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Disclosure Practices of Listed Philippine Mining Companies, 2006-2010

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The paper examines the disclosure practices of seventeen listed mining companies in the Philippines focusing on two frameworks: mineral and financial reporting. A comparative study of the annual reports of listed mining companies is performed from 2006 to 2010. The period of analysis is significant following major developments in public reporting. Chief among them is the implementation of the Philippine Financial Reporting Standard 6 in 2006 and the adoption of the Philippine Mineral Reporting Code in 2007. The findings indicate reduced comparability as a result of: (1) non-compliance with the mineral reporting code; (2) non-disclosure of mineral assets; (3) varying treatments of exploration and evaluation costs; and, (4) inconsistent mineral and ore category definitions as a result of weak integration between the frameworks. These public reporting issues prevent meaningful assessment by users undermining investment attractiveness and the ability of mining companies to communicate their performance and potentials.

Keywords: mining, disclosures, mineral reporting, financial reporting, Philippine mining companies

1 Introduction

Mining is a trade fraught with risks. It is characterized by substantial levels of investment stretch out for long periods of time in activities that are highly uncertain. Mining is different from most businesses because knowledge of the product is essentially based on estimates, with the orebody itself as the dominant source of risk (Snowden et al., 2002). Companies may spend millions on exploration only to find out that variables such as development and production risk, changing technology, time horizons, market risk, and the legal and political environment render the project uneconomical (Cortese et al., 2009a). The diversity and complexity of risks in extractive operations are described by Wise & Spear (2002) as being endemic to the industry. These could very well be the reasons why mining in the Philippines shrunk to just 0.7% of GDP in 2008 from its peak in 1985-86 (Mines and Geosciences Bureau, 2012; Wallace Business Forum, 2003). In recent periods, the industry saw a revival thanks to incentives[1] from the Board of Investments and the Supreme Court ruling[2] allowing full foreign ownership in local mines. With these developments, mining stocks benefited from improved turnovers but these also meant increased volatility for firms in an industry that is intrinsically risk-driven.

Efficient mining is effectively about managing risk (Dominy et al., 2004). Franklin (2005) posited how risks act as a strong driver in the creation of enforceable, semi-legal systems in technical fields such as banking (Basel II) and accountancy (Philippine Financial Reporting Standards, PFRS). For listed mining firms, regulatory systems on mineral disclosure and financial reporting predominate. Compliance with the former is necessary with the adoption of the Philippine Mineral Reporting Code (PMRC) in 2007. Guidance for financial reporting, on the other hand, continues to evolve. PFRS 6, *Exploration for and Evaluation of Mineral Resources*, took effect in 2006. It seeks to address issues relating to mine exploration and evaluation activities. There is, however, a lack of accounting standards that comprehensively deal with industry reporting needs.

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1 The Board of Investments includes Mining in its Annual Investment Priorities Plan (IPP) as mandated by Republic Act (RA) 7942 or the Philippine Mining Act of 1995. Industries in the IPP can avail of fiscal and non-fiscal incentives such as income tax holidays, duty free importation of equipment, and the employment of foreign nationals, among others.

2 In December 2004, the Supreme Court upheld the constitutionality of RA 7942 (G.R. No. 127882), paving the way for full foreign ownership in mining companies in the country. It also ended years of uncertainty on the participation and rights of foreign entities in the sector.

2 Objectives of the Study

The need for a consistent and reliable approach to public reporting becomes increasingly important with a renewed focus on the industry. Information gaps resulting from constrained reporting standards, however, threaten the newfound interest. On this basis, the paper looks into the reporting practices of listed mining companies. The focus is on mineral disclosure and financial reporting. Specifically, the paper:

1. Examines compliance with the salient features of the PMRC in summary reports on Mineral Resources and Ore Reserves that are reflected in corporate annual reports;
2. Examines compliance with PFRS 6 and disclosures on mining assets in the financial statements, particularly on amortization and depreciation; and,
3. Assesses how the absence of accounting standards in the reporting of mineral assets impacts disclosure in the financial statements.

A review of related literature follows. The method of the study and profile of listed mining firms are presented in the ensuing section. A comparative study of mining companies is integrated in the discussions to validate the assertions made. Lastly, conclusions are drawn.

3 Literature Review

Public reporting in mining companies is diversity in action. Despite the early and repeated recognition of a need for a standardized approach (Cortese et al., 2009a; Weatherstone, 2000), the industry subscribes to a patchwork of conventions. This is due to the separate evolution of the two frameworks, mineral disclosure and financial reporting. The dilemma is one of convergence. There is no internationally agreed set of definitions for mineral resources and reserves or a global standard governing their classification and reporting (PricewaterhouseCoopers, 2007). In its comparison of mineral reporting practices and accounting policies, the International Accounting Standards Board (IASB, 2008) concedes that some differences seem to be attributable to the fact that the definitions were developed and updated independently of each other.

Early initiatives in mineral reporting saw most countries creating their own standards. There was, however, no attempt for a reporting framework that will transcend international boundaries (Stephenson, 2000). Since the implementation of the Australasian Joint Ore Reserves Committee (JORC) Code in 1989 and the creation of the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) in 2002, advancement was made towards standardization. Emphasis was placed on enhancing comparability and compatibility of terms and their definitions; later, on a requirement for 'competent person(s)' to estimate and sign off on resources and reserves in a public report (McKay, Lambert, & Miskelly, 2001).

Miskelly (2001) observed 'accelerated progress' in the harmonization of mineral reporting standards. In a study, Vaughan and Felderhof (2002) noted the similarities and differences in their comparison of mineral reporting codes. Minor differences were seen among the reporting codes of Australia, Canada, Western Europe, and South Africa as these are CRIRSCO-compliant. Similar comparisons by Stevens (2003), and Rendu and Miskelly (2001) validated the said findings.

CRIRSCO reporting is not without criticisms. For one, the boundaries between resource classes are flexible. This contrasts with the Russian system where the transfer between categories is decided on much more objective criteria (Henley, 2004). The scrutiny invariably shifts to the heavy reliance placed on competent person(s) and the absence of an exact methodology in the analysis. As Kapageridis (2007) notes, the reporting code does not regulate estimation methodology. It is up to the person responsible for the resource estimation to choose and configure the appropriate technique. Disclosure policies in the United States, on the other hand, deviate from the rest. The Securities and Exchange Commission (SEC) mandates strict compliance with its own standard, Industry Guide 7. Its main purpose is to safeguard the investing public (Abbott, 1985), which explains the atypical mineral reporting categories in its guidelines. However, Ellis (2002a, 2002b) calls them restrictive and antiquated.

In the case of the Philippines, the JORC Code emerged as the most important template for the development of mineral reporting standards. The PMRC and the national reporting codes of Canada,

Chile, the European Union, Peru and South Africa are patterned after it. Weatherstone (2000) claimed that the JORC Code is the 'de facto' best practice in its field. An important consideration in its success is the regulatory backing of the stock exchanges of Australia and New Zealand making compliance necessary for all companies listed or listing in those exchanges. A similar development transpired in Canada, the Philippines, and South Africa with the active involvement of the local stock exchanges in crafting their respective codes.

For financial reporting, the Philippines shifted to the International Accounting Standards (IAS) Framework in 2005. Harmonization has become less of a problem with the adoption of International Financial Reporting Standards (IFRS) across the globe. The absence of an industry standard is proving to be the real concern. Investors rely, in no small part, on information and assertions made in financial statements as bases for investment decisions. With companies competing for investments, any deficiency in reporting standards can place mining firms at a disadvantage. According to PricewaterhouseCoopers (2003 & 2004), one-third of investors surveyed did not feel companies were meeting their mineral disclosure needs. While seven in 10 mining executives polled believed their companies were undervalued.

In its search for uniformity in accounting practices, the International Accounting Standards Committee (IASC) embarked on an extractive industries project in 1998. Extractive industries cover mining, and the oil and gas trades. The undertaking focuses on upstream activities, which in the mining context pertains to all aspects of the search for, evaluation, and extraction of minerals. It seeks to develop an acceptable approach to settling financial reporting differences in the sector. Issues of mineralization are of primary focus. These concern the definition, recognition, measurement, and disclosure of resources and reserves in the financial statements. All options are being considered including recognizing mineral reserves at fair value. Ultimately, the direction is towards an IFRS (framework) on accounting for extractive activities.

The extractive activities research project has a flawed history. It resulted to the release of an Issue Paper in November 2000. Subsequent to this, however, minimal development has taken place. The initiative suffered its first setback amidst restructuring at the IASC, the IASB's predecessor. The project was removed from the active list of research topics in 2001 due to time constraint (IASB, 2003). The second setback came in 2002 when the IASB (2004) announced that it could not complete the project in time for the implementation of International Accounting Standards in many territories. With its initial timeframe not met, the IASB came up with an interim measure, IFRS 6. Said standard was issued in December 2004. Its local counterpart, PFRS 6, was implemented in January 2006. In 2010, a discussion paper on extractive activities was released. The comment period ended July of the same year. The IASB should have decided in 2011 whether to reinstate the project to its future agenda but it failed to do so.

