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Extracting Growth from Mining

The mining industry is one of the sectors identified by government to spur growth in the economy. It is projected that over the next five years, mining would grow by an average of 13 percent[1] following the Mineral Action Plan, which provides the framework for the development of the country's vast mineral resources. Of the country's total land area of 30 million hectares, about 30 percent is geologically prospective for metallic minerals.

The industry received a big boost last December 2004 when the Supreme Court (SC) ruled the Mining Act of 1995 as constitutional. Large investments are expected to pour in because of the SC decision. Foreign firms are now allowed to own 100 percent of mining operations where the operations are under a financial or technical assistance agreement (FTAA) and the project investment is greater than US$50 million.

The impact of the SC decision appears to have already borne fruit. The gross value added from mining and quarrying has gone up by 14 percent in the second quarter of 2005 from its level in the same period in 2004. The growth of the sector was primarily induced by the infusion of investments in the Palawan Nickel Project of Coral Bay Mining Corporation (US$175.8 million), the Rapu-rapu Project of Lafayette Philippines Inc. (US$39 million), the Canatuan Gold Project of TVI Resources Development Phils. Inc. (US$17 million), and the Teresa Gold Project (US$6.1 million).

The question on the viability of mining as a tool for sustained development, however, persists. Mining, characterized mainly by extractive and non-renewable activities, has been shown to have adverse impacts on communities and local economies. Domestic and international experiences bear out this fear by many antagonists of mining. In this paper, the potential of the mining industry will be discussed, the issues surrounding it, and the theories behind mining as a development strategy and how these apply in the Philippines.

The Philippines: A Wealth of Mines…

The Philippines is naturally endowed with rich mineral resources owing to its geographical location. The country is located along the Circum-Pacific belt of fire, where volcanic processes of tectonic movement and plate convergence have created abundant formations of metallic mineral deposits of chromate, cobalt, copper, gold, iron, nickel, and platinum. The Philippines' geological

Table 1. Global Ranking of the Philippines in terms of mineral deposits (1980s)

Gold	2nd
Copper	3rd
Nickel	5th
Chromate	6th

Source: Mines and Geosciences Bureau

[1] Based on the projections under the Medium-Term Philippine Development Plan for 2006-2010

setting offers many potential sites for mineral resource development.

Based on defined resources and past production patterns, the Philippines is considered to be the fifth most mineralized country in the world.[2] It has nine million hectares of mineralized land, with established reserves of 13 known metallic and 29 non-metallic minerals spread across the country. Most of the country's 80 provinces have yielded minerals at one time or another.

Table 2. Existing Mineral Reserves by Type

Metallic Mineral Reserves (7.1 billion MT)		Non-metallic Mineral Reserves (51 billion MT)	
Copper	67.5%	Limestone / Marble	85.0%
Nickel	16.0%	Others	15.0%
Others	16.5%		

Source: Mines and Geosciences Bureau

When translated in monetary terms, the country's potential for mineral development is even more astounding. The National Economic and Development Authority (NEDA) has estimated that the country has US$840 billion (PhP47.08 trillion) worth of mineral wealth waiting to be extracted from the ground, almost 10 times the country's annual GDP and 15 times its total foreign debt. At present, only 5 percent of the country's mineralized areas are being utilized.

...Wealth from Mines

On top of direct investments, mining in the Philippines has been a significant source of government revenues. Mining firms pay at least 15 different types of taxes which include among others, corporate taxes, excise taxes on the minerals produced, royalties, and local government taxes. Over the past three years, government revenues from the mining sector increased by an average of 25 percent with a significant 42-percent increase in 2004, when government revenues from mining operations reached PhP3.7 billion.

In terms of job creation, mining has also generated an average annual employment of 125,000 in the past 25 years. This does not include the opportunities mining generates for small and medium entrepreneurs to engage in various auxiliary industries and activities such as housing, transportation, and food services. It is estimated that for every job directly employed in mining, 4 to 10 additional jobs are created.

Table 3. Mining Deposit Concentration by Area

Area	Mineral Deposits
Luzon	
Central Cordillera	Copper, Iron, Gold, Manganese
Northern Sierra Madre	Chromium, Copper, Nickel
Zambales	Chromium, Cobalt, Copper, Gold, Nickel, Platinum
Nueva Vizcaya / Aurora	Copper, Gold
Southern Tagalog	Copper, Cobalt, Gold, Nickel
Bicol	Copper, Gold, Iron
Palawan	Chromium, Cobalt, Gold, Nickel, Platinum
Visayas	
Central Visayas	Copper, Gold, Manganese
Samar	Chromium, Cobalt, Copper, Gold, Iron, Manganese, Nickel, Platinum
Mindanao	
Eastern Mindanao	Chromium, Cobalt, Copper, Gold, Iron, Manganese, Nickel, Platinum
North-Central Mindanao	Chromium, Copper, Gold
Zamboanga Peninsula	Chromium, Copper, Gold, Iron
Southern Mindanao	Copper, Gold

