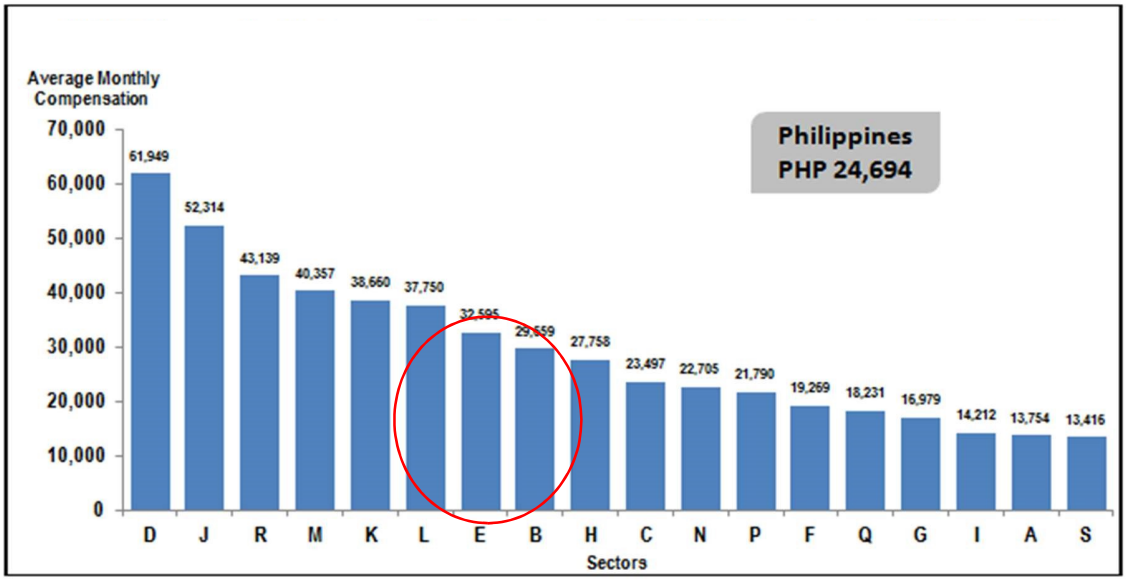
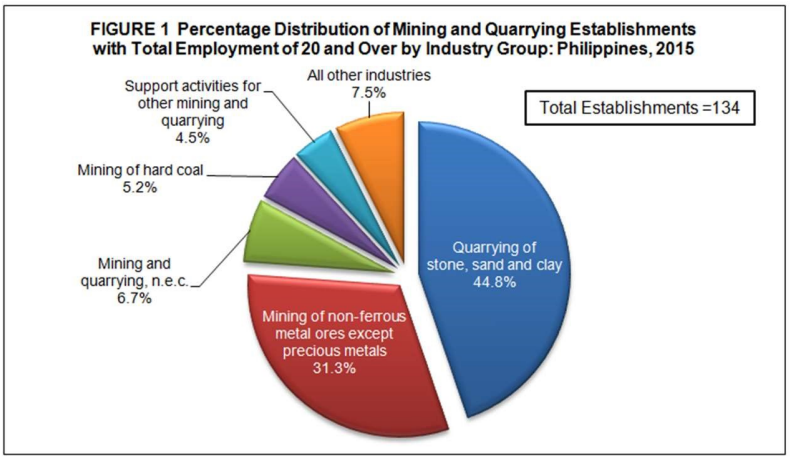


Figure 6. Percentage distribution of M&Q establishments



	% DISTRIBUTION
Quarrying	44.8%
Mining (non-ferrous)	31.3%
Mining and Quarrying	6.7%
Mining of hard coal	5.2%
Support Activities	4.5%
Other related industries	7.5

Statistics from 2014 to the 1st quarter of 2018 shows in Table 3 the number of operating metallic mines and its contribution to GDP and employment (MGB 2018). Strict well-intentioned application of policy, which became the focal point of the flagship program of former DENR Secretary Regina Lopez in 2016, led to the provisional closure of some mining operations. Although the number of mining firms still increased in 2017 as per MGB report, the recorded production value of mining sharply declined during the year. Mining income statistics showed the gross production value from the mining industry from 2014 to 2017, particularly the slowdown in 2017. This also translated to employment cuts in the industry. Indicative early figures in 2018 show apparent resurgence in mining operations.

Table 3. Mining statistics. Source: MGB 2018

	2014	2015	2016	2017	1Q 2018
# of Operating metallic mines	43	44	41	50	48
Gross Production Value, PhP Bn	199.5	170.1	176.3	108.6	109.5
Taxes, fees and royalties, PhP Bn	32.833	30.155	34.411	25.539	0.93
Employment generated	235,000	236,000	219,000	204,000	215,000
% of National employment	0.6	0.6	0.6	0.5	0.5

2.3. Pertinent Mining Laws

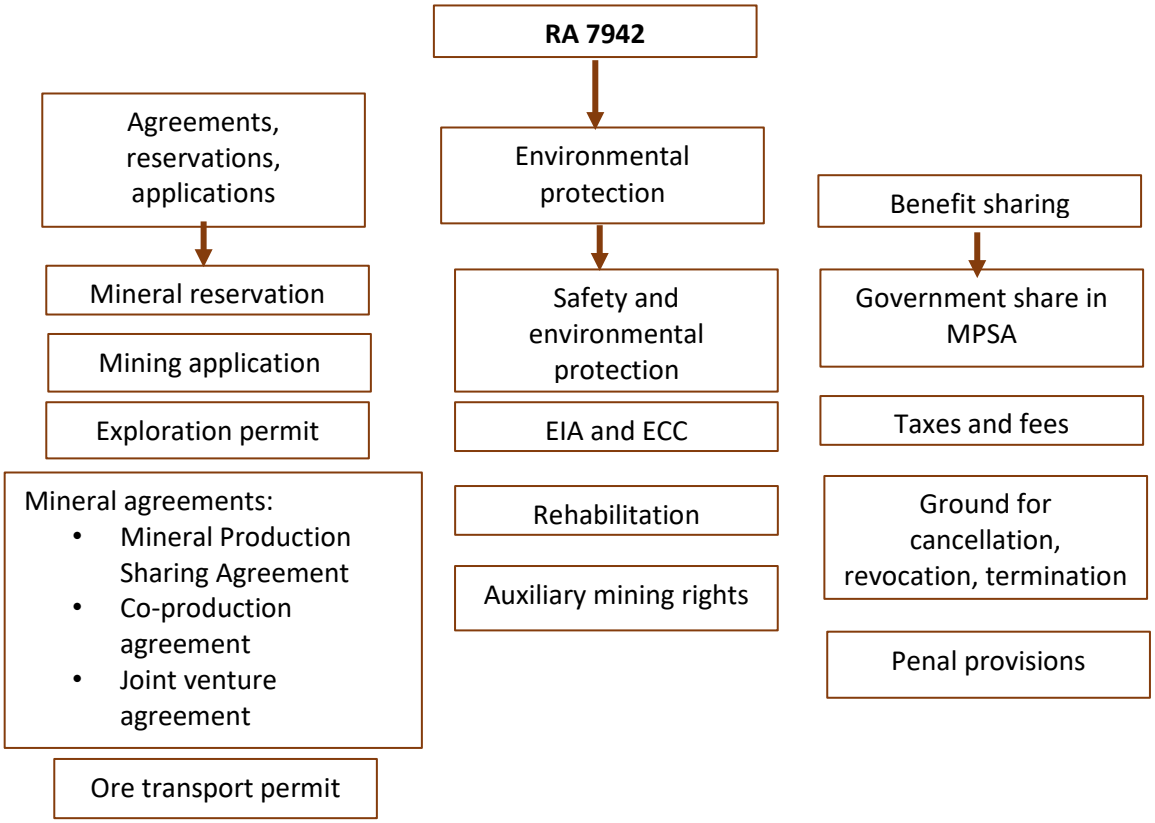
Several legislative documents affect the operation of a mining company. At the forefront of the policy landscape is the Philippine Mining Act of 1995 (RA 7942). The DENR-MGB was created as a line bureau to oversee and regulate all the activities of a mining contractor upon signing of the mineral agreement. On the premise that all mineral resources in public and private land are owned by the state, the law lists down provisions for the rational exploration, development, utilization and conservation of these resources. Related laws include the Local Government Code which gives the local government the right of discernment with regards to mining activities in their area. Environmental laws should also be considered such as the Forestry Code, Clean Water Act, and Clean Air Act since they provide the guidelines for environmental regulation. On the other hand, IPRA Law covers the indigenous cultural communities or

indigenous peoples (ICC/IPs) and provides them the necessary legal support to assert their cultural rights over any development or intervention. A later discussion will tackle specifically the features of these laws in relation to the Mining Act and the operations of the mine contractor.

2.3.1. The Philippine Mining Act of 1995

The first records of mining operations in the country were found in the Spanish era, where the governing body required the documentation of areas where mineral resources, particularly gold, were found. No written law categorically stated the requirements to go into mining. The first governing law was the Mining Act (Presidential Decree 463, 1974) issued by the late President Ferdinand Marcos. In this old law, section 52 prohibits the local government from imposing taxes or fees of any kind on mining operations while another section was devoted to environmental conservation. It was this same law which limited the share of foreign nationals to 40 percent of the mining firm to encourage Filipinos to handle the business. When this law was replaced by the Philippine Mining Act of 1995 (PMA 1995), stakeholders from all sectors were consulted to assist in the drafting of the law. The current law reiterates the State ownership of mineral resources in public and private lands and states the responsibility of "promoting their rational exploration, development, utilization and conservation through combined efforts of government and private sector", with end in view of enhancing economic growth. At the time of promulgation, a global economic crisis was felt everywhere and the autocrats in government felt that this would bring the country back to its feet. A downside of the law was the provision to allow 100% foreign ownership of a mine contracting company for projects worth over PhP50 Mn, but this was explained as part of the move to pull in foreign investments. A Financial and Technical Assistance Agreement is drawn up for this endeavor.

Figure 7. Important features of the Mining Act



The law also gives special protection to small-scale mining cooperatives operating inside a mineral resource area covered by a mineral agreement. The cooperative has a preferential right to 25% of the aggregate area.

Several areas are not allowed for development as a mining resource area without proper clearance from agencies concerned. These include military or government reservations, areas near public or private buildings, cemeteries, archaeological or historical sites, bridges, highways, etc.

Section 59 specifies that the contractor must maintain an effective program for manpower training and development throughout the duration of the mineral agreement. All social structures which have been built through finds donated by the mining contractor should either be turned over or donated to the local government within one year of abandonment and a provision for the continuous maintenance of the facility for the host and neighboring community is required.
Some sections in the law gives timber, water and easement rights to the mining contractor providing them the right to cut down trees and use water in the watersheds pertinent to the development of the mineral resource. This needs to be cleared through the proper agency (MGB) as to the number of trees to be cut and the extent of water usage. These provisions are directly in contrast to other laws on environmental protection such as the Forestry Code and the Clean Water Act which will be discussed later. Government ownership requires a sharing of the profit from mining as presented in the next section.

2.3.2. The Local Government Code (LGC) of 1991

The Local Government Code was promulgated prior to the existing mining law in 1995. The LGC provides for local autonomy to the local government to enable them to attain their fullest development as self-reliant communities. As part of their mandate local governments are now part of the process for approval of the permitting for the mining contractor. No mining permit can be issued if there is no agreement from the host community. In return for their agreement, the host and neighboring communities in a mineral reserve, whether an ICC/IP or not, is entitled to a share of the mining operations, the funds of which are part and parcel of the fund for the use of the land, the cost of rehabilitation and the cost of lost forest cover and other environmental damages.

The local government is entitled to forty (40) percent of the gross collection derived by the national government from mining taxes, royalties and such other taxes and fees imposed. This is discussed and shown in the next section.

There is also a provision in the code which states that these fees are to be remitted directly to the provincial, city, municipal or barangay treasurer within 5 days after the end of each quarter and the proceeds are to be appropriated by the respective councils to finance local development and livelihood projects. LGUs are enjoined to formulate sound financial plans and the budget should be based on functions, activities, and projects in terms of the expected results.

The attendant IRR (AO 270) requires a Comprehensive Land Use Plan (CLUP) prepared and enacted through zoning ordinances as the primary and dominant basis for the future of local resources and reclassification of agricultural land as needed. Mandatory consultations with the

NG and NGAs and other concerned sectors of the community are required for the preparation of the CLUP and the aligning of projects needed for implementation.

2.3.3. Forest Protection Law

Sections 48 and 49 of the PD 705 otherwise known as the Revised Forestry Code restricts the activities of mining operations in forested land and requires securing the necessary permits to do so as provided for in the mining laws, rules and regulations. These permits are released by the Forest Management Bureau of DENR. It specifically mentions that mineral reservations which have not been operating or have suspended mining operations for five years or more shall also be placed under forest management. Upon abandonment, surface-mined areas need to be rehabilitated and restored to the same conditions as it was before the operation. In chapter 12, section 72 of RA 7942, it specifically states that the mining contractor has the right to cut trees subject to the prevailing laws on forestry protection but should the mining area be already covered by timber concessions, the amount of trees and the areas to be cut should be determined by the RD of MGB together with the concerned parties and the FMB. Water rights are also included provided an approved application has been filed with the proper authorities.

Executive Order 23 (EO 23), signed in February 2011, declared a nationwide moratorium on the cutting and harvesting of timber in the country's natural and residual forests, and created an institutional platform to curtail illegal logging. Although specifically silent on mining concessions, EO 23 prohibits DENR from issuing/renewing tree cutting permits in all natural and residual forests nationwide. Exemptions are made for clearing of road right of way by the DPWH, site preparation for tree plantations, silvicultural treatment and similar activities, provided that all logs derived from the said cutting permits shall be turned over to the DENR for proper disposal. Tree cutting associated with cultural practices pursuant to the indigenous Peoples Right Act (IPRA Law) are also allowed subject to strict compliance with existing guidelines of the DENR. With the policy, there was directive for the DENR to review/evaluate all existing IFMAs, SIFMAs, CBFMAs and other forestry agreements/contacts and immediately terminate/cancel the agreements if the holders thereof engage in logging activities in any natural or residual forest or abet the commission of the same.

2.3.4. Indigenous Peoples Rights Act of 1997 (IPRA)

The IPRA law was created for the protection of indigenous peoples, and as a corollary, the NCIP was created shortly after, with the mandate "to protect and promote the interest and wellbeing of the ICCs/IPs with due regard to their beliefs, customs, and institutions". One of the major functions of the NCIP is to issue a Certification Precondition or a Free, Prior and Informed Consent (FPIC) as a condition for the issuance of permits from other agencies, in this case, the DENR. The FPIC is defined as the consensus of all members of the ICC/IP to be determined in accordance with their respective customary laws and practices, free from any external manipulation, interference, and coercion, and obtained after fully disclosing the intent and scope of the activity in a language and process understandable to the community.

An Office of Planning and Research is also part of the organizational composition of NCIP with the task of formulating policies and programs to develop a five-year master plan, document customary law, and serve as repository of ethnographic information for monitoring, evaluation and policy formulation.

It is also the NCIP which declares if the land is an ancestral domain or not, based on the existing inhabitants in the area, where different forms of evidentiary documents or anecdotal references are used for validation. Issuance of Certificate of Ancestral Domain Title (CADT) ensures that a mining claim is aware that the area being pursued is part of an ancestral domain and will require attendant fees, taxes and royalties for the well-being of the IPs. The Certification Precondition is a statement from the NCIP that there is no ancestral domain within the mining area being applied.