Limitations in financial reporting can be traced to standard setting. Accounting standard setting is a political process. It is a practice where power and influence play a big role (Kwok & Sharp, 2005; Brown, 2004; Solomons, 1978). With the IASB, special interest groups are key players and their influence has grown since its restructuring (see Brown, 2006; Georgiou, 2004). Accounting standards used in financial reporting are increasingly being tuned to favor the reporting needs of these groups. Cortese, Irvine, & Kaidonis (2009b) observed a similar scenario played out with the formulation of IFRS/PFRS 6.

4 Methodology and Data

The paper examines compliance with the PMRC, PFRS 6, and disclosures on mining assets (i.e., amortization and depreciation). It also looks into the reporting of mineral assets in publicly listed mining companies. Listed firms are better samples as compliance with disclosure requirements is mandatory as opposed to unlisted companies. The analysis involves publicly available data, such as company annual reports, IASC/IASB pronouncements and related issuances. The latter includes exposure drafts, issue papers and comment letters. Information available in the websites of industry associations (i.e., Philippine Mining and Exploration Association and the Chamber of Mines of the Philippines) and investment promotion and regulatory agencies (i.e., Board of Investments and the Mines and Geosciences Bureau, MGB) is also tapped.

In line with the objectives set forth in the earlier part of the paper, a comparative study of the annual reports[3] of 17 publicly listed mining companies[4] is performed. The undertaking examines 77 of these reports for the period 2006-2010, which serves as empirical support to the assertions made in the discussions. The companies analyzed encompass all of the mining companies listed in the Philippine Stock Exchange (PSE) as of 2010. In the same year, listed mining firms accounted for a third of metallic mineral production in the country. The gross output stood at PhP 111.97 billion, up from PhP 79.6 billion in 2009 (MGB, 2012).

Data gleaned from annual reports are synthesized using qualitative and quantitative techniques over the period of five years. In each company, mineral and accounting disclosures are evaluated vis-à-vis applicable frameworks to gauge the degree of compliance. Horizontal and vertical analyses of assets, revenues and profits are then performed. The resulting trends, variances, and; common-sized figures and percentages are used as inputs in the discussion.

4.1 Framework of Analysis

4.1.1 Mineral and Ore Reporting

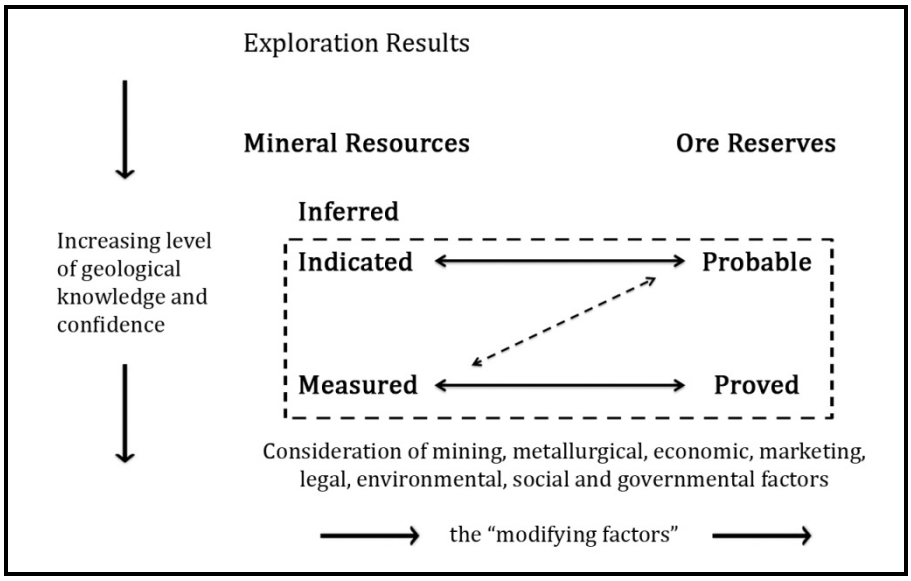
The PMRC sets out the minimum standards for public reporting of mineralization in mining companies. Mineral estimates are reported in two categories, mineral resources and ore reserves[5] (see Appendix F for definitions). As seen in Figure 1, the former is sub-divided in order of increasing geological confidence into inferred, indicated, and measured categories. Accordingly, the latter is sub-divided into probable and proved. Probable and proved ore reserves are the economically mineable part of indicated and measured mineral resources, in that order. To explain the interactions, there is direct relationship between indicated and probable and between measured and proved (straight lines). However, there are circumstances when uncertainties relating to the modifying factors result to a lower confidence level for the reserve compared to the parallel resource category. This explains how measured mineral resources convert to probable instead of proved ore reserves (dashed line). Conversely, indicated mineral resource could never be converted directly to prove ore reserves without first being upgraded to measured mineral resources. Inferred mineral resources, on the other hand, must be upgraded to any of the other resource category to convert to ore reserves.

[3] Company annual reports submitted to the SEC are contained in Form 17-A with attached financial statements and notes, exhibits, and schedules.

[4] See Appendix A for additional information.

[5] Can be used interchangeably with the term, mineral reserves.

Figure 1. **Framework for Mineral and Ore Reporting**



Note. Adapted from the Philippine Mineral Reporting Code (2007).

Mineral information is dependent on several assumptions and is, therefore, prone to revisions. Resources and reserves estimates rely on the interpretation of geological data obtained from drill holes or other sampling techniques and feasibility studies which derive cost estimates based on: (1) expected tonnage or grade of ores to mined or processed; (2) estimated ore recovery rates; (3) ore body configuration; and (4) anticipated operating costs and other factors. The other factors are also important for reserves as these pertain to the analysis of relevant mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors.

The mineral categories and details in the foregoing are then presented in a public report prepared by a qualified professional[6]. A public report is defined by the PMRC (2007) as including, but not limited to company annual reports, quarterly reports, and other reports to the PSE[7], or as required by law[8]. It also applies to other publicly released company information in the form of postings in company websites and briefing to shareholders, stockbrokers and investment analysts. For companies issuing 'concise' annual reports, the PMRC recommends inclusion of all material information relating to mineral resources and reserves. As shown in Table 1, this involves disclosing the different resource and reserve categories and the underlying factors and assumptions that resulted to these estimates.

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[6] Qualified professional or 'Competent Person' is a member of a professional society for earth scientists or mineral engineers or has other appropriate qualifications. The person must have a minimum of five years experience that is relevant to the style of mineralization, type of deposit under consideration or to the activity, which that person is undertaking (Section III, Clause 10, PMRC). In the Philippines, a Competent Person is a duly accredited member or fellow of Philippine Society of Mining Engineers (PSEM); Geological Society of the Philippines (GSP); Society of Metallurgical Engineers of the Philippines (SMEP); or recognized professional organizations (ROPO), if the need arises.

[7] Aside from Annual and Quarterly Reports, the PSE requires listed mining companies to submit Technical Reports. The latter are more detailed public reports on exploration results, mineral resources or ore reserves. Based on the implementing rules and regulations of the PMRC, however, Technical Reports are only required when (i) applying for initial listing in the Exchange; (ii) undertaking capital raising activity, such as Initial Public Offering, Follow-on Offering and Stock Rights Offering; (iii) reporting of Mineral Resources and/or Ore Reserves for the first time; (iv) submitting a Final Feasibility Study (for companies at the development stage); and (v) whenever there is a 100 percent increase or a 50 percent drop in Mineral Resources and/or Ore Reserves from the most recent Technical Report submitted.

[8] The PMRC does not cover reports to government agencies for statutory purposes, where providing information to the public is not the primary intent (Clauses 5, 19 and 37).

Table 1. Disclosure on Mineral Resources and Ore Reserves

Criteria	Content
General	▪ Disclosures of Mineral Resources and Ore Reserves should be reported on by Competent Person (CP) Geologist and CP Mining Engineer, respectively. ▪ Preferably, the Issuer should report Mineral Resources and Ore Reserves separately. Said party shall report which Mineral Resource and Ore Reserve categories are included in the total Mineral Resources and Ore Reserves disclosed. ▪ The Issuer must not include Inferred Mineral Resources in the other categories of Mineral Resources in disclosing total Mineral Resources. Inferred Mineral Resources may be included in the list of resources but should be labeled as such. ▪ Each category of the Mineral Resources and Ore Reserves disclosed must be reported with the corresponding tonnage and grade. ▪ The Cut-off Grades used for estimating Mineral Resources and Ore Reserves must be disclosed.
Mineral Resources	
Database integrity	▪ Data verification/validation procedures used
Geological interpretation and dimensions	▪ Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. ▪ Nature of the data used and of any assumptions made. ▪ The use of geology in guiding and controlling Mineral Resource estimation. ▪ The factors affecting continuity both of grade and geology. ▪ The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.
Estimation and modeling techniques	▪ The nature and appropriateness of the estimation technique(s) applied and key assumptions.
Moisture and Cut-off parameters	▪ Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content. ▪ The basis of the adopted cut-off grade(s) or quality parameters applied.
Classification	▪ The basis for the classification of the Mineral Resources into varying confidence categories. Whether appropriate account has been taken of all relevant factors. i.e. relative confidence in tonnage/grade computations, confidence in continuity of geology and metal values, quality, quantity and distribution of the data.
Discussion of relative accuracy/ confidence	▪ Where appropriate, a statement of the relative accuracy and/or confidence in the Mineral Resource estimate using an approach or procedure deemed appropriate by the CP. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.
Ore Reserves	
Conversion to Ore Reserves	▪ Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. ▪ Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves. ▪ The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. The code does not require that a final feasibility study has been undertaken to convert Mineral Resources to Ore Reserves, but it does require that appropriate pre-feasibility studies will have been undertaken that will have determined a mine plan that is technically achievable and economically viable, and that all Modifying Factors have been considered.
Cut-off parameters	▪ The basis of the cut-off grade(s) or quality parameters applied.

Criteria	Content
Classification	▪ The basis for the classification of the Ore Reserves into varying confidence categories.
Discussion of relative accuracy/ confidence	▪ Where appropriate, a statement of the relative accuracy and/or confidence in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.

Note. Based on information from the Checklist of Assessment and Reporting Criteria (Table 1 of PMRC, pages 19-23) assessed by the author as salient features to be included in summary reports on Mineral Resources and Ore Reserves, as reflected in company annual reports.

4.1.2 Financial reporting

4.1.2.1 Resources and reserves accounting

Financial reporting contends not only with the presentation of mineral assets but also how financial statements are impacted in terms of financial position, cash flows, and earnings. Their pervasive impact is evident in the fact that much of the value that investors place on mining companies is derived from resource and reserve estimates (PricewaterhouseCoopers, 2005). Mineral estimates influence accounting policies by serving as inputs in: (1) the calculation of amortization, depreciation, and mine stripping ratios; (2) testing for impairment; and, (3) estimating the timing and payment for mine rehabilitation and decommissioning costs, among others. Shifts in mineral projections influence asset carrying values and returns through periodic charges against income as a result of amortization and depreciation. In the same manner, the timing of obligations arising from mine restoration, rehabilitation, and closure is dictated by changes in mineral estimates. Accounting for exploration and evaluation as well as development costs is also significantly affected by these estimates. In addition, resources and reserves are important consideration in key decision areas (e.g., technical feasibility and commercial viability studies, and life of mine plans). To date, there is no PFRS (accounting framework) that deals exclusively with mineral resources and reserves. As a major source of estimation uncertainty, however, Philippine Accounting Standard (PAS) 1 requires that these be disclosed in the notes to the financial statements. The disclosure, as per paragraph 125, shall include details of their nature and carrying amount at the end of the reporting period.

4.1.2.2 Exploration and evaluation costs

The guidance provided by PFRS 6 applies to exploration and evaluation (EE) costs. Disclosures pertaining to the standard are shown in Table 2. It requires firms to report their accounting policies and continue using them for as long as they are consistent and reliable. Accordingly, the amount of assets, liabilities, income, expenses as well as cash flows resulting from exploration and evaluation activities is to be disclosed. It can be further noted that PFRS 6 is in accordance with PAS 16 and 38 with respect to the treatment of capitalized EE costs. This is evident in Table 2 where the said items are to be presented as separate classes of assets in the balance sheet similar to other tangible and intangible assets.

4.1.2.3 Amortization and depreciation

Another issue is the systematic and rational allocation of costs over the period of benefit. In the mining context, this involves the consideration of EE and other mining assets—capitalized mine development and mine rehabilitation costs—and mining rights[9], which are composed of tangible and intangible components. As stipulated in PAS 16 and 38, the selection of the amortization and depreciation methods, and the estimation of useful life of assets are matters of judgment. The

[9] Mining rights are expenditures for acquired property interests or mining tenement rights that are capitalized.

disclosure of the methods adopted and estimated useful lives or amortization/depreciation rates provides users of financial statements with information that allows them to review the policies selected by management and enable comparisons to be made with other entities. Irrespective of the methods used, the resulting outcome is influenced by mineralization. Shifts in mineral estimates invariably affect asset lives, amortization/depreciation rates, and life of mine plans. The shorter of asset lives, life of mine, or mining rights is then considered. This, in turn, determines amortization and depreciation. Pertinent disclosures are shown in Table 2 where accumulated amortization and depreciation are aggregated with corresponding amounts of impairment losses for the period.

Table 2. Disclosure on PFRS 6 and Mining Assets

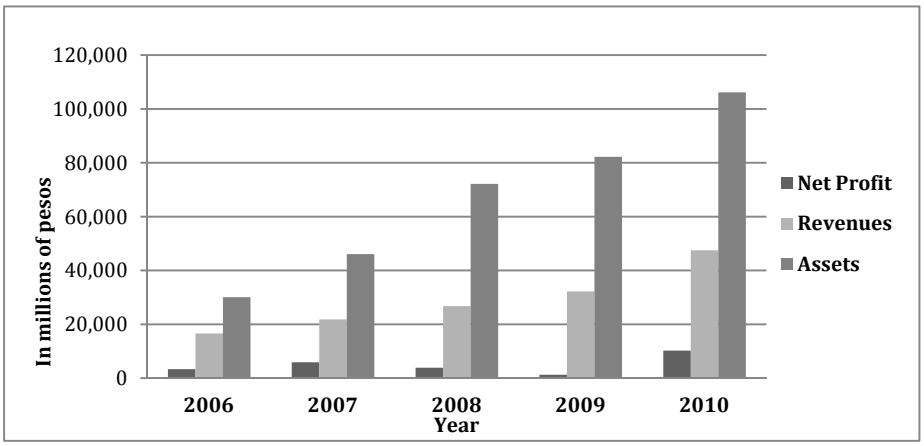
Criteria	Content
PFRS 6	▪ An entity shall disclose information that identifies and explains the amounts recognized in its financial statements arising from the exploration for and evaluation of mineral resources. To comply with this, an entity shall disclose: (a) its accounting policies for exploration and evaluation expenditures, including the recognition of exploration and evaluation assets (b) the amount of assets, liabilities, income and expense and operating and investing cash flows arising from the exploration for and evaluation of mineral resources. ▪ An entity shall treat exploration and evaluation assets as a separate class of assets and make the disclosure required by either PAS 16 and PAS 38 consistent with how the assets are classified
Salient provisions applicable to tangible mining assets	▪ The financial statements shall disclose for each class of property, plant and equipment: (a) the measurement bases used to determine the gross carrying amount; (b) the depreciation methods used; (c) the useful lives or the depreciation rates used; (d) the gross carrying amount and the accumulated depreciation (aggregated with accumulated impairment losses) at the beginning and end of the period showing: (i) additions; (ii) acquisitions through business combinations; (iii) increases or decreases resulting from revaluations; (iv) depreciation; (v) other changes.
Salient provisions applicable to intangible mining assets	▪ An entity shall disclose the following for each class of intangible assets: (a) whether the useful lives are indefinite or finite; if finite, the useful lives and amortization rates used; (b) the amortization methods for intangible assets with finite useful lives; (c) the gross carrying amount and accumulated amortization (aggregated with accumulated impairment losses) at the beginning and end of the period; (d) the line items of statement of comprehensive income in which any amortization of intangible assets are included; (e) a reconciliation of the carrying amount at the beginning and end of the period showing: (i) additions, indicating separately those from internal development, those acquired externally or those acquired through business combinations; (ii) increases or decreases for the period resulting from revaluations; (iii) any amortization recognized during the period; and (iv) other changes in the carrying amount in the period.

Note. Based on disclosures required under PFRS 6 (paragraphs 23-25) and salient provisions of PAS 16 and 38 – paragraphs 73 and 118, respectively – relating to amortization and depreciation.

4.2 Sampled Firms

Seventeen companies constitute the mining subsector of the Philippine Stock Exchange in 2010. Eight of these firms are producing minerals in commercial scale. The rest have either suspended mining operations (three companies) or are in various stages of pre-production, primarily in exploration and development (six companies). Information pertaining to assets, revenues and profits are shown in Figure 2.