All regions visited have IP groups residing in the area except for Zambales. The IPs are supposedly well cared for, but problems arise when CADTs are not declared over an area, technically removing the rights of IPs to provide FPIC before any development project. Additionally, migration of nomadic IPs to an established CADT also brings conflict and including them as recipients would necessitate the need for lengthy proceedings which sometimes take years to complete from regional offices to the central office of NCIP.

3. Revenue stream from mining

RA 7942 includes several provisions for the economic, environmental, social, and cultural effects of the operations in the area. These are usually funds for the local development and improvement of the social situation in the respective communities affected. Some of the items provided for are listed in Table 4 below.

Table 4. Government revenues from mining

Item	Rate	Collecting agency
Royalty	5% for site in mineral reservations	MGB
Excise taxes	2% of sales (output goods)	BIR
Income Tax	30% of taxable income	BIR
VAT	12% of goods bought	BIR
Mining Fees and Charges		MGB
Customs duties		BOC
Withholding taxes		BIR
Business tax	Maximum of 2% of sales	LGU
Real property tax		LGU
Registration Fee		LGU
Occupation Fee		LGU
Additional NG share (for FTAA)	0.5*(NMR) – BGS (paid only if BGS is less than 50% of NMR	MGB
SDMP Fund	1 % of mining and milling cost	Trust fund 30% to province and 70% to city or municipality)

EPEP Fund		
MMT Fund	PhP 50,000 replenishable	Trust Fund c/o MGB

NMR – Net mining revenue BGS – Basic government share VAT – Value added tax

3.1. Royalty and Excise Tax

Mining firms pay a fixed share of their revenues to the government in the form of royalty and excise tax. The excise tax is paid regardless of the type of agreement and the location of the mine area and is pegged at two percent of the revenue from the mineral products while the royalty is at the rate of five percent of the revenue for mining areas in mineral reservations. These fees are paid through the MGB. Additionally, one percent of mining and milling cost as royalty fees are paid directly to the ICC/IP in the mining area.

3.2.Government taxes

Corporate income tax is paid at the regular rate of around 30 % of gross revenue as specified in the Omnibus Revenue Code and is collected by the BIR.

VAT and customs duties on imported host community goods, withholding taxes, waste and tailings fees and other fees are paid directly to BIR or through the Bureau of Customs.

Local government taxes and fees include the business tax at the rate of one to two percent, real property taxes, registration fees and occupation fees at the rate of PhP5000 per hectare or a fraction thereof annually. These fees go directly to the local government (city or municipality) concerned.

For mining contractors under the FTAA, an additional government share is calculated and given after the mine operations' recovery period of five years. This is computed as basic government share (BGS) and net mining revenue (NMR). BGS is the sum of all taxes, fees and royalties paid to national and local governments while NMR is the gross revenue less the expenses, interests on loans, mine development expenses and royalty payments. Since the government is part owner of the property, 50 percent of the NMR goes to the government as its share. The Annual Government Share (AGS) is calculated as (0.5*NMR) – BGS. This is paid to the national government.

3.3.Additional mining funds

Aside from the taxes, royalties and fees discussed above, mining firms are also required by law to maintain a Contingent Liability and Rehabilitation Fund (CLRF) in a government depository bank. This is intended to be used as part of the environmental rehabilitation expenses after closure of the mine. The CLRF has three components, the Mine Rehabilitation Fund (MRF), the Mine Waste and Tailings Reserve Fund (MWTRF) and the Final Mine Rehabilitation and Decommissioning Fund (FMRDF).

The MRF is used for rehabilitation of areas affected by mining operations. MWTRF is the fund generated by the accumulation of the mine wastes and tailings fee, and FMRDF is used to rehabilitate the mine areas after it has been decommissioned.

Mining companies are also required to give 10 percent of royalties and proceeds derived to MGB for the development of mineral reservations. A recent policy move was initiated by the Department of Finance (DOF) to review the mineral reserves of the country for the purpose of reclassifying them into mineral reservations with a higher share of royalties in order to generate additional funds of five percent in royalties.

3.4. Fiscal incentives

Some of the various taxes, fees and royalties due to the government are offset by the incentives offered to mining firms. As stated in EO 226, the incentives for mining firms are outlined in the Mining Act of 1995 and include Income Tax Carry Forward of net operating loss, Income Tax Accelerated Depreciation, and incentives for pollution control devices plus other incentives such as investment guarantees.

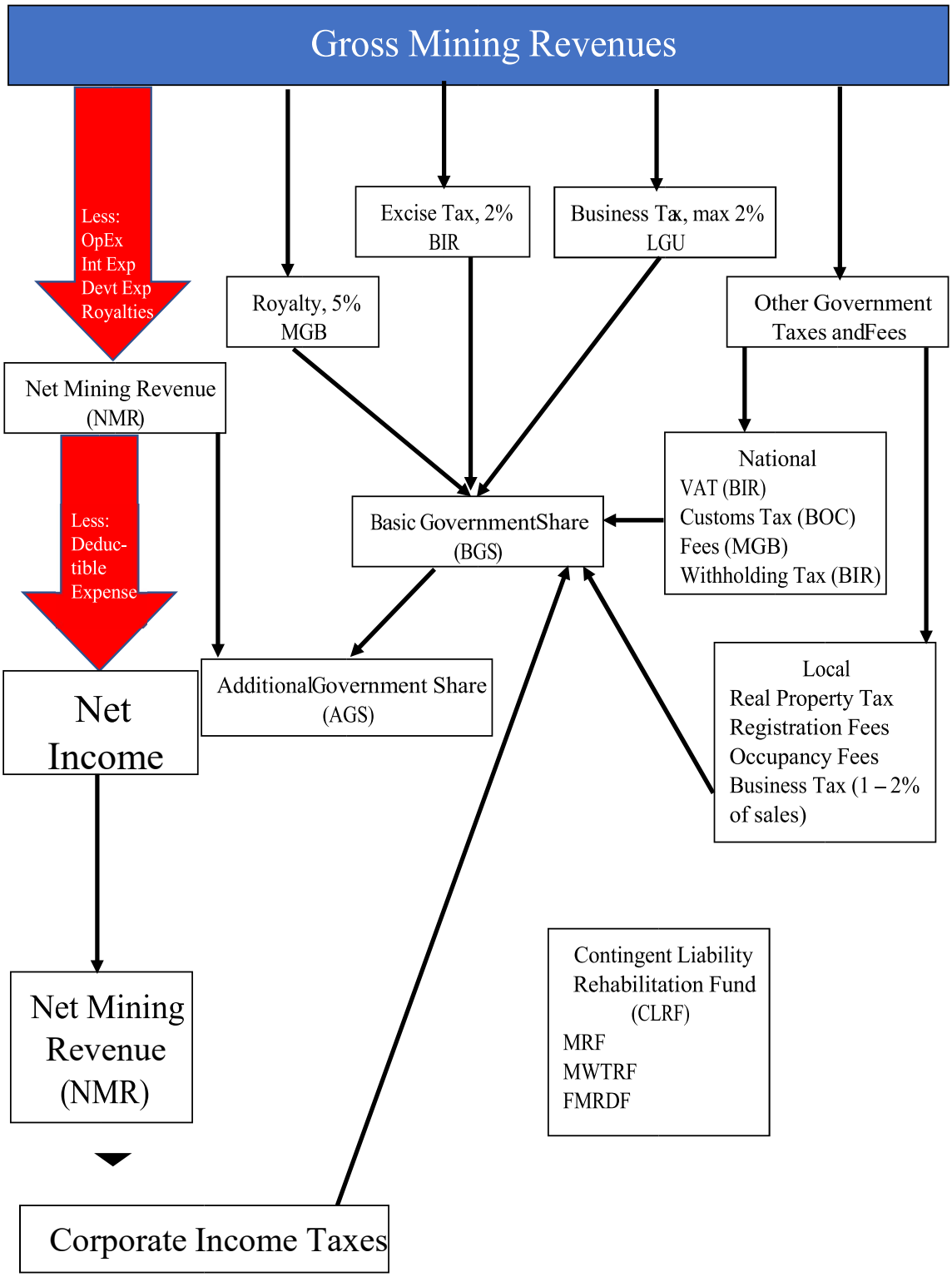
3.5. Mining Revenue Allocation Scheme

The different taxes and fees (as well as exemptions) are channeled through various agencies in government with different implications on the amount of resources under each agency or level of government. Figure 8 shows a graphic illustration of how mining revenues are shared across the public sector (Mendoza and Canare 2013). Gross mining revenue refers to the gross value of sales generated through mining activities. From this base amount, royalties, excise tax and local government business tax are computed. Corporate Income Tax is computed using total taxable income as base, which is computed by deducting revenues with expenses and other deductible items. For mines under Financial or Technical Assistance Agreement (FTAA) scheme, the government also gets an Additional Government Share (AGS) which is the difference between 50 percent of the NMR and basic government share. It has been noted by some analysts that the government would like to pursue more FTAA arrangements, instead of MPSA arrangements which are claimed to yield less government revenues. The supposed higher government share of mining revenues in FTAA is due to the AGS (−−− 2013).

4. Processes Involved

There are several application processes which an aspiring mine operator needs to go through to be able to operate legitimately. The whole process is under the administration of the MGB and its regional offices. When an applicant has the intention to develop a mineral resource, the first stage involves getting an application for the Exploration permit at the MGB regional office concerned.

Figure 8. Gross mining revenues



4.1.Exploration permit

For all type of agreements, an exploration permit acts as starting point for the operation. Exploration is done to ensure that the targeted area contains enough mineral resources to be minable economically. Figure 9 gives us the flow for getting the first stage permit for exploration.

The applicant secures MGB Form 5-1 from the MGB regional office where the mine area is located. Upon submission of the application, a location map or sketch of the proposed area is prepared. Other documents for inclusion in the application form includes: (a) two-year exploration work program; (b) proof of technical competence and financial capability; (c) SEC registration and articles of incorporation; (d) affidavit of undertaking; (e) certificate of non-overlap or free, prior and informed consent; (f) environmental management plan; and (g) community relations track record. Permitting will be based on the submitted documents which will go through an initial evaluation at the regional office level and, if approved, will be endorsed by the Regional Director. Completed documents will then be forwarded to the MGB Central Office where a second and final evaluation will be conducted. If approved, the permit will be signed by the MGB Director and endorsed to the DENR Secretary. After securing the signature, the permit is sent back to the regional office for final release to the applicant.

4.2.Mineral Agreement

Since the mineral resource is owned by the state, an operator may enter into an agreement with the state to develop the resources. There are 4 types of mineral agreements which can be applied for: a. Mineral Production Sharing Agreement (MPSA); b. Joint Venture Agreement (JVA); c. Coproduction Agreement (CpA); or Financial and Technical Assistance Agreement (FTAA). The latter is a special agreement where 100 percent foreign ownership is allowed if the foreign investment is over US$50 Mn.

After the exploration stage and having determined the viability of development, the next stage is to secure a mineral agreement for which the flowchart in Figure 11 is applicable. The process is similar to the initial EP but some additional requirements are needed as follows: (a) certificate of registration; (b) copy of the by-laws; (c) report on the exploration results; (d) a three-year development or utilization work program; (e) proof of technical competence and financial capability; (f) mining feasibility study duly signed by a Competent Person; final and complete exploration report duly signed by a Competent Person in geology; and an affidavit of undertaking. The regional office accepts the evaluation, does the initial evaluation and gives a recommendation then forwards the application to the MGB Central office. Prior to the endorsement to the Central office, the applicant will be required to submit an Environmental Compliance Certificate (ECC) and prepare an Environmental Protection and Enhancement Program (EPEP). Since a full-blown project will now commence upon approval, the applicant is required to secure a new CNO or FPIC for submission. Results of the second evaluation will be signed by the MGB Central Director and the DENR Secretary before forwarding to the regional office for release.