Figure 2. Mining Assets, Revenues and Profit

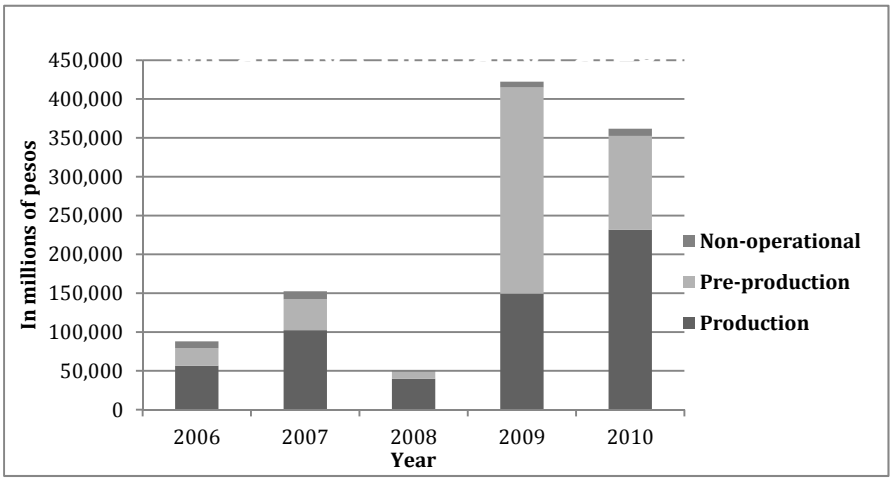


Note. Taken from Company Annual Reports. For details see Appendix C.

In the analysis, aggregate assets and revenues show consistent growth year-on-year for the period 2006-2010 (see Appendix C.1 and C.2). Overall resource base is enhanced with the addition of four pre-production (AB, GEO, NI, ORE) and two production (CPM, NIKL) companies to the index. Similarly, mining revenues benefit from the listing of firms with commercial output. Resource growth is broad-based with almost 90 percent of firms (15 out of 17 companies) showing positive asset variances. Revenue from mineral sales, on the other hand, is increasing as cumulative average figures grew in 88 percent (seven out of eight companies) of production firms.

While resources and revenues follow an upward trajectory, profitability in the subsector is less certain (see Appendix C.3). Seventy percent of listed mining companies (12 out of 17 companies) are incurring losses with the pre-production and non-operating groups (eight out of nine companies) taking the most hit. Capital-intensive exploration and development activities are straining finances and weakening bottomlines. In a prolonged state, this could lead to doubt about the ability of the firms to continue as going concern entities.

Figure 3. Market Capitalization by Operating Profile

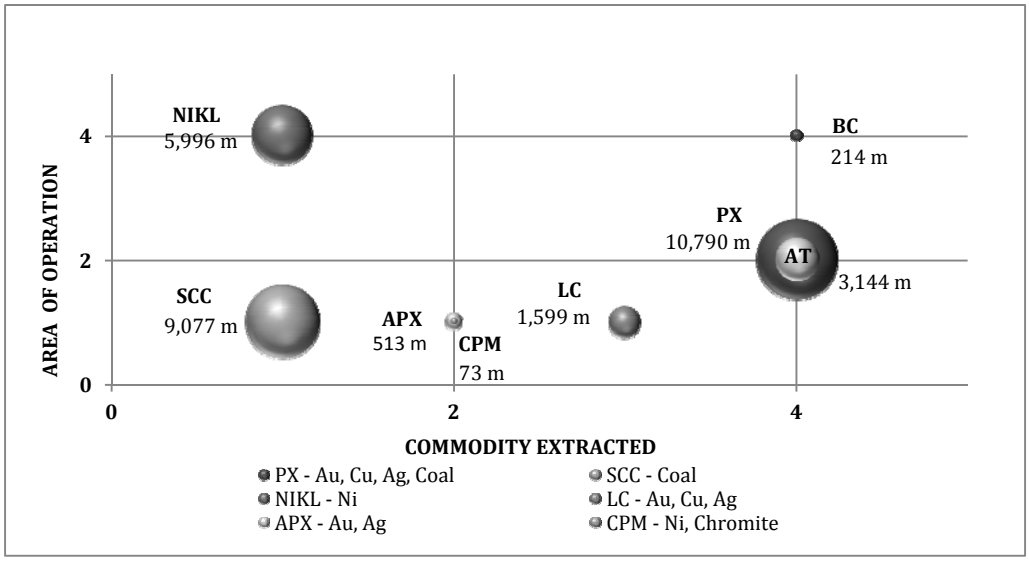


Note. Taken from First Metro Securities. For details see Appendix D.

In the study, market capitalization of listed mining companies is classified according to operating profile (Figure 3). Production firms dominate in four out of five periods contributing almost 60 percent of market value in the mining subsector. The situation is reversed in 2009 with the sharp increase in capitalization of the pre-production group (see Appendix D). This is attributable to the

capital infusion of Boerstar Corporation in Atok-Big Wedge, resulting in a controlling stake in the company. The buyout is through new share issuance and a tender offer for minority-held shares. Active trading is observed in mining subsector issues[10] as the index outperforms both the Philippine Stock Exchange Index (PSEi) and the All Shares Index in three out of five periods examined (PSE Annual Report, 2006-2010).

Figure 4. Production Battlefield



Note: Adapted from the Company Annual Reports and Mines and Geosciences Bureau. Bubble size represents five-year cumulative average revenue, in millions of pesos. For details see Appendix C.

In the production arena (Figure 4), mining companies are categorized into strategy groups. Focused players generate revenues by utilizing scale economies in the extraction of a particular commodity. Nickel Asia and Semirara Mining belong to this cluster. The respective companies account for 85 percent and 99 percent of nickel and coal sales of listed mining firms for the period (see Appendix C.2 and E). In contrast, a majority of companies create multiple revenue streams by diversifying the product mix. A cluster of large, mid-sized and marginal industry players pursue this risk-mitigating strategy[11]. Philex Mining and Atlas Mining are part of the group. The firms, in turn, are the biggest gold and copper producers in the country.

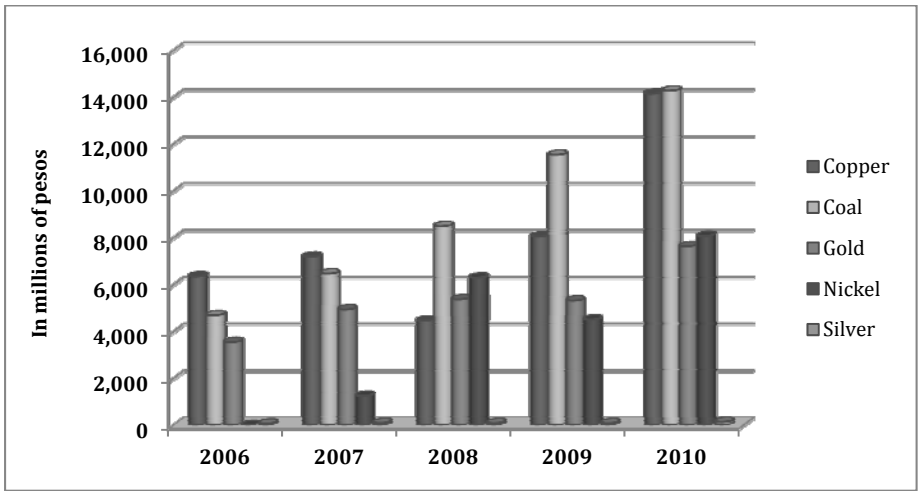
Listed companies mined a maximum of 16 sites[12] in the period of study. Atlas Mining started extracting nickel ores in 2007 but lower metal prices led to the closure of its Palawan mine the following year. Century Peak Metals, for its part, started producing nickel and chromite ores in Dinagat Island in 2008. Two companies restored commercial operations in idled mines in 2009: Apex Mining for its gold-silver mine in Compostela Valley and Atlas Mining in Cebu with copper and gold as primary outputs and silver as by-product. Meanwhile, Philex Mining entered the coal mining business in the same year. Collectively, listed mining firms controlled more than 50 percent (15 out of 28 companies) of operating metallic mines in the country as of 2010.

[10] See Appendix B for additional information.

[11] As a corporate strategy, product diversification allows mining firms to reduce risk. Take the case of Philex Mining. Its copper and coal sales are cyclical. On one hand, they do well when the global economy does well. On the other hand, Its gold sales do well even if the global economy does poorly.

[12] Including areas operated by small-scale miners in contract with companies.

Figure 5. Big Four: Revenue by Mineral Output



Note. Adapted from the Company Annual Reports of AT, NIKL, PX and SCC.

A closer look at revenue figures reveals the dominant share of four industry players (AT, NIKL, PX, SCC). In addition, these companies ('Big 4') account for 69 percent of assets, 92 percent of revenues and almost all the profits of publicly traded mining firms in the period examined (see Appendix C.1 to C.3). The study also reveals a concentration bias towards certain mineral outputs. This is shown in Figure 5 where coal and copper sales (64%) lead in the share of mining revenues from 2006 to 2010. Gold and nickel are third and fourth with shares of 20 percent and 15 percent, respectively. Silver, on the other hand, contributed less than one percent of the total (see Appendix E).

5 Results and Discussion

5.1 Mineral and Ore Reporting

In the review of annual reports, 10 out of 17 companies disclosed mineral information (see Table 3, column two). However, none of those disclosures are fully compliant with the reportorial requirements of the PMRC (see Table 3A). Three companies provided no breakdown per mineral reporting category. Two failed to disclose the ore reserves in their operating mines while another chose to report no more than proved reserves.

Table 3. Disclosure of Mineral Information

Company	SEC Form 17-A	Financial Statements	Accompanying Notes
(A) Production			
Apex Mining	✓		✓
Atlas Mining			✓
Benguet Corp.	✓		✓
Century Peak Metals	✓	✓	✓
Lepanto Mining	✓		✓
Nickel Asia Corp.	✓		✓
Philex Mining	✓		✓
Semirara Mining			✓
(B) Pre-production			
Abra Mining			
Atok-Big Wedge			
Geograce Resources			

	Company	SEC Form 17-A	Financial Statements	Accompanying Notes
	NiHao Resources	✓		✓
	Omico Corp.	✓		
	Oriental Peninsula	✓	✓	✓
(C)	*Non-operating*			
	Dizon Mines			
	Manila Mining			✓
	United Paragon	✓		✓

Note. Taken from the Author's assessment based on companies' submitted SEC Form 17-A and financial statements and their accompanying notes.

The degree of compliance varies, with notable violations of the provisions of the PMRC. A majority reflected insufficient information with respect to resource and reserve categories. Some firms provided no mineral information in their annual reports at all. Said deficiency is manifested in firms across different operating profiles with non-operating the least compliant at 33 percent (one out of three companies), compared to 50 percent (three out of six companies) and 75 percent (six out of eight companies) for pre-production and production companies, respectively.

Table 3A. Reporting of Mineral Resources and Ore Reserves

	Company	Mineral Resources	Ore Reserves
(A)	*Production*		
	Apex Mining	Disclosure of *Inferred*, *Indicated* and *Measured* Resources including pertinent information thereto except for *Classification* and *Geological interpretation*	Disclosure of *Probable* and *Proved* Reserves including pertinent information thereto except for *General* (bullet 1) and *Classification*
	Benguet Corp.	Acupan and Sta. Cruz Mines: Disclosures are not broken down into *Indicated* and *Measured* Categories; For the former, no other pertinent information is reported; For the latter, no other pertinent information is presented except for *General* (bullet 1) and inadequate disclosures on *Estimation Techniques* and *Cut-off parameters* Antamok Project: Disclosure of *Inferred*, *Indicated* and *Measured* Categories; No other pertinent information is reported except for General (bullets 1-4) and inadequate disclosures on *Classification* and *Relative accuracy*	Acupan and Sta. Cruz Mines: None of the required disclosures is reported. Antamok Project: Disclosure is not broken down into *Probable* and *Proved* Categories; No other pertinent information is reported except for inadequate disclosures on *Conversion to Ore Reserves* (bullet 3) *and Cut-off parameters*
	Century Peak Metals	Disclosure is not broken down into *Indicated* and *Measured* Categories; Inadequate disclosure on *Moisture and Cut-off parameters* (bullet 1); Except for *General* disclosures (bullets 1-3 and 5), no other pertinent information are reported	None of the required disclosures is reported
	Lepanto Mining	None of the required disclosures is reported	Disclosure of *Probable* and *Proved* Categories; Inadequate disclosures on *Conversion to Ore Reserves* (bullet 1)
	Nickel Asia Corp.	Disclosure is not broken down into *Indicated* and *Measured* Categories; Inadequate disclosure on *Moisture and Cut-off parameters* (bullet 1); Except for *General* disclosures (bullets 1-3 and 5), no other pertinent information is reported	Disclosure is not broken down into *Probable* and *Proved* Categories; Except for *General* disclosures (bullets 1-3 and 5), no other pertinent information are reported
	Philex Mining	Padcal Mine: Disclosure is not broken down	Padcal Mine: Disclosure of *Proved*

Company	Mineral Resources	Ore Reserves
	into PMRC reporting categories; Inadequate disclosure for *Cut-off parameters* (bullet 2); Except for *General* disclosures (bullets 1, 3-5), no other pertinent information are reported Silangan Project: Disclosure of *Inferred*, *Indicated* and *Measured* Resources; Except for *General* disclosures (all bullets), no other pertinent information is reported	Reserves; Inadequate disclosures on *Conversion to Ore Reserves* (bullet 1) and *Cut-off parameters*; Non-disclosure of *Classification* and *Relative accuracy* Silangan Project: No Ore Reserves to disclose
(B) Pre-production		
NiHao Resources	Botolan Project: Disclosure of *Inferred* and *Indicated* Categories including pertinent information thereto Manticao Project: Disclosure of *Inferred*, *Indicated* and *Measured* Categories including pertinent information thereto except for inadequate disclosures on *Data Integrity and Classification*	No Ore Reserves to disclose
Omico Corp.	None of the required disclosures is reported	Reserves disclosed does not comply with PMRC reporting categories; No other pertinent information is not reported
Oriental Peninsula	Disclosure is not broken down into *Indicated* and *Measured* Categories; Except for *General (*bullet 3), *Data Integrity* and inadequate disclosures on *Geological interpretation* and *Relative accuracy*, no other pertinent information is reported	Disclosure is not broken down into *Probable* and *Proved* Categories; Except for *Conversion to Ore Reserves* (bullet 3), *Classification* and *Relative accuracy*, no other pertinent information is reported
(C) Non-operating		
United Paragon	Disclosure of *Inferred*, *Indicated* and *Measured* Resources; Except for *General* disclosures (bullets 1-4), no other pertinent information is reported	Disclosure of *Probable* and *Proved* Reserves; Except for disclosures on *General* (bullets 1-4) and *Conversion to Ore Reserves* (all bullets), no other pertinent information is reported

Note. Taken from the Author's reading based on disclosed information. If not specifically identified, company disclosures apply to all operating mines and/or mining projects.

5.2 Financial Reporting

5.2.1 Resources and reserves accounting

Mineral resources and reserves are not reflected in the financial statements of most extractive firms, despite the fact that resources and reserves are the most important information about a mining company (Stephenson & Weatherstone, 2006). Said treatment is apparent in Table 3, where 88 percent of companies did not capitalize mineral assets in their books (column three). Two companies did but this is an exception rather than the rule. Mineral resources and reserves do not appear as an asset in the balance sheet except in the extent they were purchased (Deloitte Touche Tohmatsu, 2003). Using the account, 'explored mineral resources', CPM and ORE were the only ones that presented the carrying amount of their mineral assets in the balance sheet. The mineral assets in both cases were recognized as a result of merger and acquisition[13]. Companies fared better in the accompanying notes, with 71 percent disclosing how mineral estimates affect the reported amount of

[13] Through the acquisition of a group of assets (not considered as a business) and business combination for CPM and ORE, respectively. See 2009 and 2010 company annual reports for more information.

assets, liabilities, income and expense (column four). As to breakdown, production companies were in full disclosure followed by the non-operational (67%) and pre-production (33%) groups.

5.2.2 Exploration and evaluation costs

For EE costs, two prevailing treatments are evident. Sixty-five percent of companies (11 out of 17 companies) in Table 4 went for deferral while only a handful (five out of 17 companies) expensed the said costs prior to determination of reserves. The choice of deferral varied across operating profiles with 88 percent (seven out of eight companies) of production and 33 percent (two out of six companies) of pre-production firms adhering to the policy. Most firms presented EE assets as separate classes of assets and provided explanation on their capitalization policies. A majority subscribes to the area of interest method, but the extent of disclosures varies. Some companies (four out of 17 companies) offered clear-cut distinctions among cost items and their specific treatment for each. A few (two out of 17 companies) failed to discuss their reversal policies for deferred EE costs (i.e., when exploration and evaluation work do not result to economically mineable reserves, accumulated costs are written off).

Table 4. Treatment of Exploration and Evaluation Costs

	Company	Exploration and Evaluation activities
(A)	*Production*	
	Apex Mining	Deferred to the extent that is recoverable through successful development of area of interest or alternatively, by its sale; also, where activities in the area have not yet reached a stage which permits a reasonable assessment of economically mineable *resources* and active work is continuing; written off when area is abandoned
	Atlas Mining	Deferred; written-off if commercial viability is not established
	Benguet Corp.	Deferred as incurred
	Century Peak Metals	Deferred as incurred; written off when result is 'negative' or not commercially viable
	Lepanto Corp.	Deferred as an asset when future economic benefit is more likely than not to be realized; EE costs are capitalized up to the point when a commercial *reserve* is established otherwise, accumulated costs are expensed
	Nickel Asia Corp.	Deferred if at least one of the following conditions are met: (1) area of interest is yet to reach a stage where reasonable assessment of existence of economically mineable *reserves* can be made, provided active and significant operations are continuing or are planned in the future; (2) costs are expected to be recouped in full from successful development or by its sale; written off if recovery of expenditures becomes unlikely
	Philex Mining	Deferred as incurred; written off if the project does not prove to be viable or is abandoned
	Semirara Mining	Expensed as incurred until a JORC compliant *resource* is established; capitalized thereafter
(B)	*Pre-production*	
	Abra Mining	Deferred as incurred; written off when the results of the exploration work are determined to be negative
	Atok-Big Wedge	Deferred as incurred; subsequently written off if the results of exploration work are determined to be negative
	Geograce Resources	Expensed as incurred unless there is a future economic benefit that is more likely to be realized rather than not
	NiHao Resources	Charged to operations in the period incurred until such time that economically recoverable *reserves* are determined to exist
	Omico Corp.	Capitalized after the technical feasibility and commercial viability of extracting the *mineral resource* are established
	Oriental Peninsula	Deferred after the technical feasibility and commercial viability of extracting *mineral resources* have been established
(C)	*Non-operating*	
	Dizon Mines	N/A*

Company	Exploration and Evaluation activities
Manila Mining	Deferred as an asset when future economic benefit is more likely than not to be realized; EE costs are capitalized up to the point when a commercial *reserve* is established otherwise, accumulated costs are expensed
United Paragon	Deferred as incurred

Note. Based on the Author's assessment; *N/A means not applicable.