Figure 9. Exploration permit processing

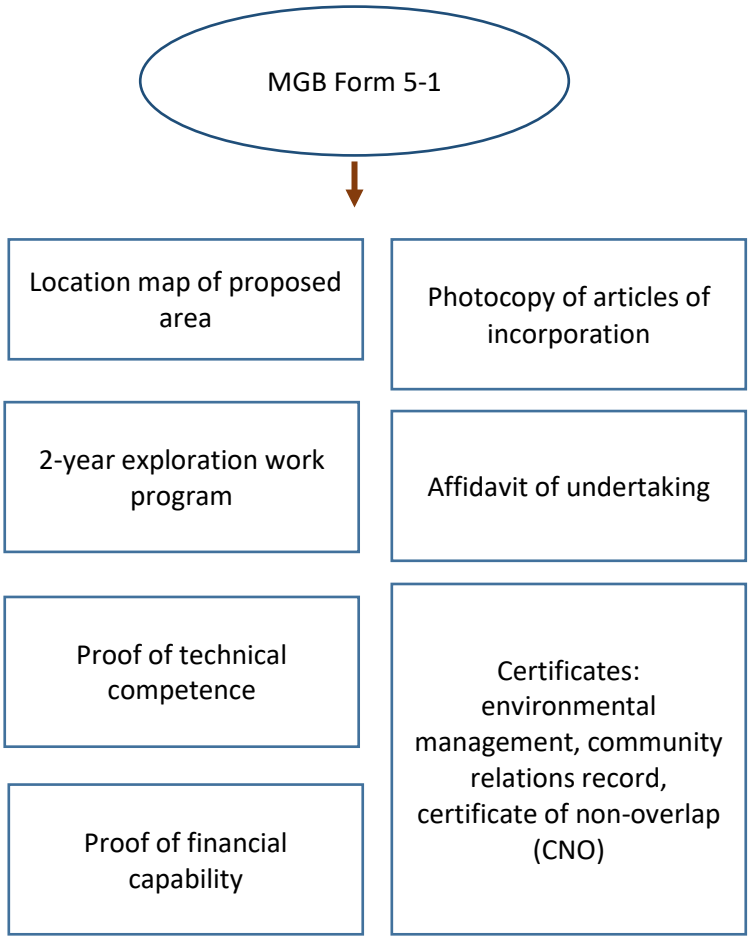
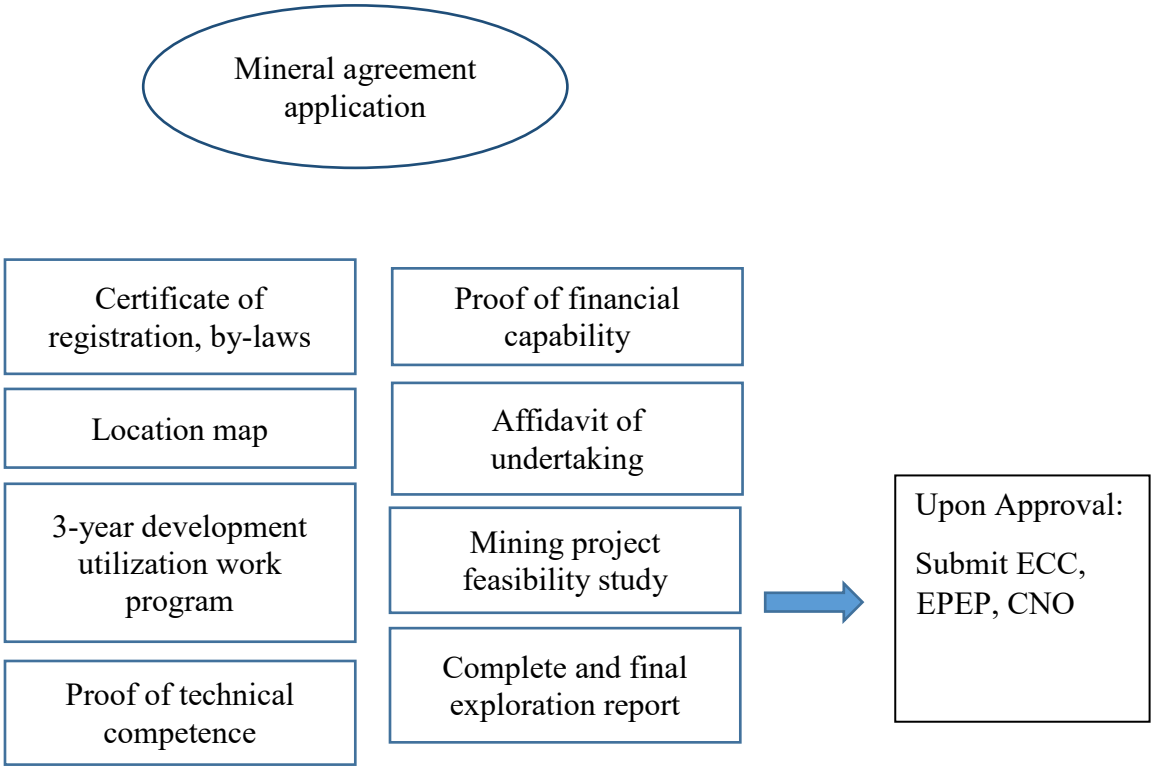
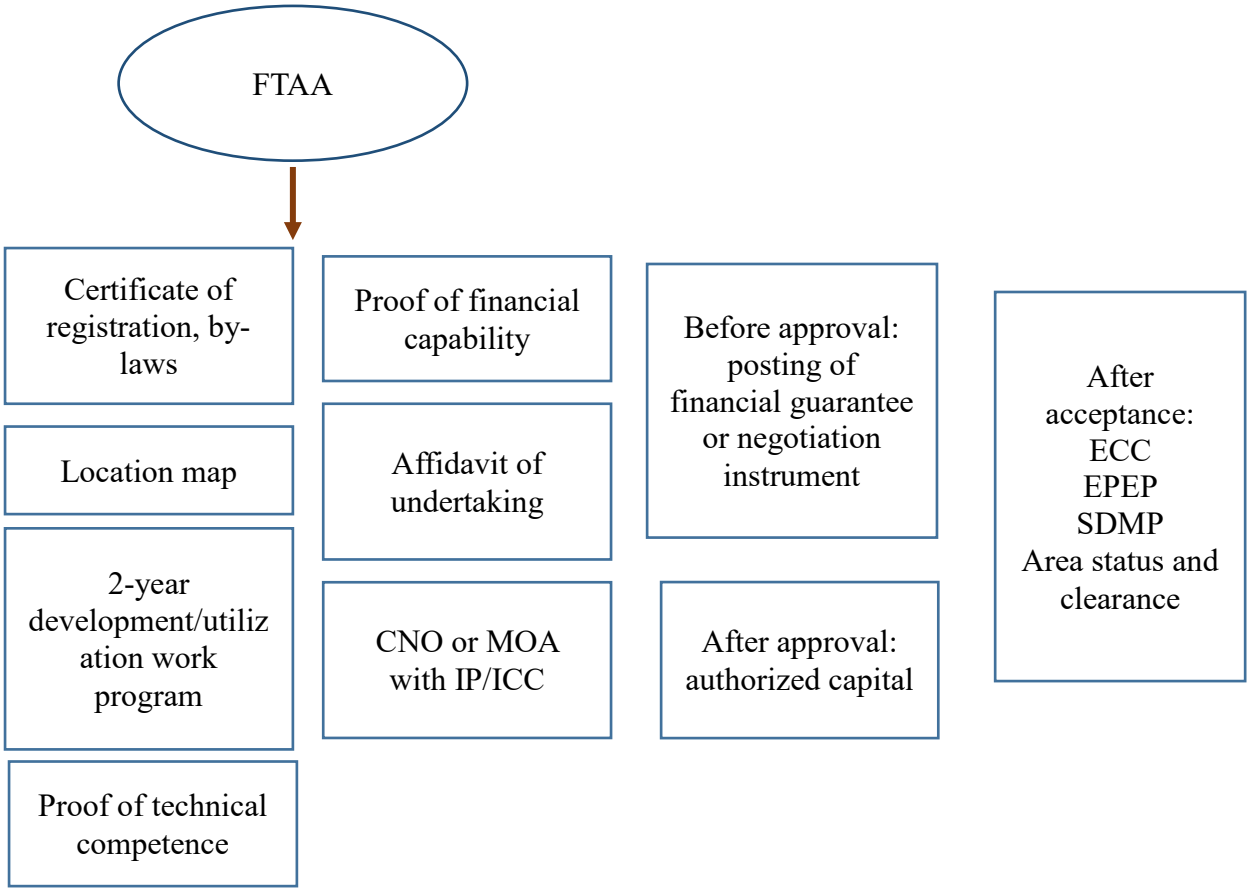


Figure 10. Mineral agreement application process



For an FTAA application, the applicant does not need to file a separate EP application since the exploration will be part and parcel of the development plan to be crafted. A simplified flowchart of the process is given in Figure 11.

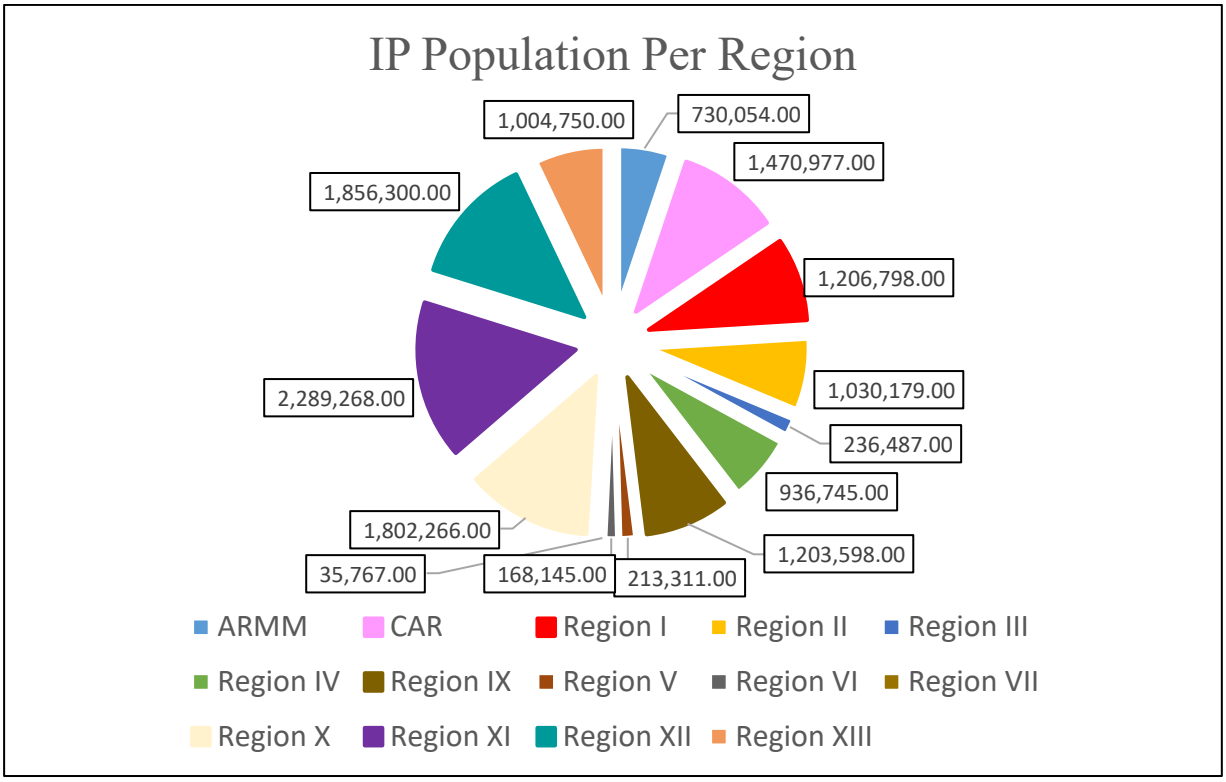
Figure 11. FTAA permitting process



4.3. CNO or FPIC

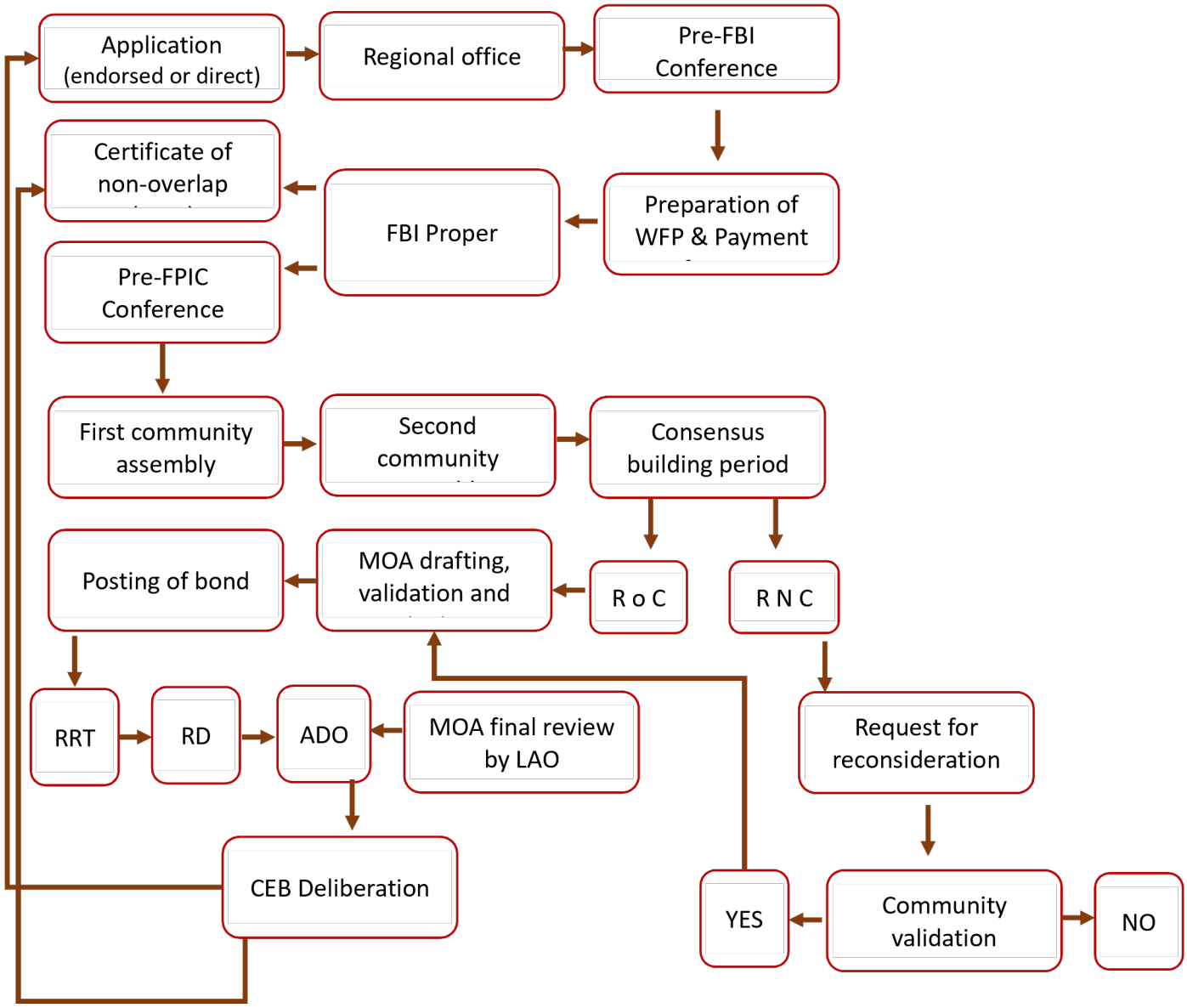
The IPRA law specifically protects the rights to ancestral domains and lands for IPs located in mineral reservations or in areas where mining is feasible to be conducted. With the preponderance of IPs all over the country, the protection of their basic rights has been placed under the jurisdiction of the NCIP. The commission is tasked to handle all applications for a certificate of non-overlap (CNO) since RA 7942 does not allow overlapping of claims in mining areas. If the IP community is located inside a mineral reservation, the FPIC is required. There is a total of 135 Certificate of Ancestral Domain Title (CADT) already distributed as of this year and these cumulatively covers 4.2 Mn hectares of land with a population of around 1.5M, representing less than 10 percent of the total population of IPs in the country. This shows that 90 percent of the ICCs have not yet been issued CADT up to this time. Figure 12 is a pie chart of the distribution of the IPs in the different regions.

Figure 12. IP Distribution per region



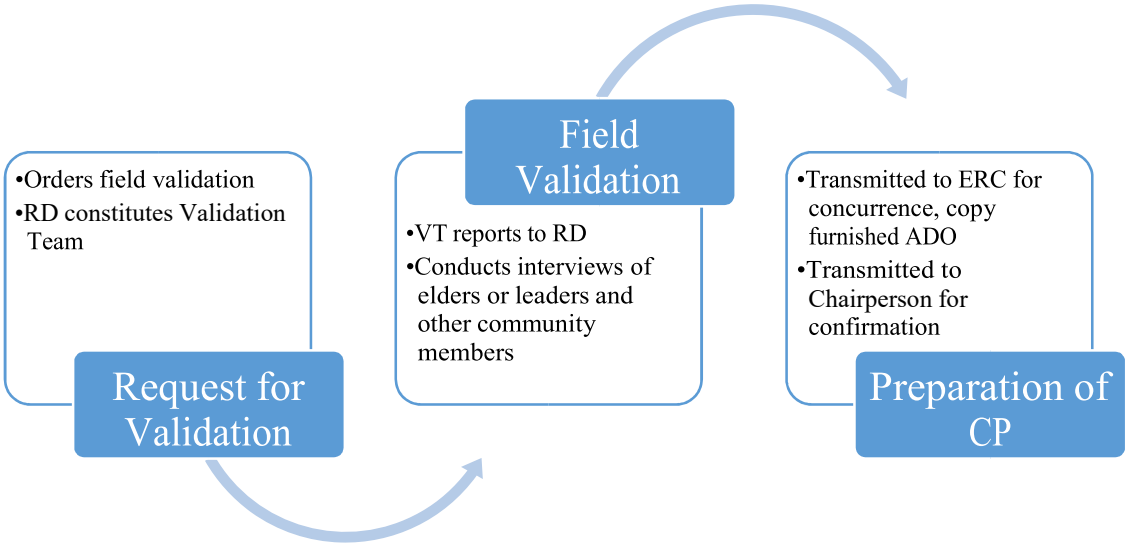
The NCIP is mandated to facilitate the inculcation of knowledge among IP communities, most particularly with regards to their rights and the power of their consent. Administrative Order 2012-03 from the commission provides guidelines on the processes related to securing the FPIC. Since the FPIC is a requirement not only for mining contractors but for all other industries requiring intrusion into the ancestral lands, a certification precondition requiring the CNO should be obtained from NCIP, and it will only be released after proper field-based investigation (FBI) has been conducted by the Ancestral Domains Office. Figure 13 shows the process flow for securing the FPIC. If the consent is not secured, the proponent can do a second request after which no other requests will be entertained.