Three companies had no EE activities for the period of study but two opted to disclose pertinent accounting policies despite their non-operational state. With these voluntary disclosures, only Dizon Mines has been observed to have 'not applicable' treatment for EE costs.

In the foregoing, the preference for deferral highlights the incentive to capitalize EE costs given the materiality of expenditures involved. It is in these costs where the impact of mineral estimates is most evident. The recognition of EE as mining assets entails subsequent amortization and depreciation. The periodic charge, whether capitalized or eventually factored into income or loss, is derived using methods that are influenced by resources and reserves. Besides mineral estimates, the timing of deferral also influences amortization and depreciation. Mining companies that capitalize EE costs earlier will have more costs to amortize and depreciate over the life of mine compared to those that do so after project viability is established. In the end, the respective EE policies dictate the degree in which the firms' assets, liabilities, income, expenses and cash flows are impacted.

5.2.3 Amortization and depreciation

In Table 5, the amortization and depreciation bases of the companies examined are shown. Ore reserves are the overwhelming choice for users of the unit-of-production method with seven using 'recoverable reserves' and six using proved and probable reserves. Two pre-production companies failed to divulge their basis for amortizing/depreciating mining assets while almost a fourth of all firms (three out of 17) opted to depreciate on a straight-line basis. The use of 'recoverable reserves' and varying account titles as cost object adds a layer of complexity to the equation. In relation to reserves, the term 'recoverable' generally refers to mineable resources with economic qualification (i.e. can be mined at a profit based on current market conditions) determined using various factors or parameters such as market price of metals and the global economy. Still, a stricter definition equates recoverable reserves solely to proved reserves.

The selection of base has significant implication. Employing a larger base, like ore reserves, results to smaller charges against periodic income as opposed to a smaller base like proved reserves. This is the case with the unit-of-production method where uneven amortization/depreciation over the life of mine is incurred. The use of the straight-line method, on the other hand, leads to more stable charges for as long as useful lives are not frequently changed.

Table 5. Cost Object and Basis for Amortization and Depreciation

Company	Cost Object	Basis
(A) Production		
Apex Mining	Mine and mining properties	Proved and Probable Reserves
Atlas Mining	Mining rights Mine development costs	'Recoverable reserves'
Benguet Corp.	Mine properties and mine development costs	'Recoverable reserves'
Century Peak Metals	Explored mineral resources Mine site development costs	'Recoverable reserves' Proved and Probable Reserves
Lepanto Mining	Mine and mining properties	Proved and Probable Reserves
Nickel Asia Corp.	Mining properties and development costs	'Recoverable Reserves'
Philex Mining	Mine and mining properties	'Recoverable reserves'
Semirara Mining	N/A	N/A

(B)	*Pre-production*		
	Abra Mining	Mining rights Mine development costs	'Recoverable reserves'
	Atok-Big Wedge	Mine development	Ore reserves
	Geograce Resources	N/A	N/A
	NiHao Resources	Mining rights	Not disclosed
	Omico Corp.	Mine development	Not disclosed
	Oriental Peninsula	Explored mineral resources Mine and mining properties	'Recoverable reserves'
(C)	*Non-operating*		
	Dizon Mines	N/A	N/A
	Manila Mining	Mine and mining properties	Proved and Probable Reserves
	United Paragon	Underground development and exploration Mine and mining properties	Ore reserves

Note. Source: Author's reading of companies' disclosed information; N/A means not applicable as company uses the Straight Line Method to amortize/depreciate mining assets.

6 Conclusion

The study was conducted to examine the disclosure practices of listed mining companies in the Philippines following two frameworks: mineral and financial reporting. On one hand, the PMRC sets out the minimum standard for public reporting of mineralization. PFRS, on the other hand, provides accounting guidance for financial reporting. The separate evolution of the two frameworks has given rise to issues on both fronts. Chief among them is the non-reporting of mineralization in the financial statements. In the study, majority of the firms did not reflect mineral assets in their balance sheets.

Accountants and company management rely heavily on mineral estimates by geologists and engineers. They serve as crucial inputs to financial reporting and decision-making. The relationship, however, is not one-sided. All efforts towards a mineral reporting standard will be for naught if resources and reserves cannot be reported in the company's balance sheet. Investors use mineral information to gauge the value of mining companies. The inability to disclose mineralization disadvantages companies by understating their reported assets. This affects the calculation of future income negatively reducing investment attractiveness as opposed to firms that can disclose 'acquired' mineral assets.

The paper also affirms how PFRS 6 and the inconsistency in mineral and ore category definitions have perpetuated choice among accounting treatments and resulting estimates for amortization and depreciation, respectively. These invariably affect the comparability of financial statements. Unscrupulous firms can also exploit the diversity in accounting treatments and resulting estimates in order to understate costs or overstate income.

Mineral reporting, for its part, is not without problems. Deficiencies in compliance were noted in the study. Enforceability is an issue with the PMRC. None of the errant firms was fined, suspended or delisted for failure to comply with mineral related disclosure requirements. Two possible reasons for this exist. The first is the constant struggle to keep the right balance between enforcing compliance with reportorial requirements and encouraging firms to raise capital in the equities market. In 2005, the PSE took a more proactive stance in attracting industry players. It adopted a liberal interpretation of its listing rules for mining companies to support the government's efforts to revitalize the industry and help mining firms gain wider access to equity financing (PSE Annual Report, 2005). The change in policy gives the Exchange the discretion to approve the listing of mining firms without compelling them to meet the usual track record of profitable operations and operating history requirements, the report further states. The second is the belated release of the implementing rules and regulations (IRR) of the code. The approval of the SEC came in 2010, three years after the PMRC was adopted by the PSE for listing and disclosure purposes. Compounding the

problem is the limited guidance provided by the IRR. The guidance is specific to the preparation of technical reports and does not identify reportorial requirements for summaries of mineral reports presented in SEC Form 17-A.

The ramifications of the aforementioned are evident in the disclosure practices of listed mining firms. Reporting standards should be expedited when they are overdue and existing ones streamlined when they are inadequate. Provisional uniform guidelines should be imposed in the interim. At any rate, compliance with reportorial requirements has to be strictly implemented and never compromised. The PSE and PFRS Council would do well to take heed moving forward.

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APPENDIX A
Listed Philippine Mining Companies as of December 31, 2010

Company	Registered Name and Stock Trading Symbol[a]	Year Listed[b]
Abra Mining	*Abra Mining and Industrial Corp.* – AR	1969
Apex Mining	*Apex Mining Company, Inc.* - APX	1974
Atlas Mining	*Atlas Consolidated Mining and Development Corp.* – AT	1953
Atok-Big Wedge	*Atok-Big Wedge Company, Inc.* – AB	1948
Benguet Corp.	*Benguet Corp.* - BC	1950
Century Peak Metals	*Century Peak Metals Holdings Corp.* - CPM	2009
Dizon Mines	*Dizon Copper-Silver Mines, Inc.* – DIZ	1988
Geograce Resources	*Geograce Resources Philippines, Inc.* – GEO	1972
Lepanto Mining	*Lepanto Consolidated Mining Company* - LC	1947
Manila Mining	*Manila Mining Corp.* - MA	1959
Nickel Asia Corp.	*Nickel Asia Corp.* – NIKL	2010
NiHao Resources	*NiHao Mineral Resources Company International, Inc.* - NI	1990
Omico Corp.	*Omico Corp.* – OM	1969
Oriental Peninsula	*Oriental Peninsula Resources Group, Inc.* – ORE	2007
Philex Mining	*Philex Mining Corp.* – PX	1956
Semirara Mining	*Semirara Mining Corp.* – SCC	1983
United Paragon	*United Paragon Mining Corp.* – UPM	1973

Note: Source: Philippine Stock Exchange, Inc.

[a] For companies with "B" shares, "B" is appended after the trading symbol to differentiate from "A" shares.

[b] For Geograce and NiHao, year of change in corporate name and shift in primary purpose to mining and related activities are in 2006 and 2007, respectively. Formerly Global Equities and Magnum Holdings, these companies are mainly engaged in manufacturing and general trading. Another holding firm, Atok-Big Wedge, joined the subsector in 2008.

APPENDIX B
Market Activity of Mining Companies, 2006-2010

Year	Number of Listed Firms	Actively Traded	Number of Listed Issues [a]	Actively Traded
2006	12	12	16	16
2007	15	15	19	19
2008	15	15	20	20
2009	16	16	21	21
2010	17	17	21	21

Note. Source: Philippine Stock Exchange, Inc.

[a] Including "A" and "B" shares but excluding Omico Corp. - Warrants and Benguet Corp. – Cumulative Convertible Preferred Shares; Geograce Resources Philippines, Inc. and NiHao Mineral Resources Company Int'l, Inc. were reclassified to mining subsector firms in 2007; Vulcan Industrial and Mining Corp. was reclassified to an industrial sector firm in 2008; Atok-Big Wedge, Inc. consolidated its "A" and "B" shares in 2010

APPENDIX C.1

Horizontal and Vertical Analysis – Mining Assets

(In millions of pesos)

FIRM	2010	2009	2008	2007	2006	Cum. Ave.	Assets %
	[a]	[b]	[c]	[d]	[e]		
APX	2,336.36	2,113.22	2,428.27	2,278.65	464.44	1,924	2.63%
AT	20,413.09	14,153.91	13,720.31	10,511.30	3,000.00	12,360	16.88%
BC	6,793.03	4,281.50	367.68	343.32	346.72	2,426	3.31%
CPM	3,029.52	3,022.11	2,988.19	na	na	3,013	4.12%
LC	9,022.11	8,768.15	8,790.62	7,535.19	7,786.05	8,380	11.45%
NIKL	11,492.83	8,919.82	11,028.50	na	na	10,480	14.31%
PX	25,811.62	20,532.95	20,143.98	12,164.19	8,016.07	17,334	23.67%
SCC	18,779.15	13,703.75	5,998.13	6,520.90	6,511.19	10,303	14.07%
A	**97,677.70**	**75,495.41**	**65,465.68**	**39,353.55**	**26,124.47**	**66,221**	**90.44%**
AR	1,239.86	1,171.09	1,143.23	1,080.00	1,050.00	1,136.84	1.55%
AB	1,058.42	84.18	43.15	35.71	32.69	250.83	0.34%
GEO	147.28	144.55	406.57	488.49	4.48	238.27	0.33%
NI	479.36	410.54	116.02	67.69	na	268.40	0.37%
OM	205.52	187.67	164.11	152.25	139.20	169.75	0.23%
ORE	2,411.76	1,892.13	1,962.51	1,901.36	na	2,041.94	2.79%
B	**5,542.19**	**3,890.16**	**3,835.58**	**3,725.50**	**1,226.38**	**4,106.03**	**5.61%**
DIZ	41.55	44.10	51.61	61.61	73.47	54.47	0.07%
MA	1,769.07	1,687.57	1,687.64	1,820.57	1,675.11	1,727.99	2.36%
UPM	1,112.09	1,112.24	1,110.90	1,117.89	1,117.43	1,114.11	1.52%
C	**2,922.72**	**2,843.91**	**2,850.15**	**3,000.07**	**2,866.02**	**2,896.57**	**3.96%**
TOTAL	**106,142.60**	**82,229.48**	**72,151.42**	**46,079.11**	**30,216.86**	**73,223.43**	**100.00%**

	2010	2009	2008	2007	2006	% of annual assets
A	92.02%	91.81%	90.73%	85.40%	86.46%	
B	5.22%	4.73%	5.32%	8.08%	4.06%	
C	2.75%	3.46%	3.95%	6.51%	9.48%	
TOTAL	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	

... Continuation Appendix C.1

FIRM	Asset Variance in %				
	[a] vs. [b]	[b] vs. [c]	[c] vs. [d]	[d] vs. [e]	Ave. y-o-y
APX	10.56%	-12.97%	6.57%	390.62%	98.69%
AT	44.22%	3.16%	30.53%	250.38%	82.07%
BC	58.66%	1,064.45%	7.10%	-0.98%	282.31%
CPM	0.25%	1.14%	na	na	0.69%
LC	2.90%	-0.26%	16.66%	-3.22%	4.02%
NIKL	28.85%	-19.12%	na	na	4.86%
PX	25.71%	1.93%	65.60%	51.75%	36.25%
SCC	37.04%	128.47%	-8.02%	0.15%	39.41%
A	**29.38%**	**15.32%**	**66.35%**	**50.64%**	**40.42%**
AR	5.87%	2.44%	5.85%	2.86%	4.26%
AB	1,157.32%	95.10%	20.81%	9.24%	320.62%
GEO	1.89%	-64.45%	-16.77%	10,798.46%	2,679.78%
NI	16.76%	253.87%	71.38%	na	114.00%
OM	9.51%	14.36%	7.79%	9.37%	10.26%
ORE	27.46%	-3.59%	3.22%	na	9.03%
B	**42.47%**	**1.42%**	**2.95%**	**203.78%**	**62.66%**
DIZ	-5.76%	-14.56%	-16.24%	-16.14%	-13.17%
MA	4.83%	0.00%	-7.30%	8.68%	1.55%
UPM	-0.01%	0.12%	-0.63%	0.04%	-0.12%
C	**2.77%**	**-0.22%**	**-5.00%**	**-4.68%**	**0.56%**
TOTAL	**29.08%**	**13.97%**	**56.58%**	**52.49%**	**38.03%**

Note. Figures used in analysis are sourced from Company Annual Reports; Legend: A = Production; B = Pre-production; and C = Non-operational/On Care and Maintenance.

APPENDIX C.2

Horizontal and Vertical Analysis – Mining Revenues

(In millions of pesos)

FIRM	2010	2009	2008	2007	2006	Cum. Ave.	Rev. %
	[a]	[b]	[c]	[d]	[e]		
APX	1,546.63	1,018.25	0.00	0.00	0.00	513	1.63%
AT	8,850.95	4,690.31	922.99	1,253.27	0.00	3,144	10.01%
BC	321.83	163.87	248.43	201.81	136.01	214	0.68%
CPM	53.17	105.83	58.74	na	na	73	0.23%
LC	1,334.00	1,418.88	1,719.49	1,714.93	1,807.12	1,599	5.09%
NIKL	8,074.30	4,333.21	5,579.35	na	na	5,996	19.09%
PX	13,095.52	8,969.91	9,708.04	12,216.77	9,960.00	10,790	34.35%
SCC	14,242.22	11,500.19	8,490.05	6,466.70	4,687.69	9,077	28.90%
A	**47,518.62**	**32,200.44**	**26,727.08**	**21,853.48**	**16,590.82**	**31,405**	**99.99%**
AR	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
AB	0.00	0.00	0.00	0.45	3.56	0.80	0.00%
GEO	8.50	2.98	4.02	0.00	0.00	3.10	0.01%
NI	0.00	0.00	0.00	0.00	na	0.00	0.00%
OM	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
ORE	0.00	0.00	0.00	0.00	na	0.00	0.00%
B	**8.50**	**2.98**	**4.02**	**0.45**	**3.56**	**3.90**	**0.01%**
DIZ	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
MA	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
UPM	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
C	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00%**
TOTAL	**47,527.12**	**32,203.42**	**26,731.10**	**21,853.93**	**16,594.37**	**31,409.27**	**100.00%**

	2010	2009	2008	2007	2006	% of annual revenues
A	99.98%	99.99%	99.98%	99.998%	99.98%	
B	0.02%	0.01%	0.02%	0.002%	0.02%	
C	0.00%	0.00%	0.00%	0.000%	0.00%	
TOTAL	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	

... Continuation Appendix C.2

Firm	Revenue Variance in %				
	[a] vs. [b]	**[b] vs. [c]**	**[c] vs. [d]**	**[d] vs. [e]**	**Ave y-o-y**
APX	51.89%	0.00%	0.00%	0.00%	12.97%
AT	88.71%	408.17%	-26.35%	0.00%	117.63%
BC	96.39%	-34.04%	23.10%	48.38%	33.46%
CPM	-49.75%	80.15%	Na	na	15.20%
LC	-5.98%	-17.48%	0.27%	-5.10%	-7.08%
NIKL	86.34%	-22.33%	na	na	32.00%
PX	45.99%	-7.60%	-20.54%	22.66%	10.13%
SCC	23.84%	35.46%	31.29%	37.95%	32.13%
A	**47.57%**	**20.48%**	**22.30%**	**31.72%**	**30.52%**
AR	0.00%	0.00%	0.00%	0.00%	0.00%
AB	0.00%	0.00%	-100.00%	-87.35%	-46.84%
GEO	185.12%	-25.93%	0.00%	0.00%	39.80%
NI	0.00%	0.00%	0.00%	na	0.00%
OM	0.00%	0.00%	0.00%	0.00%	0.00%
ORE	0.00%	0.00%	0.00%	na	0.00%
B	**185.12%**	**-25.93%**	**794.63%**	**-87.35%**	**216.62%**
DIZ	0.00%	0.00%	0.00%	0.00%	0.00%
MA	0.00%	0.00%	0.00%	0.00%	0.00%
UPM	0.00%	0.00%	0.00%	0.00%	0.00%
C	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
TOTAL	**47.58%**	**20.47%**	**22.32%**	**31.69%**	**30.52%**

Note. Figures used in analysis are sourced from Company Annual Reports.
Legend: A=Production; B=Pre-production; and C=Non-operational/On Care and Maintenance.