Figure 13. FPIC Process



The community validation process also goes through a required protocol shown in Figure 14. This field validation is done by personnel of FPIC and takes a back seat to the preparation of CADTs in the NCIP prioritization of work.

Figure 14. Community validation process



It should be noted that NCIP prohibits bribery and the use of threats, coercion or intimidation by the applicant. The NCIP team members are also prohibited from accepting any money, gifts or valuable things from the applicant, much more using falsified narration of facts to the advantage of the applicant. The IP member and most specially the Elder or Tribal leader is prohibited from soliciting and accepting gifts, money or other valuable, and consorting or mediating with the applicant to influence the result of the FPIC. Undue influence from any NGO, LGU, CSO and other groups are also prohibited. The process should be as transparent as possible to avoid any controversies arising from the results.

5. Critical questions on mining

The overlapping functions in some laws and even the disconnection among the implementors of the IRR of RA 7942 seems to be an area which needs to be covered. The intention of the law was to provide guidance for mining operations to ensure safety and security for the community and environmental protection and rehabilitation for the area. Twenty years after its implementation, tracing the possible root cause of the uncontrolled environmental problems brought about by the industry can help craft possible policy augmentations or, at best, recommendations for possible implementation changes.

The study focuses on five critical issues for which surveys among stakeholders in the form of mine visits, interviews and group discussions were held. In the interest of confidentiality, no mention of company names will be given. A general report on the commonalities of thoughts on the issue will be presented.

5.1. Policy Implementation

Has the mining industry improved with the Mining Act of 1995 and are policy objectives being effectively implemented on the ground? Is the IRR clear enough or is there a gap in the policy?

The discussion focus was placed on the grounding of RA 7942 where interviewees were asked to comment on the effect of the law on their company, region, or locality. The questions focused on the implementation of the law through its IRR, the existence of policy gaps and the clarity of the IRR issued. Differences in responses from old established mining companies and the relatively newer ones were noted.

For the Cordillera region, a long-established mining company felt no noticeable effect as the provisions were already existing in their operating policies. Local officials held the mining industry in a high regard due to its contribution to the regional income which was around 25 percent however, they also acknowledged that around 70 percent of mineral production in the region remain unaccounted for. This was because of the existence of black market and incidences of mineral theft. The regional office of MGB shared the plan to legalize small-scale mining in order to limit these foregone benefits from CAR's mineral resources. This must be done in accordance with the LGU and the Provincial Mining Regulatory Board which were identified as lead bodies of small-scale industry. Indigenous peoples in the area were believed to be better off compared to other IP groups probably due to various opportunities and scholarship programs given by existing companies as part of their social responsibility.

In the CARAGA region, the more critical issue raised was related to conflicts in policy where environmental protection and the moratorium on logging clash with the site development of mining companies. Nickel surface mines literally harvest the productive soil layers for ores, transporting the material in bulk through the direct shipment mostly to China. Aside from material loss, where mountains are being harvested, the government is being shortchanged by improper accounting and valuation of all minerals present in the shipment. A policy gap on reforestation was noted, where the prohibition of harvesting planted trees as replacement for felled trees is non-existent. Since DENR only monitors planted trees for three years, the company can cut it down after this period and return to operations in the area. Standards of compliance were absent in the provisions for rehabilitation. It is worth noting that some mining companies are well aware of their environmental responsibilities, translating these into a nursery for developing seedlings for their replanting requirements and even using endemic species for reforestation. Setbacks in rehabilitation and replanting include the stunting of endemic species, and too much use of more easily grown alien forest-plantation species.

An active no-to-mining movement was present in MIMAROPA along with the logging moratorium. These provided the background of Palawan province as being strongly protective of its natural resource since it was identified as the biggest source of provincial income. An interesting feature of the province is the coexistence of the best mining company (as lauded by oversight bodies) and the worst case of abandoned mine in the country (as documented by experts). A very active provincial council sits through decisions on mining together with the line bureaus of DENR, and the representatives of the local government and the NCIP in the region. The lack of a definitive policy on the direct shipping of minerals is seen to be a negative impact of the law. Value-adding to the mineral is lost and the leniency allows companies easier access to buyers of their ores. Allowing companies to vertically integrate with their buyers is perceived to be less financially rewarding for the government and more favorable to the mining company. Illegal gold panning from small-scale miners still exists despite the prohibitions in the law because these gold panners are recognized as working for their subsistence. A consistent

observation across regions was the recommendation for NCIP to reorganize and enhance its administrative functions. In terms of policy, the NCIP actually holds a lot of clout, but there are perceptions of weak commission leverage on the ground. In addition, the lack of staff causes delayed policy formulations badly needed to assist the IPs in programming the wise use of proceeds from royalties given by the mining companies.

An interesting twist was seen in Region 3. There was articulated consensus that the law as currently crafted is already comprehensive and all-encompassing with issues on economy, environment, and social development being tackled. Technically, there is no operating commercial mine in the region, as all four mining companies in the area were suspended resulting from the audit conducted by the DENR. The major issue involves environmental degradation with an emerging concern regarding tree-cutting permits. Even with the technical operational stoppage, the mining firms are still able operate and ship stockpiles, this time without much legal impediment and community welfare commitments. The technical suspension of mining in the region ironically led to alarmingly unchecked operations, and less payment demands from affected communities. Also, the moratorium on logging in EO 23 disallows the cutting of trees without the necessary permit, superseding a provision in RA 7942 which presupposes the permit to cut trees upon approval of permit to operate. Regardless of the gray areas, the cutting moratorium stands, resulting to lengthy permit processing and even leakages that ultimately lead to corruption. More enterprising operators also circumvent policy by just obtaining salvage permits for damaged trees.

To summarize, RA 7942 is perceived among the four regions to be well crafted and comprehensive. It encompasses the issues needed to run well-checked mining operations in the country. However, there are certain provisions which can be considered as gray areas. These include sections on small-scale mining and permitting requirements, including the generality of areas open to mining. The concept of and the attached legalities in declaring mineral reservations vis-a-vis other areas open to mining have to be cleared with the public and all stakeholders. The stream of costs and benefits pertaining to national and subnational governments, as well as mining and non-mining communities have to be cleared and made equitable and fair. The above would need harmonization and alignment with related laws such as IPRA and Local Government Code, as well as the forestry code and other environment-related policy. This would also mean enhanced bureaucratic platforms and cooperation arrangements between and among different government bodies. Institutions like the NCIP and MGB must be adequately capacitated and empowered to carry out their mandate and leverage the interests of the state and the communities and ICCs/IPs affected.

5.2. Institutional arrangements

Are the government agencies mandated to administer, manage, control, etc. the mining industry in terms of economic, environmental and socio-cultural aspects all working together in sync?

As previously discussed, there are indications of failure to educate, protect, and facilitate ICCs/IPs in most areas where mining exists. Since RA 7942 specifically prohibits mining in ancestral lands unless a CNO and FPIC are secured, the NCIP acts as conduit between the IP and the company. This responsibility is blurred in instances where the commission vouches for

the mining company's interests, instead of leveraging the rights and interests of its IP constituents. Delayed policy implementation also effectively negated a very potent tool on the part of IPs, as mining companies have long been operating before the passing of guidelines for securing FPIC.

Cordilleran IPs were engaged in small-scale mining even prior to the national mining policies. It can be considered as a way of life and an integral part of their culture. At the onset of IPRA and other mining laws, these same IPs were now required to get FPIC despite being IPs themselves. The same applies for tree cutting permits where IPs are required to go through the same administrative processes in areas where they are legally the stewards. These are gray areas in policy that need more clarity.

The distribution of royalties among IP communities are not monitored nor reported and audited. One reason was due to the IPs not wanting interventions from external associations. Another was the admission of NCIP that monitoring and evaluation mechanisms were not part of their mandates and that their intervention ends when royalties are given to the communities. However, it was clearly stated in the RA 8371 that part of the commission's mandate is to coordinate development programs and projects for the advancement of the IPs and to oversee the proper implementation of such projects. The respect for IP culture, tradition and internal political structures, which NCIP upholds, must not compromise the imposition of checks and structures necessary for their protection and benefit.

In MIMAROPA the Palawan Council for Sustainable Development Systems overlaps with the job of EMB when it comes to its role for granting clearances for small-scale mining companies. The bureau sees this as another layer of security instead.

In Region 3, a problem encountered is the disconnect between the local government, MGB, and the FMB regarding the cutting of trees and access to the mine. Based on the interpretation of the Mining Act, the MOA gives them the permit to operate a mine in the area. Unfortunately, the local government, mostly barangays, sometimes prevent the mine trucks from using the access road (constructed by the mining company) going to the mine area and sometimes charge users fees. Also, a separate tree cutting permit is required by the FMB which does not want to accept the premise that the MOA allows cutting without permits. The law however states clearly that all activities should follow current rules which include securing the tree -cutting permit from the relevant agency.

The Chamber of Mines of the Philippines (CoMP), on the other hand, is an independent organization of mining companies and membership is voluntary. It acts as an independent regulatory body and right now talks among the members are on the use of the Canadian or Australian standard for responsible mining to be pushed for use in mine audits. Most of the members of the Chamber are already using these standards for their companies. The DENR has not given any indication as to its adoption but is currently looking into the matter.

In general, there is also a sense of relinquished control on the part of government and local communities once mining firms start operating in concessional areas. Even the vaunted autonomy of local governments, as enshrined in the local government code, is compromised as they lose administrative authority over part of their subnational bound. This is evident in certain

municipalities where complaints on unimpeded material movement and unenforced business tax demands have been lodged. This situation is intuitively defective and contrary to existing policy where the state owns all mineral resources, the IP communities in CADTs/CALTs have stewardship control in the covered domains, and the LGUs have effective autonomy over their subnational bounds.

5.3. Community Relations

In securing the community consent, are the stakeholders made aware of the benefits and downside of having the mining area close to their communities, and are the prohibitions set by the pertinent agencies followed and monitored?

The FPIC is a document requirement for the Environmental Compliance Certificate (ECC) which is part of the submissions in the request for the EP, MPSA, FTAA, etc. This ECC document states the current status of the environment in terms of air, and water quality in the area which the mining company is requesting. The ECC contains a listing of baseline values on the environmental conditions before mining starts in the area. This is a very important document since this will be the basis for preparing an environmental management plan to address possible impacts to the environment to put it back to its original state or better. The FPIC, on the other hand, ensures the consent of the ICCs/IPs for any development or activity within the proposed area. Orientations and consultations are supposedly held before providing the consent to ensure that all concerns and issues of the communities are addressed and that the accompanying developments will be reflective of the direction that the community wants to take according to their Ancestral Domain Sustainable Development and Protection Plan (ADSDPP). Transparency is demanded from the process so even the negative impacts are discussed but most of the time, benefits are over-emphasized. Consent is given in most cases by the tribal leader and a council of leaders. As for the other cases, the whole community conducts voting through a "show of hands" where the consensus of the majority takes precedence. There is no provision requiring a 100-percent consensus thus leakages are bound to arise eventually. Should there be no IPs in the area, a document called Certificate of Non-Overlap must be secured from the NCIP to ensure that there is no CADT existing in the said place.

Delayed policy formulation was believed to be the root cause of NCIP's institutional and implementation problems. While IPRA Law was established in 1997, the guidelines for FPIC were only released in 2012, more than a decade of lapses and mechanisms for check for communities and mining companies. There was also still a gap in monitoring funds once these are injected into the community.

An interesting case exists in the CAR. Since the company has been there prior to the enactment of the Mining law, there were no guidelines followed in getting the community consent. An arbitrary process was followed where representatives of the company talked with the community with the promise to support community programs through their Community Relations (ComRel) Department. A community has been built up with third generation IPs from scholarship programs who are now professionals. The company put the school buildings, clinics and a hospital, churches and other requirements for the community. Employment of staff from the community was also practiced, and scholarship opportunities for the children were offered. Most of the employees of the company are also third generation locals who have chosen to stay.

The president of the company interviewed was one of the first-generation IPs employed by the company so what was discussed was based in the experience garnered from then up to the rpesent. The current problem being encountered is the entry of migrant IPs who want to establish claim to the area. Two municipalities are being contested where Itogon has a CADT, but Tuba where the mine office is located does not have one. The NCIP now has to study the genealogy of the people claiming residence. The IP community gets 1 to 1.5 percent of the royalty fees paid by the mining company, and in this case, is estimated to be about PhP120M. The company formed a committee with representatives of the IP, the NCIP, the local government and their ComRel Manager to map out the community development plan. Upon release of the funds, the committee also sees to it that the usage is as planned.

In Region 4B, a different arrangement is in place. An oversight committee is existing for the utilization of the endowment fund. There is an ongoing dispute among some members of the community wherein allegations of personal projects being funded first instead of programs for the whole community were brought up. A MOA is used as basis for the distribution of benefits between the host and neighboring communities. The Social Development and Management Program (SDMP), on the other hand, is crafted to address the needs of the community and follow sustainable practices.

An observation from the cases is the lack of a standard template for community relations. It seems that the region employs what they see best as fitting for the current situation in the area. The much bigger question of safeguarding the welfare and interests of affected IPs and local communities has to be answered through a more in-depth and detailed inquiry. Although current policy gives a lot to IPs in terms of stewardship rights, the landscape is marred by delayed policy, non-transparency in processes and sub-optimal bureaucratic support.

5.4.Environmental Concerns

Are efforts to safeguard the environment and manage the rehabilitation of damaged area enough and sustainably effective?

Three vital requirements are expected from the mining companies: special tree-cutting and earth-balling permit, NGP commitment, and mining rehabilitation. Most of the time however, the companies see the requirements as one application for all. Monitoring is done quarterly for air and water quality by the multipartite monitoring team (MMT). Mined out areas are required to be rehabilitated at least a year after it has been declared (internally) as mined-out. An online process can also be developed for small scale mining.

Non-compliance to the above is exacted with fees and penalties based on the DAO released by DENR. The current penalty rates however, were established in 2012 and in some cases, mining companies allegedly would rather pay fines than stop operations. More substantial penalties have to be infused in policy, for them to be effective deterrents to non-compliance.

A situation where some companies purposely leave off reforestation of a supposedly mined out area because of selective mining also arises. Based on the metal prices, if the price is low they would prefer to mine only the better grade ores and leave the marginal deposits for later. Since they still plan on activating the area when prices are better, they choose not to fully rehabilitate

yet. This is a weakness in policy, which has disaster risk-related consequences as stripped concessional lands are prone to erosion and further environmental degradation. Bodies of water are polluted and low-lying communities are threatened with mud-slides and sediment-loaded run-offs. Active treatment of both mined-out and idle mining lands have to be part of the operating firm's environmental compliance.

Since most of the mining companies were already established in CAR for more than a hundred years, water pollution control has been established through tailings pond facilities even before the Mining Act. The pond is regularly dredged to lengthen its life, and water quality is monitored daily. The new mining act increased adherence to environmental and mining standards and required a closure and rehabilitation plan. Reforestation projects were also in place before the national mining laws. Several mined-out areas of the company have been reforested and shows no signs of the mining activity which happened years before.