APPENDIX C.3

Horizontal and Vertical Analysis – Mining Net Profits

(In millions of pesos)

Firm	2010	2009	2008	2007	2006	Cum. Ave.	Profit %
	[a]	[b]	[c]	[d]	[e]		
APX	(120.64)	(600.79)	(343.67)	(31.14)	(53.92)	(230)	-4.23%
AT	(461.79)	(1,824.91)	531.46	296.07	47.00	(282)	-5.19%
BC	2,408.85	(165.90)	(474.89)	286.93	(141.78)	383	7.03%
CPM	(22.01)	3.93	2.94	na	na	(5)	-0.09%
LC	(9.22)	(362.43)	(737.15)	(266.63)	(18.31)	(279)	-5.12%
NIKL	1,822.99	590.20	1,599.43	na	na	1,338	24.59%
PX	4,186.58	2,277.70	2,949.69	5,005.65	3,086.67	3,501	64.36%
SCC	2,529.66	1,773.98	808.07	633.29	601.24	1,269	23.33%
A	**10,334.41**	**1,691.77**	**4,335.87**	**5,924.17**	**3,520.90**	**5,694**	**104.67%**
AR	(3.77)	(3.17)	(3.93)	(2.99)	(3.00)	(3.37)	-0.06%
AB	(41.90)	(5.67)	(0.40)	(5.46)	(3.54)	(11.40)	-0.21%
GEO	4.60	(249.75)	(95.84)	(102.36)	256.69	(37.33)	-0.69%
NI	9.53	(63.39)	(76.31)	(14.49)	na	(36.17)	-0.66%
OM	0.00	(1.25)	0.00	0.00	0.00	(0.25)	-0.01%
ORE	(7.04)	(44.15)	(108.57)	(56.06)	na	(53.96)	-0.99%
B	**(38.57)**	**(367.39)**	**(285.06)**	**(181.36)**	**250.15**	**(142.47)**	**-2.62%**
DIZ	(4.00)	(7.74)	(10.32)	(11.54)	(17.39)	(10.20)	-0.19%
MA	(8.48)	(16.89)	(132.04)	276.98	(112.70)	1.37	0.03%
UPM	(35.50)	(30.55)	(37.87)	(126.72)	(284.21)	(102.97)	-1.89%
C	**(47.98)**	**(55.19)**	**(180.23)**	**138.72**	**(414.30)**	**(111.80)**	**-2.06%**
TOTAL	**10,247.86**	**1,269.20**	**3,870.59**	**5,881.53**	**3,356.75**	**5,440.16**	**100.00%**

	2010	2009	2008	2007	2006	% of annual net profit
A	100.84%	133.29%	112.02%	100.73%	104.89%	
B	-0.38%	-28.95%	-7.36%	-3.08%	7.45%	
C	-0.47%	-4.35%	-4.66%	2.36%	-12.34%	
TOTAL	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	

	[a] vs. [b]	[b] vs. [c]	[c] vs. [d]	[d] vs. [e]	Average	year-on-year change in %
A	510.86%	-60.98%	-26.81%	68.26%	122.83%	
B	-89.50%	28.88%	57.18%	-172.50%	-43.99%	
C	-13.05%	-69.38%	-229.92%	-133.48%	-111.46%	
TOTAL	**707.43%**	**-67.21%**	**-34.19%**	**75.21%**	**170.31%**	

Note. Figures used in analysis are sourced from Company Annual Reports.
Legend: A=Production; B=Pre-production; and C=Non-operational/On Care and Maintenance.

APPENDIX D
Market Capitalization by Operating Profile

(In millions of pesos)

Firm	2010	2009	2008	2007	2006	Cum. Ave.	MCap %
	[a]	[b]	[c]	[d]	[e]		
APX**	5,262.63	3,723.84	1,457.53	8,677.97	7,893.94	5,403	2.25%
AT	30,836.00	16,053.00	4,851.15	24,697.00	17,111.00	18,710	7.77%
BC**	2,196.70	2,617.99	1,264.12	3,742.83	2,471.02	2,459	1.02%
CPM	6,599.57	18,332.00	na	na	na	12,466	5.18%
LC**	19,844.84	10,675.04	2,665.39	21,331.62	10,702.28	13,044	5.42%
NIKL	21,839.00	na	na	na	na	21,839	9.07%
PX	79,354.00	78,861.00	19,321.00	28,815.00	12,284.00	43,727	18.17%
SCC	65,906.00	19,043.00	10,214.00	15,235.00	6,318.93	23,343	9.70%
A	**231,838.74**	**149,305.87**	**39,773.19**	**102,499.42**	**56,781.17**	**140,990**	**58.58%**
AR	713.49	804.97	548.84	1,829.47	2,195.36	1,218.43	0.51%
AB	109,181.00	257,045.00	5,344.50	22,905.00	16,543.00	82,203.70	34.16%
GEO	1,579.50	2,038.07	1,019.03	4,585.65	1,611.91	2,166.83	0.90%
NI	2,772.00	3,740.00	789.33	4,000.00	768.00	2,413.87	1.00%
OM	1,018.95	840.37	735.32	1,470.65	1,194.90	1,052.04	0.44%
ORE	5,488.56	1,234.20	638.88	4,791.60	na	3,038.31	1.26%
B	**120,753.50**	**265,702.61**	**9,075.90**	**39,582.37**	**22,313.17**	**92,093.17**	**38.27%**
DIZ	366.63	308.13	93.61	624.05	234.02	325.29	0.14%
MA**	4,640.10	5,067.46	1,266.87	5,808.39	4,833.89	4,323.34	1.80%
UPM	4,181.04	1,959.86	836.21	3,919.72	3,762.93	2,931.95	1.22%
C	**9,187.77**	**7,335.45**	**2,196.69**	**10,352.16**	**8,830.84**	**7,580.58**	**3.15%**
TOTAL	**361,780.01**	**422,343.93**	**51,045.78**	**152,433.95**	**87,925.18**	**240,664.10**	**100.00%**

APPENDIX E

Big Four: Mining Revenue by Mineral Output

(In millions of pesos)

Firm	Commodity	2006	2007	2008	2009	2010		
PX	Au	3,545	4,936	5,364	5,108	7,209		
	Cu	6,348	7,192	4,259	3,742	5,721		
	Ag	67	89	85	83	135		
	Coal	0	0	0	37	31		
SCC	Coal	4,688	6,467	8,490	11,500	14,242		
NIKL	Ni	na	na	5,579	4,333	8,074		
AT[a]	Cu	0	0	202	4,308	8,423		
	Au	0	0	64	211	423		
	Ag	0	0	0	0	5		
	Ni	0	1,253	715	171	0		
Summary:							**Cum. Ave.**	**% of Total**
	Cu	6,348	7,192	4,461	8,050	14,145	8,039	30.2%
	Coal	4,688	6,467	8,490	11,537	14,273	9,091	34.2%
	Au	3,545	4,936	5,370	5,319	7,631	5,360	20.1%
	Ni	0	1,253	6,294	4,505	8,074	4,025	15.1%
	Ag	67	89	85	83	140	93	0.3%
Total		**14,648**	**19,937**	**24,700**	**29,494**	**44,263**	**26,608**	**100.0%**

Note. Analysis based on data sourced from Company Annual Reports.

[a]Ni Sales are from prior year's stockpiles.

APPENDIX F
Glossary of Terms

Terminology	Definition
Mineral Resource	A concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories*.(Section VII, Clause 19, PMRC)*
Inferred Mineral Resource	That part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes which may be limited or of uncertain quality and reliability. *(Section VII, Clause 20, PMRC)*
Indicated Mineral Resource	That part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed. *(Section VII, Clause 21, PMRC)*
Measured Mineral Resource	That part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and grade continuity. *(Section VII, Clause 22, PMRC)*
Ore Reserve	The economically mineable part of a Measured and/or Indicated Mineral Resource; it includes diluting materials and allowances for losses, which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. Ore Reserves are sub-divided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves. *(Section VIII, Clause 28, PMRC)*
Probable Ore Reserve	The economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource; it includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors These assessments demonstrate at the time of reporting that extraction could reasonably be justified. *(Section VIII, Clause 29, PMRC)*
Proved Ore Reserve	The economically mineable part of a Measured Mineral Resource; it includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments and studies have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. *(Section VIII, Clause 30, PMRC)*