One of the problems noted was the timeline for reforestation stated in the IRR. The same applies to the required seedling replacements for affected trees. Monitoring of tree growth is done only until three years after planting. Endemic species have slower growth rates compared to the alien species and are thus more appropriate for the compliance requirements of DENR, but some make use of the more readily available fast-growing plantation species. Inconsistencies in monitoring and policy enforcement, however, have been documented wherein companies cut down trees in replanted areas to make way again for mineral extraction when economic indices turn profitable. Along with advice on appropriate areas to plant, there should be maintenance and protection for planted trees. The same policy protection should apply to both rehabilitated zones or areas actively undergoing rehabilitation.

In Region 4B, there is no apt inventory and valuation on forest resources and minerals. This gap has also been articulated by both DENR and sectoral stakeholders in other regions. The MGB suggests that mineral accounting or total environmental accounting should be undertaken. It is only through this that we can have proper valuation and appreciation of the country's resources. The PCSD recommends the review of the ECC process if it can be shortened without compromising stringency. Public and private investment on research has to be beefed-up to better understand sustainability and rehabilitation issues, including agroforestry and selective harvesting of forest resource. It was also suggested that research on alternative minerals and materials on extracted minerals like nickel be pushed.

The status in Region 3 is more complicated. All of the mines are currently suspended due to environmental concerns, particularly because of the siltation found in the river systems near the mines. Based on the interview with the MGB central representative, this was attributed to the lack of a holistic plan for the region, implying the absence of an integrated and harmonized planning within and outside the mining jurisdiction. A quality test for a single mine may reveal acceptable results, but cumulative amounts of effluents from multiple operating mines will lead to significant degradation. ECC compliance should look at the systems perspective, using a holistic set of numbers representing the totality of effluent or sediment contributions from all mining operations in a contiguous area. Another environmental problem being encountered is also the denudation of forests where the companies claim that most of the growth are scrub brushes rather than trees and are therefore not covered by the reforestation law or forest protection policy. In certain cases, the more regulating tree-cutting permit is being circumvented

through the easily obtained and less demanding tree-salvaging permit. The DENR has to jealously safeguard its forest protection mandate, addressing technical loopholes and implementation weaknesses.

After a review of the environmental concerns raised during the years after the passage of the Mining Act in 1995, the DENR came up with a DAO 2015-02 which serves to provide more protection to the environment by harmonizing the implementation of the Philippine Environmental Impact Statement (PEISS) System and the Philippine Mining Act. Although this comes about ten years later, it provides for a more comprehensive monitoring of the state of the environment on a regular basis. The strict and consistent submission and validation of the reporting documents attached to the DAO should address the mine rehabilitation and other mine-related environmental concerns. A copy of this DAO is attached in the Appendix of this study.

5.5.Monitoring and Evaluation

Due to the composition of the MMT, current monitoring being done is limited to environmental monitoring only and there are no mandated technical mine audits to ensure the efficiency of the process. Is there a move from MGB to conduct such in order to minimize environmental degradation and maximize economic benefits?

The multipartite monitoring team (MMT) is present for each mining company. The Environmental Management Plan for the rehabilitation of mined out areas, as well as the quality of air, water and soil are closely monitored, usually by a third-party service provider in the presence of the team. The team is composed of representatives from the DENR EMB and MGB, the company, the community, the local government, representatives from the host and neighboring communities, an NGO and religious groups in the community. The monitoring is done at least once a year but can be as often as quarterly, depending on the pace of operation. The group and its composition are identified in the Mining Act, and is funded from a P50,000 contribution from the royalty funds and placed in a trust controlled by MGB. In all cases, the DENR-EMB together with the environmental group from the company arranges all the requirements for the monitoring. Right now, the sites to be sampled are designated and does not change. Although these sites have been identified by EMB as the critical ones, these are all predesignated and no random sampling takes place.

The question of competence is raised on the members of the monitoring team, particularly regarding their qualifications. While the team's functions are necessary for the industry, there are concerns about its effectiveness in keeping the mining companies in check. For one thing, the whole monitoring schedule is controlled by the company and EMB and the other members appear to be observers only with no definite hold over the MMT.

Another issue is that the funding comes from the company's coffers and no assurance of independence can therefore be assumed. A mechanism insulating the MMT from the influence of the mining company, local politicians and other interest groups have to be instituted. The composition of the MMT has to be made consistent, both in terms of membership and the required technical competence, to ensure rigor, continuity and historical recall in monitoring operations.

5.6. Socio-cultural concerns: ICC/IP Issues

The SDMP is part of the provisions in the Mining Act which will help set up the communities so that they are self-sufficient even after the mine closes. What improvements has the SDMP shown in the communities affected?

SDMP funding is pegged at 1.5 percent of the operating cost involved and distributed as 75 percent for the development of the host communities, 15 percent for information and education campaign, and 10 percent for the development of mining technology. In 2014, data from a review conducted by the Philippine Extractives Industry Transparency Initiatives show that a total of over PhP457Mn was utilized as part of the 5-year SDMP plans of mining companies which were reviewed. These represented utilization values ranging from 16 percent to 132 percent of the budget allocation. Low numbers are due to the practice of the company to carry over some of the funds to succeeding years depending on the utilization agreed upon as planned in the SDMP.

In terms of the benefit to the community, some local heads complain that the SDMP is totally managed by the company and that they have no participation in the disbursement of the funds. These are, however, negated by the fact that they are signatories to the plans and are part the team consulted for the crafting of the fund usage. Comments such as sending representatives to the planning sessions and non-participation when a meeting is called, appears to be the reasons for the perception that the LGU was not consulted in the planning. Although such are attempts toward community participation and inclusivity, still, it cannot be denied that fund control is with the mining companies.

Among the observed SDMP funded projects with good potential for continuity and broader community benefits are the development of local enterprises run and managed by legitimate community organizations. Such small successes have to be enhanced and replicated if the goal is local economic empowerment and self-sufficiency even after mining operations close.
The MGB is an effective oversight body that can leverage government and public interests as regards SDMP. It has a very detailed list of projects and activities which can be funded by the SDMP, because in the past, as anecdotally stated by some local officials, the distribution of the SDMP was actually a dole-out to some relatives of politicians rather than projects for the benefit of the community. This was a common sentiment of most regions covered with complaints of political influence on the management of the funds during the past administrations. In CARAGA where mining operations are intensive and the regional office of the MGB is exacting in terms of policy application, effective oversight function over the mining firms' SDMPs is instituted through well-crafted local guidelines or policy translations. The same seemingly effective arrangements can be made in other regions with ongoing mining operations.

SDMP as a vehicle to benefit host mining communities cannot be contested, but safeguards must be put in place to optimize the use of the resource and make its benefit distribution equitable and lasting, while ensuring that it is not used as instrument to leverage the interests of the mining firms, local politicians and a privileged few.

6. Case Studies

Two particular cases have been chosen and data on these mines were collected to look into the questions which were identified. The first case is a known "good performance" mine in Region XIII and has been operating for more than 20 years, while the other is located in Region III where all mining activities have been suspended for the past three years. Both mines involve nickel laterite mining through open pit techniques.

6.1. Case Study 1: The Caraga Region

For this case study, major issues were found to be more on the presence of economic benefits to the company and government, proliferation of socio-environmental concerns, and distribution of ICC/IP benefits. The mine camp chosen is part of a larger consortium of companies involved in nickel mining and processing.

The mine covers thirteen barangays with three as the host communities and the ten others as neighboring communities. The mine administrative office is located at Barangay Taganito. An MPSA has been officially issued in 2009 by the MGB. The mine resource is part of the Surigao mineral reservation and hosts an IP community, the Mamanwas. Four river systems pass through the area but the major river adopted by the company is the Taganito River which empties out into the Kinalablaban Bay. Interviews were conducted with the Claver City mayor, the DENR MGB Regional Director and several officials from the local DENR, MGB, EMB and related offices as well as the officials of the company itself. A tour of the facility was also conducted, particularly looking at the active mine area and the rehabilitated area. Figure 15 shows a location map of the Region. With the nickel rich region of Dinagat Island and the mineral rich area of the main island encircled in green.

Figure 15. Location map of Caraga region

6.1.1. Economic Benefits

In the Mining Act of 1995, the company has been diligent in following all the regulatory provisions crafted through the IRR and is in a very good relationship with the MGB and the communities hosted. Financial statements are openly available to the MGB and host communities have access to mine operating expenses which serve as basis for the SDMP funds received. The region also has a very pro-active MGB Regional Director and most mines have established good working relationships between the government, the company, and the community. Community needs are being sufficiently addressed as alleged by the RD and the company interviewed. The LGU, however, has complained that proper taxes have not been paid. Where the business tax was previously set at one percent, the LGU increased it to two percent which is now subject to a legal impasse since the companies refuse to pay the additional one percent. Complaints have been raised to the President since the courts have ruled in favor of the companies.

No data on company revenues were released, but data obtained from MGB showed that in 2016, a total of PhP 205,982,015.05 and PhP 171,273,985.27 were paid as royalty taxes for 2016 and 2017, respectively. The excise taxes for 2016 was PhP82,392,806.02 and PhP68,509,594.11 for 2017. Since these taxes are roughly a percentage of the income, an estimate of the income from ore products at around PhP4Bn. The table below shows some data from the MGB for the first half of 2016, showing how the fund was distributed to the LGUs. These are direct remittances to the LGUs and available for use as needed.

Table 5. MGB data on taxes from Mining, Caraga Region

	Total Population	Total Land Area, ha	Barangay Share, PhP		City	Province
			(70% on population	(30% on land area)		
Cagdianao	1,666	5,195.52	1,858,872.75	1,319,285.13		
Hayanggabon	1,866	4,454.00	2,082,026.74	1,130,992.85		
Urbiztondo	2,093	1,826.00	2,335,306.52	463,671.52		
Taganito	3,135	5,021.00	3,497,938.82	1,274,969.71		
					57,494,034.07	25,552,904.03

On the proceeds from other taxes, the LGU complaint is normally based on the length of time it takes for the release of the funds which go into the national government coffers before being released to them. Expectedly, funds paid to the government for the year should be available for release to the LGU by the second quarter of the succeeding year. This, however, has not been practiced until now. Complaints of funds being released more than two years later have been noted.

Another issue brought up by the mining company is what is deemed as double "taxation" by the LGU and the national government, with the LGU putting in other terminologies on additional taxes imposed. EO 79 of 2012, section 12 supposedly addresses this issue where the consistency of local ordinances with the constitution and national laws are left to the cooperation of the LGU with the MGB, DOF, and the DBM. Since the EO was issued, however, this has consistently remained as an unaddressed issue. Even in the meetings conducted by the MGB to discuss programs for the SDMP and other such long-term plans, the mayor himself does not participate the discussions but a representative is present to "listen" to the discussions.

While good practices are present in the company visited, four out of the 12 other companies in Caraga region failed the audit of the MICC review due to their inability satisfactorily comply with the requirements for environmental improvements (DENR, 2018).

6.1.2. Socio-Environmental Issues

Environmental rehabilitation has been started since the company has been in operations for several years already. Figure 16 shows a fully rehabilitated mined-out area which show good reforestation. The planted trees, however, are of a species (*agoho*) which easily caused forest fires and do not have good soil-stabilization properties. The species is fast growing but shows stunted growth and does not prevent erosion or soil-water run-off during the rainy season. The typical *mangkono* trees (Figure 17) endemic to the region are being cultivated in their nursery. This is a hardwood and is expected to be more resilient to the different natural processes involved in the area.

Figure 16. Reforested area

Figure 17. The *mangkono* nursery

The *mangkono* trees have a slow growth rate but can withstand harsher environments which contribute to their resilient nature. The cultivation of the trees, however, takes a longer time in the nursery before they can be planted on-site.

An issue which also came up was the DENR directive as part of the permitting, where tree-cutting and earth-balling are included as shown in Figure 18. There have been several studies and reports that earth-balling is not an effective way of transferring the grown trees because these often die a short time after replanting. There has been no response from DENR on this issue. No assistance from DENR is also forthcoming when it comes to the determination of which types of plant species are effective for what areas. The other bureaus of DENR (e.g. FMB) can probably help on this point by conducting proper orientation and training for the companies.

Figure 18. DENR tree-cutting and earth-balling permit

Overall, the company feels that their part in restoring the environment to its natural state before mining started is currently being addressed properly. They have been investing millions as part of their EPEP, EMF and will continue their best efforts to retain their reputation as recipient of ASEAN BEST company practices in environmental rehabilitation.

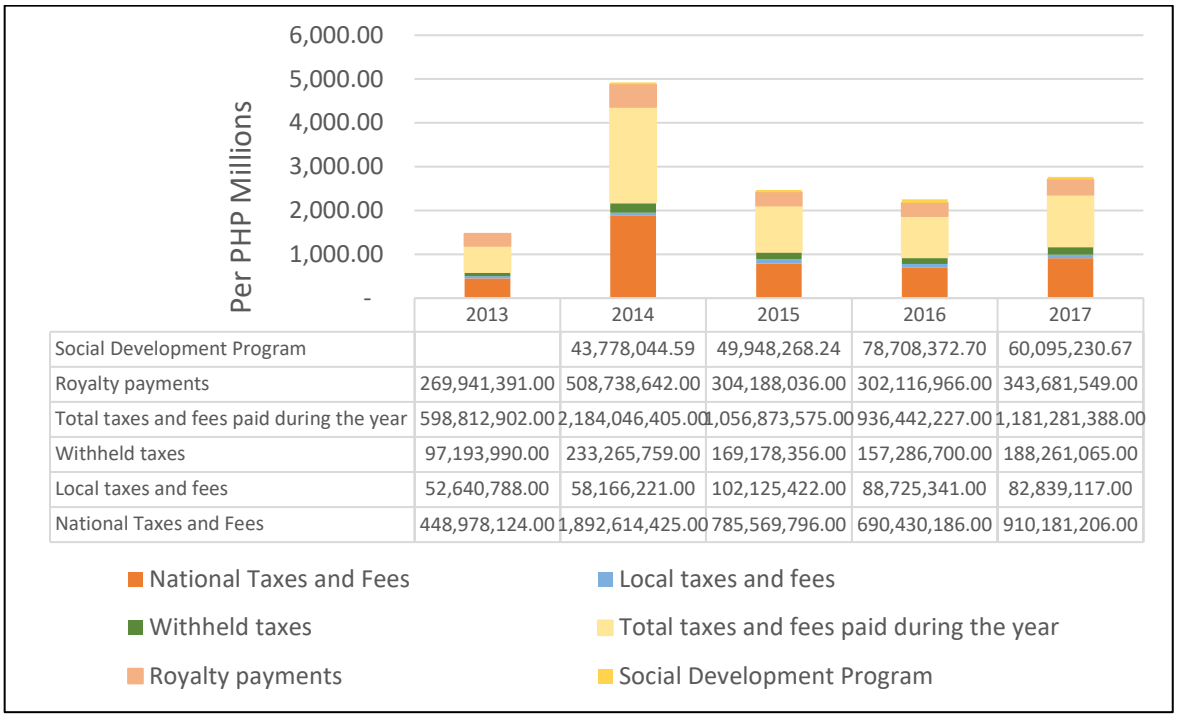
On the management of the SDMP funds, the MGB RD had the initiative of pushing for a protocol which involves transparency in accordance to DAO 2015-12 on the harmonization of the Philippine Environmental Impact Statement System and the Philippine Mining Act. Section 7c specifically outlines the role of the MGB RD in the initiation and maintenance of an established and operationalized system for the management of the CLRF, SDMP, and the ETF. The system set seems to be working right because the other stakeholders have no objections and are quite satisfied with the results. The projects in place veered away from the dole-out projects such as free rice for the people, financing for a lending-type business, etc. Current projects involve a water refilling station manned by members of a cooperative, a tailoring shop, and a *pasalubong* center run by members of their own cooperative, and an expansion of the elementary school building. The tailoring/*pasalubong* center shop caters to the needs of the mining companies in the area and is thriving business-wise.

Figure 19. The SMDP projects of Hayanggabon

6.1.3. ICC/IP Issues

The area covered by the mining company is a mineral reservation with the Mamanwa as resident tribes inside the boundary. There is an established relationship with the tribal leaders and the community as well, but the data is anecdotal since no visits or interviews were done with the members of the tribe themselves and was relayed by the representatives of the company. The NCIP in the region have also expressed their agreement regarding this but also offer some reservations as to the use of the funds for the IP. Table 6 below shows the trend of royalties and other taxes made by the company for the period 2013 – 2017. Judging by the numbers, IP contributions are estimated to be in the millions annually.

Table 6. Taxes, fees, and royalties paid from 2013-2017



	2013	2014	2015	2016	2017
Social Development Program		43,778,044.59	49,948,268.24	78,708,372.70	60,095,230.67
Royalty payments	269,941,391.00	508,738,642.00	304,188,036.00	302,116,966.00	343,681,549.00
Total taxes and fees paid during the year	598,812,902.00	2,184,046,405.00	1,056,873,575.00	936,442,227.00	1,181,281,388.00
Withheld taxes	97,193,990.00	233,265,759.00	169,178,356.00	157,286,700.00	188,261,065.00
Local taxes and fees	52,640,788.00	58,166,221.00	102,125,422.00	88,725,341.00	82,839,117.00
National Taxes and Fees	448,978,124.00	1,892,614,425.00	785,569,796.00	690,430,186.00	910,181,206.00

One of the important matters to consider is the seemingly random usage of the money received by these IP communities. In one of the interviews conducted with NCIP RD, he admitted that they have no jurisdiction over the management of the funds received by the IP. The IPRA law respects IPs right to governance according to their cultural methods. The *Mamanwas* respect their tribal leaders and give the decision for disposition of funds entirely to these leaders, without questions. There was an alleged incidence where a tribal leader decides to distribute their funds to close relatives and no complaints were filed. A form of mentoring was suggested but these would step over the legal rights of the ICC/IP and is therefore not allowable. This is construed as the reason why there seems to be no improvement in the social stature of the tribes in the area.

6.1.4. Matrix of findings

The results of the findings based on interviews are listed in Table 7 below. The questions asked of the interviewees during the formal KIIs as well as the comments obtained during the site visits are itemized herewith.

Table 7. Matrix of KIIs and findings in CARAGA region

CRITERIA	CARAGA			
POLICY AND IMPLEMENTATION	PENRO SURIGAO DEL NORTE	CENRO TUBOD	DENR CARAGA	NCIP CARAGA
How has RA 7942 encouraged mining industry? (no. of operating mines, contribution to economy)	Mining interests supposedly hindered the passage of SFMB			
How are policy objectives being implemented on the ground? (compliance with documentary requirements of DENR)	(1) EO 23 exempts mining operations in logging provisions (2) Company complies despite the policy being impractical	On mining company paying the MMT: DAO states that when personnel get tasked outside of his or her duties and responsibilities, requesting party will shoulder per diem.	No standard in complying with the provisions on rehabilitation	NCIP bureaus not replicated in the local level - multitasking and overlapping functions, lapses in technical knowledge are noted
Does the RA 7942 cover all critical aspects of industry, particularly its effects on affected communities and environment?	Yes, but no provision covers shipment of soil nutrients - parcel of mountains shipped to China			
Is there a gap in the policy?	(1) Absence of a policy prohibiting the re-harvesting of planted trees (along with soil nutrients) and protecting planted trees / replacement requirement		While LGUs can craft policies on stopping mining operations, these are still hard to implement since it does not have enough clout to enforce local policies.	(1) The Reorganization of NCIP is recommended (2) Enhancement of administrative issues of NCIP - no more gray areas (3) Delayed policy formulation of

	(2) Should push for processing plant (3) No policy on a mining company controlling smaller partitions (eg Nickel Asia) circumventing the policy?			NCIP in comparison to mining companies' presence in the areas
Are the IRR of RA 7942 clear and concise for companies?				In terms of ICC/IP rights, there is a good working relationship between the company and the communities of IPs since the FPIC was obtained in a systematic manner.
INSTITUTIONAL ARRANGEMENTS	PENRO SURIGAO DEL NORTE	CENRO TUBOD	DENR CARAGA	NCIP CARAGA
Does the mining company have consent from community?				(1) FPIC process - first FPIC guidelines were issued in 2006, the most recent was released in 2012 (2) Between 1995 and 1997, what was being followed is section 56 where existing property regime should be respected and recognized. (3) FPIC also deliberated by the central office. (4) FPIC not necessarily limited only to CADTs, can cover other areas as long as IPs are present

How do mining companies interface with other NGAs?	(1) If there are unavailable lands for reforestation, company must consult CENRO for identification of site within the province (or CSOs) (2) C/PENRO can advise which trees to plant and aid in sites-species matching; planted species prone to forest fire or ineffective in preventing soil erosion			(1) Policy (IPRA Law) is laid out but IPs still at a disadvantage against mining companies (2) Recommend to strengthen indigenous political structure and provide IP organization in charge of the development. (3) IPs sometimes do not want interventions from agencies (4) NCIP coordinates with DSWD and DOH (5) for projects related to IPs
How do mining companies interface with Chamber of Mines and MICC?			The company is a member and its President is a director	
COMMUNITY RELATIONS	PENRO SURIGAO DEL NORTE	CENRO TUBOD	DENR CARAGA	NCIP CARAGA
What is the process of securing consent?	The consent process is left to the NCIP		NCIP was late in releasing guidelines for utilizing royalties for betterment of IP communities. Current practice is to leave the fund with the tribal leader for disposal according to their customs and beliefs. Funds have been found to be used personally and does not benefit the whole community	(1) Any form of agreement is tripartite (NCIPIP-Company) to provide IPs the legal support (2) Requesting agency submits a letter regarding development plans, MPSA and then submits themselves to the process (3) Details of the project is discussed by proponent,

				including benefits and effects on IPs, and then these are drafted for the MOA
What is the benefit sharing arrangement?	IP communities receive 1% from royalty shares		NCIP supposed to leverage IP communities but they also have manpower problems to effectively address problems among communities	(1) Utilization of fund must be aligned with IP's ADSDPP, local planning with guidance of HLURB ensure development of plan, also needs integration and marrying of CLUP with the IP plans and SDMP (2) Advantageous for if community able to formulate ADSDPP - TWG is composed of council of elders, tribal leader, fisherfolks, upland farmers, youth and facilitated by NCIP (3) ADSDPP ranges from immediate needs, 3-year plan, and 5-year plan, has prioritization levels Royalties received usually distributed among sectoral leaders who have jurisdiction over a number of households (has basis for sharing) - pooling of resources are now exercised

What are the benefits, royalties, taxes required from company?	Only 25% comes from permitted mines, many shares are unaccounted for		1% of gross revenue must be given to IP communities	Community royalty development plan (CRDP) more focused on how to utilize royalties from mining companies
What benefits are given by company?			Mining companies give royalties but these are mismanaged by IP communities	
How does the mining company monitor benefit distribution?			Does not monitor; royalties received must be utilized according to ADSDPP	The lack of monitoring has led to misrepresentations and exploitation of IPs (existence of loan sharks, posing as tribal leaders)
ENVIRONMENTAL CONCERNS	PENRO SURIGAO DEL NORTE	CENRO TUBOD	DENR CARAGA	NCIP CARAGA
What safeguards are present to ensure environmental protection before mining operations are conducted? (permits, clearances required)	ECC requires companies to find rehabilitation areas within their MPSA and not on private lands ECC has general guidelines but poor implementation	(1) Must meet three separate requirements: (a) special tree-cutting/earth-balling permit (b) NGP commitment (c) mining rehabilitation (2) ECC in paper has stringent measures	Company needs to secure permits to cut trees within the MPSA Area Endemic trees should be planted	
What rehabilitation plans are in place?	(1) Mining companies reforestation plant trees of no value	(1) Replanting must be done within timberlands and not private lands. (2) Mining companies do not separate planting	Mining companies must rehabilitate mined out areas as soon as the area of operation is declared closed	

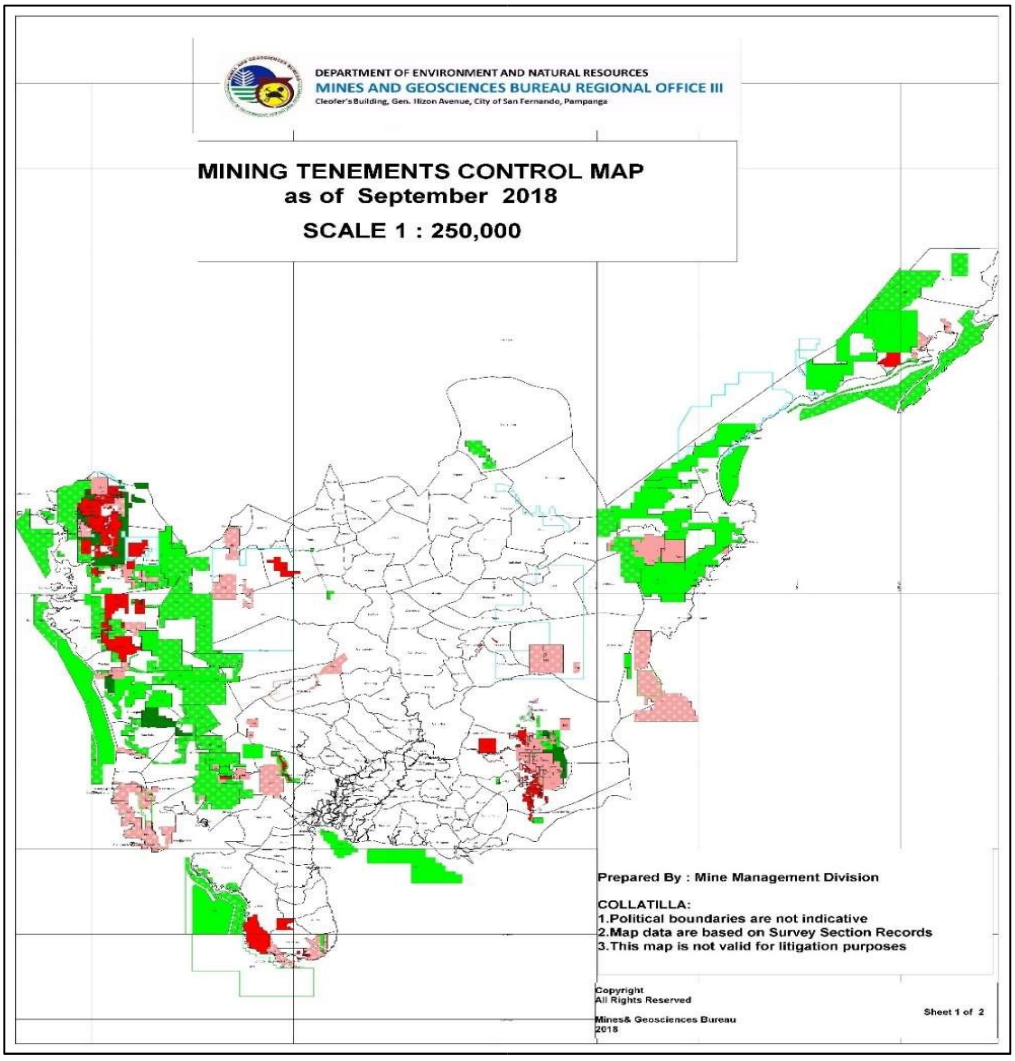
	(2) Site species matching should be practiced by environmental officers Endemic species are stunted in growth because of soil quality	requirements; one reforestation program for all three		
How is non-compliance being addressed?	Large scale miners do not want to waive rights on land for small scale miners, thus small-scale miners have no choice but to resort to illegal mining		Only 30 – 40% of minerals are accounted for. The rest are sold in the black market thus no income for government.	
MONITORING AND EVALUATION	PENRO SURIGAO DEL NORTE	CENRO TUBOD	DENR CARAGA	NCIP CARAGA
Are there existing mechanisms of M&E in place?	(1) EO issued to enable the creation of Illegal Mining Taskforce Challenge (2) Additional mandate on small-scale mining involved death threats usually coming from groups with financiers	(1) Mining companies are obliged to police their own areas. (2) MRFC has no representative from MGB (3) Recommend a singular body for monitoring but it will be difficult to establish (4) One of the provisions written in MPSA provides for the creation of MMT. Every MPSA should have 1 MMT, composed of MGB, EMB	(1) DENR has representation in MMT through CENRO (2) Difficult to have a unified monitoring body due to manpower and multitasking concerns (3) (3) Mining company has representatives in MMT (4) MGB rep in MMT must write monitoring reports	(1) IPO has a regular meeting where they discuss the fund and how it was utilized, submit reports to NCIP (2) 30% of royalties are monitored by NCIP while 70% is flexible - has an account under the IP community (3) Field offices personnel have job mismatch

		representatives, host and neighboring communities, NGO, CSO (5) MMT has no representative from EMB as per recent DAO	(5) No geologist in the team to determine valueadding components in soil	
What is the extent of M&E operations? (compliance to requirements, benefit distribution)	(1) PENRO is a member of MMT and MRFC (2) Enforcement team however cannot enter mining areas to police or monitor without express permit from company so impossible to conduct random visit.	(1) Mine Rehabilitation Fund Committee (MRFC) discussions must be reviewed by MMT and CSOs must look at lapses in monitoring (2) MMT reports compiled by the CENRO	Not all companies submit MMT reports to regional office	
Does the audit, monitoring reports reflect accuracy of realities on the ground?		In some ways, Gina Lopez' leadership supposedly helped DENR be recognized by mining companies		
What indicators are being looked at the auditing and monitoring?		Water and Air quality are particularly checked		
To what extent are the penalties sanctioned? (not allowed to operate/fines)		Fines are too small		

6.2. Case Study 2: The Central Luzon region

An interesting case was observed in the Region where all mining companies in a particular province has been suspended for the past three years due to environmental infractions as inspected by the MGB and the EMB. Figure 20 shows the mining tenements in the region and the clustering of mineralized areas as green areas while operational mines are in pink and suspended mines are in red.

Figure 20. Mining tenements map of Region 3



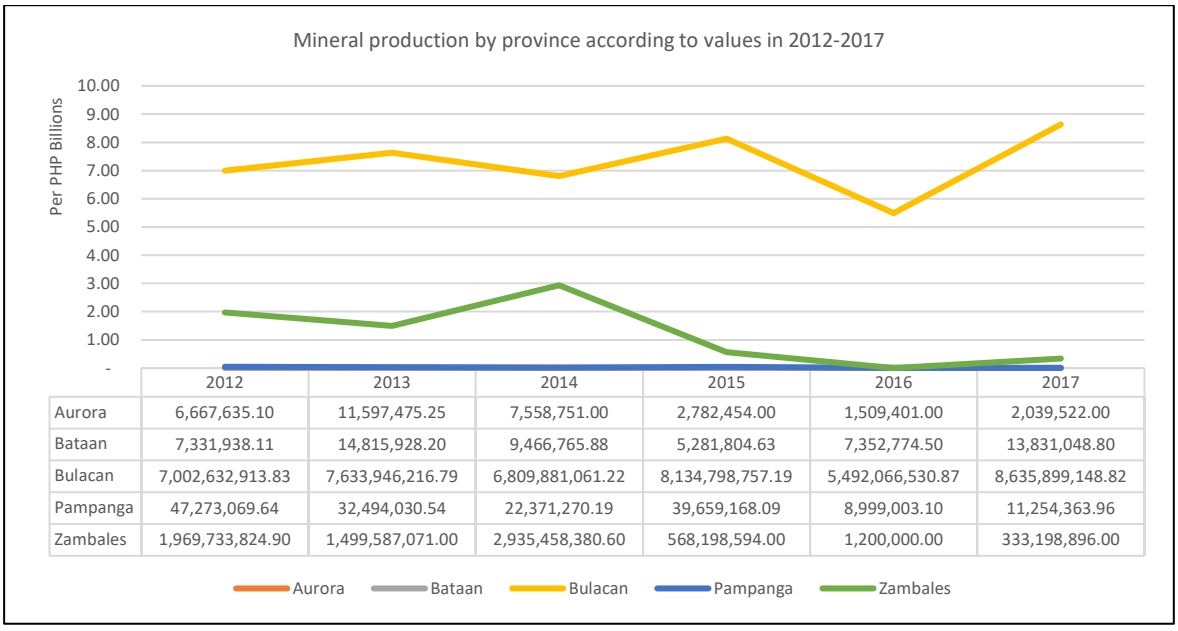
The suspension order for the four major nickel mines in Zambales province was a result of a conflict between the town mayor, the provincial governor, and the officials of the mining companies.

6.2.1. Economic benefits

The mining areas in the region are concentrated in Zambales and Bulacan with minimal contributions from Aurora, Pampanga, and Bataan. Bulacan is host to several cement companies and sand and gravel operations which are still considered as mining. In effect, Zambales is the only province with a host of mining operators. There is no established IP group in the area which simplifies matters for the mine operators. The four major mining companies have formed the Zambales Alliance to assist the MGB in the management and control of issues both environmental and social in nature.

The economic benefits derived from mining in the region is shown in Figure 21 below, where the figures show that the Zambales region has been doing very well in 2012 - 2014 with the EO 79 of 2012 facilitating the permitting process through the One-Stop Business permitting process of DENR. Direct shipment of nickel laterite ores was at an all-time high, thus pushing mineral production to the billions of pesos level. With the stricter enforcement of environmental concerns in DAO 2015-02, direct shipping went down particularly when the mines were suspended for environmental violations. These mines remain closed but were permitted to continue shipping ores from collected stockpiles. In 2016, however, when then Sec. Gina Lopez was at the helm of DENR, the environmental violations required a complete halt in operations, accounting for the steep drop in revenues. At the present, the mines are still closed but have come up with compliance processes to address the environmental issues and are waiting for the go-signal to proceed.

Figure 21. Mineral production in Region 3



	2012	2013	2014	2015	2016	2017
Aurora	6,667,635.10	11,597,475.25	7,558,751.00	2,782,454.00	1,509,401.00	2,039,522.00
Bataan	7,331,938.11	14,815,928.20	9,466,765.88	5,281,804.63	7,352,774.50	13,831,048.80
Bulacan	7,002,632,913.83	7,633,946,216.79	6,809,881,061.22	8,134,798,757.19	5,492,066,530.87	8,635,899,148.82
Pampanga	47,273,069.64	32,494,030.54	22,371,270.19	39,659,168.09	8,999,003.10	11,254,363.96
Zambales	1,969,733,824.90	1,499,587,071.00	2,935,458,380.60	568,198,594.00	1,200,000.00	333,198,896.00

No data on actual taxes remitted to both the national and local government were available at the time of the study.

6.2.2. Socio-environmental issues

In terms of environmental compliance, a lot of problems were encountered in Region 3 but as of January of the current year, most of these have already been addressed. Due to the direct

shipping of ores from the minesite to the port, mine trucks had to pass through several small towns. Some of the reported environmental issues involved air pollution caused by the dust trails from these trucks; mud tracks in major roads from the tire tracks; very fast driving in towns causing safety issues particularly for schoolchildren at the school in the direct path of the trucks; barren land areas; groundwater quality deterioration, and river water quality deterioration. Most of these were reportedly addressed by the mine operators themselves by working with the DENR and the people themselves to ensure that the environmental clean-up would be sustainably done. The street sweepers were employed by the companies; trucks were scheduled during off-hours to avoid accidents; water quality monitoring was done regularly; and siltation ponds were improved.

The SDMP component for the community is non-existent since there were no operations for the past three years, although the 5-year SDMP plan should have been in place, with funding carried over from previous unused SDMP funds.

Some of the environmental problems found involves the denudation of the forest areas, although the mine operations claim that the area is not really classified as a forested area. Pictures in the following pages show the condition of the mine during and after the three-year suspension period.

Most of the mined-out area have been replanted with trees but the growth is stunted with some not growing tall and others not getting enough foliage.

Part of the SDMP being developed is the forming of vegetable gardens and solid waste management, where fallen trees, kitchen waste, rotten trees and barks, and other biodegradable materials are collected and used as compost for the vegetable garden. Coffee beans are being tested for compatibility to the soil. Several fruit trees such as santol, mango and other exotic fruits are also being tested.

An issue currently coming up is the funding for the SDMP while the company is under suspension. Since the company is suspended, operations are halted and operating expenses are not downloaded. SDMP funds come from a percentage of the operating cost therefore, there are no funds available for SDMP. A skeletal force is still being maintained by the company to oversee rehabilitation procedures. Because of this, the community demanded for a share in SDMP since the personnel compensation are construed as operational costs. The issue is currently under dispute through the Mining Adjudication Board since the company does not want to shell out funds at this time. There is no clear guide in the law on what happens in this type of cases.

In Table 8, the key issues discussed with pertinent agencies are listed. A tour of the area was given since most of the mines were not operational. Several sections of the mining site were looked at such as the nursery, the mined out area, and the rehabilitated area. The last area, while referred to as a rehabilitation site, was not completely replanted with trees. Apparently, the same area still contains minable ore reserved when metal prices rise. Thus, it is implied that mining is not terminated in the area

Table 8.Matrix of KIIs and findings in Region 3

CRITERIA	PAMPANGA			
POLICY AND IMPLEMENTATION	NCIP	MGB	EMB	COMPANY A MINERALS
How has RA 7942 encouraged mining industry? (no of operating mines, contribution to economy)		(1) All lands are open to mining applications (Section 15, DAO 2010-21 upon clearance of the agency. (2) Such provision will still be aligned with other policies (NIPAS, Forestry Code) with the discretion of agencies	DENR bent on following environmental laws, led to suspension of mining companies	Directly shipped ores but without legal institutional process (2) Mining company was suspended for unsystematic mining for two years now

How are policy objectives being implemented on the ground? (compliance with documentary requirements of DENR)	(1) Self-interest comes first in policy implementation. (2) Lack in resource complementation, depend on external assistance (PAFID - Philippine Association for Intercultural Development). (3) Historically, NCIP came from OMACC which copied it structure-wise. (4) A need to prioritize technically-capable personnel. (5) Recommended also to have a one-strike policy where personnel is out of service when he/she commits a misdeed	(1) Agreements are contract between the state and the contractor (Republic of Philippines as represented by DENR). (2) Mining companies are not allowed to have any activity outside of their tenements. (3) Mining application also involves mining explorations, a group of varying applications. (4) Exploration permit -> mineral production permit. (5) No case of filled-in open pit mines since there are no materials/land left for filling in	(1) No more limits imposed for dredging/desilting (before, if more than 74,000 MT per annum, would need to pass through Central Office) according to DAO 2014-05. (2) Need to amend volume for requirements of ECC - might give tendency for leakage	(1) No tree cutting permit due to (corruption) from the providing agency. (2) Have stockpile but currently in stand-by due to suspension (3) Earth-balling not effective even for seedlings

Does the RA 7942 cover all critical aspects of industry, particularly its effects on affected communities and environment?		(1) Information on mining is lacking, particularly on technical aspects - economic aspects, siltation and river discoloration are natural. (2) Cannot determine exact contributions of companies to siltation due to many contractors in an area (boundaries in common access) (3) Recommended if cooperative silt drops are possible	(1) DAO 2017-15 - before issuance of ECC, there will be a public hearing.	Yes and it focuses on the funds generated for the government
Does the RA 7942 cover all critical aspects of industry, particularly its effects on affected communities and environment?		(1) Information on mining is lacking, particularly on technical aspects - economic aspects, siltation and river discoloration are natural. (2) Cannot determine exact contributions of companies to siltation due to many contractors in an area (boundaries in common access) (3) Recommended	DAO 2017-15 - before issuance of ECC, there will be a public hearing.	Yes and it focuses on the funds generated for the government

		if cooperative silt drops are possible		
Is there a gap in the policy?	(1) For IPRA, there is an unclear provision on CADTs/AD within economic zones (eg Subic Bay Management Area). (2) Many vague provisions, prone to interpretation. (3) Recommended to have an audit mechanism to the IP communities, the IPs are recognized by law to be empowered. (4) According to NCIP, as long as IPs declare it is an AD, companies will go through them. (5) Recommended to have a political structure for community consent	(1) No holistic approach in approving mining operations. (2) Misconceptions on mineral reservations - why the need to declare when companies were also allowed to mine in nonmineral reservations. (3) Political insulation is also an issue.	Legal support recommended by EMB to be augmented with a legal division (permanent and under regional office)	Mining companies not insulated from political influence and corruption. Undervaluation of extracted minerals - ores have other minerals like chromite and rare earth but were not valuated
Are the IRR of RA 7942 clear and concise for companies?		No mineral reservations before as discussed in the IRR but were now included.		

INSTITUTIONAL ARRANGEMENTS	NCIP	MGB	EMB	COMPANY A MINERALS
Does the mining company have consent from community?		Endorsement from LGU not reflective of consensus of community.	(1) EMB conducts survey of IP communities to identify outsiders. (2) EIA includes scoping conducted by proponents so they could identify issues and concerns of the community, followed by public hearing.	
How does mining companies interface with other NGAs?	(1) Complaints of community go through NCIP.	Contradictory to DENR's mandates to have a bureau that promotes extraction. NGAs have the discretion to provide clearance to mining applications in respective lands (e.g. military reservation, timberlands)	(1) No certification with incomplete documentation of clearances from other agencies. (2) recently issued DAO 1018-18 integrated CENRO/PENRO with the operations of EMB. PEMU lacked staff. They also have monitor functions. (3) A sit-in with the LGU's respective land use plan. (4) Risk assessment should be conducted by the community	Mining companies establish a mutual relationship with NGAs especially DENR. They also interface with other mining companies - areas where there are higher grade ores, ways to circumvent political pressures

			especially those affected by mining operations - strategic EIA. No standards involved in formulation of land use plans.	
How do mining companies interface with Chamber of Mines and MICC?				Chamber of Mines more on organizing events to address concerns on mining but no tangible institutionalization
COMMUNITY RELATIONS	NCIP	MGB	EMB	COMPANY A MINERALS
What is the process of securing consent?	(1) NCIP only intervenes when the area for development is under an approved CADT. (2) All applications for FPIC go through NCIP and other concerned regulating agencies. The regulating agency passes the application to NCIP and submits it to the field offices for investigations whether the project is inside and outside of the ancestral domain. (3) Consent depends on the person/s identified by their culture as their decisionmaker on their		(1) IPs declare ownership over lands outside of their domain. (2) Inter-tribal competition and arguments block the operations. (3) Communities also burdened with environmental impacts from companies (traffic, air pollution, muddy roads) (4) LGU is aware of how crowded their jurisdiction is - can take the initiative to stop the operations	

	behalf (eg council of elders, tribal leaders). (4) NCIP looks at the contract between the company and the IPs and determine whether these is advantageous for the community or not (via suggestions) (5) Benefits are given based on the contract and must go through the NCIP central			
What is the benefit sharing arrangement?	(1) NCIP has no role in benefit distribution among IP communities. IPs are in charge of royalty distribution and utilization. (2) No basis on determining political structure of IPs and they also migrate to other places. (3) NCIP does not intervene in negotiation in benefits. (4) 30% of royalties must be utilized by IPs for social services. (5) Recommended to have a complete enumeration of stakeholders for the full consent			

What are the benefits, royalties, taxes required from company?	Since the end product of FPIC is contract, whatever benefit is written there will be provided by the company and received by the community.	Expansion of mineral reservations will increase royalty payments (5%) and excise tax (4%). (2) 1.5% of operating costs for SDMP		
What benefits are given by company?	IPRA made it arbitrary for the distribution of benefits within community			(1) Internal farms and production can be turned over to the community for livelihood alternatives - also recommended vineyard (2) Cannot absorb all people from communities. During peak seasons, company can employ 600 people but during lean seasons, 180 with 90 regular personnel
ENVIRONMENTAL CONCERNS	NCIP	MGB	EMB	COMPANY A MINERALS
What safeguards are present to ensure environmental protection before mining operations are conducted? (permits, clearances required)		(1) Companies tend to blame one another due to excessive siltation - difficult to determine who is most accountable. (2) Proposed DAO to ensure companies rehabilitate areas they operated on. (3) Mining companies move according to	(1) EMB-3 not issuing ECC as per directive of Sec Cimatu. (2) Will need supporting documents from MGB, LGU before ECC issuance (MGB for area clearance, DPWH for dredging, mining ECA, clearance NCIP). (3) More than 20 ha area and production capacity is more than 75	(1) Salvage permits given for dying trees

		economic opportunities - reason for shifting in areas	- ECA; below 75 and 20 ha- ECC. (4) Online application of ECCs have thresholds, must secure a certificate of non-coverage. Has screening officer of the day, categorizes the application as per the DAO, should only be processed for 21 working days. Requiring of additional information stops the clock. 5000 filing fee. (5) ECP from Central office=120 days	
What rehabilitation plans are in place?		Companies do not declare that lands are mined out already so they can avoid rehab activities		(1) Supposed to replace one cut tree to 100 trees but only for tree cutting permits. (2) Despite being suspended, Company A still has active mine areas. (3) Planted species - kasuy,lemongrass (tanglad) (4) Rehabilitation more on secondary succession, minimal pioneer species. (5) Company built a drainage belt for runoff and erosion (6) Made a mistake in replanting trees

				during summer season - spent a lot for water (7) Initiative of company to leave waterways and falls unperturbed with mining activities (8) Planted trees also fall to forest - difficult for full growth (9) Company does not disturb areas with rich vegetation (low mineral)
How is non-compliance being addressed?				Since tree cutting permit is absent, company 'avoids' the trees. (2) Nearby mining company have bad environmental practices, has higher grade of minerals compared to Company A
MONITORING AND EVALUATION	NCIP	MGB	EMB	COMPANY A MINERALS
Are there existing mechanisms of M&E in place? (MMT)	There are instances where process of consent by tribal leaders are documented, some are not. Reflected in the resolution of the community to identify them as leaders.	Barangay captain can stop mining operations with recommended actions from MGB (Writ of Kalikasan). Arbitrary checks in place	(1) Central office does the approving of ECCs but regional offices do the monitoring. (2) 10 days given for field validation in reviewing ECC applications. (3) Ambient air monitoring systems in place in Zambales. (4) Regional office proposing programmatic approach for EIA.	CENRO only gives out salvage permit for dying trees in areas with no tree cutting permits.

			(5) EMB heads sectoral while MGB heads the MRFC. (6) Strengthening of municipal and city ENROs is recommended - region attempts to work together. (7) More cost efficient for government to have a composite team. (8) EMB ready to provide a second layer of monitoring outside of MMT	
What is the extent of M&E operations? (compliance to requirements, benefit distribution)			(1) Gina Lopez removed EMB from MMT. Presently in discussion to return it to the team. (2) EMB relegated to observing status - completely removed in the region. (3) EMB made companies built a watch bay and bridge as alternative road (outside of DPWH) and to avoid communities. (4) EMB Sec aware of manpower gap in the field, designated	(1) MGB visits monthly while MMT visits quarterly.

			environment and mines unit similar to CENRO level. (5) Monitoring mechanisms improved with digital advancements	
What are the mining standards followed presently by mines within PH?		(1) Difficult to create a Philippine Mining Standard for audit. (2) Australian standards being followed by PH but these were made within deserts		
Does the audit, monitoring report reflect accuracy of realities on the ground?		(1) Inputs at the end of studies/audits are varying. Standards in audit cause varying perspectives (government versus third party protocols)		

6.3. Summary

As a summary, Table 10 shows the various issues taken up and the responses from the visits, substantiated with ocular inspections, personal interviews, and group discussions. Visits to other regions have been included in the summarization presented.

Table 9. Summary of findings

TARGET	OUTPUT METRIC	REGION 3	REGION 13
Economic contribution national coffers	% increase in GDP contribution in post-PMA period	No indication of change is apparent because of the suspension order starting in 2015. A sharp decline in gross output materials was noted. An increase in	Although the % contribution of mining is still at the 0.6 to 0.7% in the past three to five years, the economic contribution to the LGUs have placed the communities represented in a better financial status over their neighboring localities.
	Smoother processing of permits and applications	Long waiting time for release of permits was accompanied by an alleged request for a sizable sum to facilitate the process	No problems with permitting processes
	Higher foreign investment	No evidence due to uncertain mining conditions from current political leadership	
Poverty alleviation in host barangays	Lower % of families below poverty level in the post-PMA period	No data available	Particularly in the mining town of Carrascal, a previous study by Bantay Kita shows that the host communities who benefitted from the SDMP funds from mining were actually poorer than the neighboring communities with more children dropping from school as an indicator of poor

			management of the funds.
More meaningful SDMP projects/improvement of lives for the communities	Project benefits to community	Additional income from livelihood projects supplemented the household income but no actual numbers were made available.	Community visited validated the claim that better living conditions have been enjoyed by more households with the change of management for the SDMP from the previous MGB RD to the current RD because of changes in implementation rules. Stricter rules on SDMP plan preparation is currently being imposed
ICC/IP conditions improved	Living conditions for IPs improved	No data available	Although no Mamanwas were visited, a close relationship between the company (through the /community Relations Officer) and the IP leader has opened communication and most of the needs of the community are addressed not only through the SDMP but also through the company CSR.

7. Conclusions and Recommendations

Through the various instruments used in determining the current state of the mining industry, the following questions were put forward for consideration.

Should there be a total ban on mining or should the ban on open pit mining be continued in particular?

Although the financial contribution of the industry seems to pale in comparison with other industries such as manufacturing, its material value can be only be realized in the products after processing. "Living in a material world" is a phrase aptly coined to support the industry's value to the world. In this case, however, the lack of proper extractives industries to go forward towards processing the mined ores puts the Philippines at the bottom of the ladder in terms of gains from mining. It should be well noted that production from the larger mines which have extractive processes coupled with mining have been producing higher valued export materials and should be encouraged. Copper mining, which has been in place much longer than nickel, currently includes gold and silver as high-valued by-products of the extractives industry. Smelting which is being done in the country also produces Selenides and tellurides which add to the cost of the product.

Further, the total ban on mining would probably not be effective in the country because of political influences which greatly affect the way business is conducted. In the case of some mines in Region 3 which have been suspended since 2015, the MGB financial report for 2015 to 2017 still shows values in export minerals from the region under the claim that permits for shipping out stockpiled materials given.

Implied political influences in government transactions, as well as alleged weaknesses in the DENR implementation of rules and regulations also contribute to leakages in the system. The issuance of new EOs strengthening policies will not be a deterrent if the government staff do not really espouse the idea of change in their attitudes and ethical behavior.

Finally, a total ban in mining does not really address the environmental problems which have already been caused by the activities of the past. With the total ban, a weaker corporate structure for the mining contractors may be used as reason for a more lenient compliance to regulations rather than the current higher standard procedures currently being followed. Most of the contractors have chosen to use the Canadian Mining Standards as baseline for their operations. Although this requires a lot of changes to suit the local environment, it is stricter compared to current audit procedures. The MGB is also leaning towards adopting the same standards for their audit but it would be more appropriate to coordinate with the Bureau of Product Standards of the Department of Trade and Industry in crafting a Philippine National Standard for the Operation of Mining Operations.

Does the Mining Act of 1995 adequately address the objective of pulling in investors to push Philippine economy upwards?

The provisions of the law are deemed adequate as noted by the key players in industry, government agencies, and the supporting organizations looking after the welfare of the environment. Stringent application of the provisions of the mining act

It is to be noted, however, that despite the well-established policies in both the law and the ensuing IRRs of 2010, 2012 and 2015, bureaucratic processes still cause delays particularly in permitting. The establishment of the one-stop permit process has not been fully grounded

particularly outside of the central office and as such, political influences and opportunities for graft and corruption come to play in the various stages of the permitting process, from securing the FPIC to preparing the ECC and EIS. The IRR directive on providing consistency between LGU directives and the Constitution as well as RA 7942 has not taken off on the ground and remains a bone of contention between the LGU and the mining contractor. These issues have had a negative impact on foreign investment.

The increase in foreign participation to 100 percent exposes the Philippine economy to vulnerability particularly in the current political climate. The unpredictable decisions on current issues in the industry has already caused some investors to pull out. Without proper implementation of laws, investments are not expected to come pouring in.

Are the needs of the community and the ICC/IPs being addressed adequately?

Based on the financial data collected for the past three years, the financial benefits which trickle down to the province, the city/municipality, and the barangays are substantial and would have been enough to improve the quality of life of the residents affected. While some communities have handled their funds well with the proper guidance from concerned authorities, some have not had the benefit of proper guidance causing a failure to come up with meaningful programs for the social development of the population. This would have been properly addressed by strictly complying with the rules and regulations put forth in the ensuing IRRs from the DENR. It would be well appreciated if the best practices or protocols from any region or office be cascaded to all for the sake of uniformity and ease of transactions in the concerned agencies.

The NCIP has a huge hole to fill with the current inadequacies in logistics support from the government. It is therefore recommended that proper manpower be supplied to the NCIP offices for them to carry out their tasks efficiently and timely. Delayed policy approvals have also caused delays in the receipt of benefits by IPs and should thus be avoided. On the matter of audit for finances received, it is suggested that proper preparation and guidance be given prior to the release of funds such that even without a formal audit, disbursements can be tracked and funds properly accounted. Meanwhile, with the backlog in personnel, issuances from NCIP can be harmonized such that a single protocol for permitting can be followed and duplication of requirements can be minimized.
On the side of the DENR, policies on mining as stated in MGB memoranda and DAOs should be thoroughly studied vis-a-cis related policies on forestry management from FMB and environmental management from EMB so that no duplications or gray areas are encountered. These gray areas sometimes leave the mining operator vulnerable to graft practices to facilitate the process, e.g. permitting. It would therefore be to the best interest of the agency to conduct a coordination session with these bureaus for the smooth processing of requirements as intended by the various DAOs and Eos on one-stop permitting processes.

Are there adequate rules in place to protect the environment and sustainably develop resources with the proper monitoring and controls in place?

Environmental degradation is inevitable where mining is concerned, whether in open pit or underground mining. Both mining systems require the extraction of ore from the ground and are deemed to cause environmental damage. RA 7942 has focused on funding for properly addressing the issues as they are encountered. The importance of rehabilitating mined out areas

as soon as they are closed, and before starting off with new ones, emphasizes the need for protecting the community from the natural disasters which may occur due to the bare mountains. Slope degradation, soil erosion, and landslides are largely attributed to the noncompliant mining companies. Communications and proper coordination with other concerned bureaus of the DENR should be strengthened to put into place thorough protection for the water, the forests and endemic flora and fauna. Orienting the mining contractor on how to put in place adaptive plant species can eventually attract different animal and bird species to bring back balance in biodiversity.

Transparency in monitoring and controls needs to be emphasized to avoid finger-pointing at the expense of lives lost. The appointment of more technical personnel and the proper orientation on the objectives and the conduct of the MMT should be pushed. Since the funding for the MMT is part of the obligation of the mining contractor, care should be taken to show that the members of the MMT are working independently and no undue influence from the company is experienced.

Finally, it is strongly recommended that a stronger push towards standardization of responsible mining practices and proper audit methods be established through a national standards body. Adaptation of foreign standards fail to take into consideration local conditions and culture, causing a huge disconnect when it comes to social and cultural considerations. The formulation of a national standard for mining should take into consideration the triple-bottomline and should involve representative stakeholders who are expected to contribute rather than hold back the industry.

8. Bibliography

Akabzaa, T., 2004. African mining codes: a race to the bottom. African Agenda 7(3):62-63.

Akerman, R., 1998. Is mining compatible with sustainable development? A World Bank perspective. International Council on Metals and the Environment (ICME) Newsletter 6(2).

Azapagic, A. 2004. Developing a framework for sustainable development indicators for the mining and minerals industry. Journal of Cleaner Production 12:639-662.

Azapagic, A., and S. Perdan, 2003. Corporate social responsibility: translating theory into business practice. Corporate Environmental Strategy 10:97-108.

Ballard, C., and G. Banks (eds), 1997. The OK Tedi settlement: Issues, outcomes and implications, National Centre for Development Studies and Resource Management, Canberra, Australia.

Bebbington A., 2014. Socio-environmental conflict: an opportunity for mining companies. Journal of Cleaner Production 84:34.

Daily, B. F. and S.C Huang, 2001. Achieving sustainability through attention to human resource factors in environmental management. International Journal of Operations and Production Management 21(12): 1539-1552.

DAR-DENR JAO-98-03 Guidelines governing the cutting, removal and disposition of timber and other forest products within DAR settlements. www.policy.denr.gov.ph/1998/denr0darjointadminorder98-03.pdf Accessed July 8, 2018

DENR DAO 2010-21 Revised Implementing Rules and Regulations of R.A. 7942, otherwise known as the Philippine Mining Act of 1995. http://www.mgb.gov.ph/images/stories/CDAOFinal.pdf Accessed July 8, 2018.

DENR DAO 2000-98 Mine Safety and Health Standards, http://www.mgb.gov.ph/images/stories/DAO_2000-98.pdf Accesses July 28, 2018.

DENR DAO 2015-07 Mandating Mining Contractor to Secure ISO 14001 Certification. https://www.bantaykita.ph/current.html Accessed July 28, 2018.

Dubinski, J. 2013. Sustainable development of mining and mineral resources. Journal of Sustainable Mining 12 (1):1-6.

Executive Order (EO) 79 Institutionalizing and Implementing Reforms in the Philippine Mining Industry. www.bantaykita.ph/current.html Accessed July 28, 2018.

Fonseca, A., et.al., 2012. Sustainability reporting among mining corporations: a constructive critique of the GRI approach. Journal of Cleaner Production 84:70-83.

GMI Global Mining Initiative, 2002. http://www.globalmining.com/index.asp Accessed July 29, 2018.

Han Onn, A., and A. Woodley, 2014. A discourse analysis on how the sustainability agenda is defined in the mining industry. Journal of Cleaner Production 84:116-127.

Hirons, M., G. Hilson, A. Asase, and M.E. Hodson, 2014. Mining in a changing climate: what scope for forestry-based legacies? Journal of Cleaner Production 84:430-438.

Hodge, R.A. 2014. Mining company performance and community conflict: moving beyond a seeming paradox. Journal of Cleaner Production 84:27-33.

IMA-Europe. Sustainability indicators for the industrial minerals sector. IMA-Europe, Brussels, January 2002. http://www.ima-eu.org

Initiatives for Responsible Mining Assurance (IRMA). 2018. Standards for responsible mining, https://responsiblemining.net/2018/06/28/new-standard-for-responsible-mining-released Washington DC, USA. Accessed July 28, 2018.

Laurence, D.C., 2011. Establishing a sustainable mining operation: an overview. Journal of Cleaner Production 19:278-284.

Laurence, D.C., M. Carr, R. Svotwa, 1998. Environmental protection and its employment effects on miners in small and Artisanal mines in Zimbabwe. ILO Geneva Industrial Activities Branch.

Learmont, D. 1997. Mining must show that it is sustainable. Mining Engineering 49(1):11-12.

Mendoza, Ronald U. and Canare, Tristan, Revenue Sharing in Mining: Insights from the Philippine Case. Modern Economy 4:520-534. http://dx.doi.org/10.4236/me.2013.48056 accessed Aug. 8, 2018.

Moran, C.J., S. Lodhia, N.C. Kunz, and D. Hulsingh, 2014. Sustainability in mining, minerals and energy: pathways and human interactions for a cautiously optimistic future. Journal of Cleaner Production 84:1-15.

Mudd, G.M., 2010. The environmental sustainability of mining in Australia: key mega-trends and looming constraints. Resource Policy 35(2):98-115.

NCIP DAO-1998-01 Implementing rules and regulations for RA 8371. National Commission on Indigenous Peoples, www.wipo.int/edocs/lexdocs/en/ph/ph083en.pdf

NRCan. Minerals and metals indicators. National Resources Canada. http://nrcan.gc.ca/mms/mmi/mmie.htm Accessed July 30, 2018.

PD 705 Forestry Reform Code of the Philippines www.forestry.denr.gov.ph/pdf/pd705.pdf accessed July 10, 2018.

PD 1899 Small Scale Mining Act of 1984 www.mgb.gov.ph/images/stories/PD_1899.pdf accessed April 12, 2018.

Philippine Extractives Industry Transparency Initiative (PH-EITI), 2016. The Fourth PH-EITI Report (2015-2016). https://eiti.org/sites/default/files/documents/the-fourth-ph-eiti-report.pdf Accessed October 1, 2018.

PSA Philippine Statistics Authority 2013. Mining of non-ferrous metals. http://psa.gov.ph/sites/default/files/attachments/itsd/specialreleasr/table1.1pdf Accessed October 31, 2018.

Ranängen, H., and T. Zobel, 2014. Exploring the path from management systems to stakeholder management in the Swedish mining industry. Journal of Cleaner Production 84:128-141.

RA 7076 Peoples Small Scale Mining Act of 1991, www.denr.gov.ph/basicpol/mincode/ra7076.pdf accessed April 10, 2018.

RA 7942 Philippine Mining Act of 1995 www.mgb.gov.ph/images/stories/RA_7942.pdf accessed April 12, 2018.

RA 8371 Indigenous Peoples Rights Act of 1997 www.lawphil.net/statutes/repacts/ra1997/ra_8371_1997.html accessed July 8, 2018.

Ruggie, J. G., 2007. Business and human rights: the evolving national agenda. American Journal of International Law 101:819-840.

Shen, L., K. Muduli, and A. Barve, 2015. Developing a sustainable framework in the context of mining industries: AHP approach. Resources Policy 46:15-26.