Source: Mines and Geosciences Bureau

Table 4. Government Revenues from Mining, in PhP billion

Taxes Collectible from Mining	2000	2001	2002	2003	2004
Fees, Charges and Royalties Collected by DENR-MGB	51.2	66.3	58.5	79.8	120.1
Excise Tax Collectible	n.a.	467.0	583.0	707.0	746.0
Taxes, Fees Collected by other NGAs	1,747.9	647.6	823.8	1,039.2	1,984.4
Taxes Collected by LGUs	852.7	745.7	800.5	787.4	850.0
Total	**2,651.8**	**1,926.6**	**2,265.8**	**2,613.4**	**3,700.5**

Source: Mines and Geosciences Bureau

[2] Mines and Geosciences Bureau – Department of Environment and Natural Resources

Table 5. Direct Taxes and Fees to be Generated from Mining

Payments due to the National Government	Payments due to the Local Government Units
• 35% Corporate Income Tax • 2% Excise tax on actual value of minerals produced • Custom duties and fees under the Customs and Tariffs Code • 10% Value Added Tax on imported equipment, goods, and services • 5% of the actual value of the minerals (Produced as royalties, in case of mineral reservations) • Documentary stamp tax depending upon the nature of the transaction • Capital gains tax equivalent to 10-20% of the gain • 15% tax on interest payments to foreign loans • 15% tax on foreign stockholders dividends	• Local business tax (At a maximum of 2% of gross sales) • Real property tax equivalent to 2% of actual market value of proper ties based on assessment (plus 1% special education levy) • Registration fees • Occupation fees (PhP50/ha. per annum) • Community tax (At a maximum of P10,500 per year) • Other local taxes, the rate and type depending on the LGU concerned

Source: Mines and Geosciences Bureau

Table 6. Jobs Generated from Mining

Period	Average Annual Employment
1980s	134,300
1990s	124,200
2000s	107,400
Average	**125,167**

Source: Department of Labor and Employment

In addition, the construction of critical infrastructure and the delivery of basic social services in far-flung rural areas are often provided for by mining companies as means of support to local host communities. The Mining Act of 1995 mandates mining companies to spend at least one percent of the annual direct mining and milling costs for community development and the development of domestic mining technology and geosciences. Besides this, mining companies are also mandated to pay royalties to local communities amounting to at least one percent of their annual gross revenues.

The mining community in Tuba, Benguet is an excellent example of how local communities and large mining corporations can come together and work harmoniously towards the creation and sustenance of a vibrant local economy. Philex Mining Corporation has been operating in Tuba for 47 years. During this time, the company has managed to provide the local mining community with electricity and water supplies, elementary and high schools, telecommunications systems, roads, a bank, and postal service. Peace and order is never an issue in Tuba as Philex employees are among the most well-compensated and well-organized in the industry. Electricity, water, and even elementary education are provided for free while high school education is subsidized. The company is also implementing a successful reforestation program in previously mined-out areas in and around Tuba.

More Wealth Coming

The 24 priority mining projects approved by government are expected to continue generating significant investments for the economy. All in all, these projects are expected to infuse a total of US$6.7 billion (PhP366 billion) in investments that should provide some US$507 million (PhP27.9 billion) in tax revenues annually. The big investments and revenues will come from the Pujada Nickel Project in Davao Oriental and the Boyongan Copper Project in Agusan del Norte.

Table 7. Potential Gains from 24 Priority Mining Projects*

Resource Generation	(in US$ million)
Potential Investments	6,669
Annual Gross Sales	3,188
Potential Annual Excise Tax	62
Potential Annual Income Tax	445
Employment Generation	
Construction	20,100
Direct Employment	30,870
Indirect Employment	136,100

Source: Mines and Geosciences Bureau

*Computations refer to the total investments of all projects. Actual start of operations may differ depending on the progress of the projects.

As of June this year, the 24 approved new or expanded mining projects identified by the government have already infused paid-up investments of US$339.7 million (PhP18.7 billion) and have created about 5,000 jobs.

So What's the Score?

Considering the wealth of resources in the country and the incomes and jobs it is projected to provide, the Philippines' economic condition begs the question, how real are these resources? Further even, can the country really gain from these resources?

Past Experience

Mining as an industry is highly prospective. The chances of success are generally slim with industry experts pegging the odds of finding mineral deposits during exploration at 1:500. Estimates made by the Mines and Geosciences Bureau (MGB) during the 1990s also reveal that most of the remaining mineral deposits in the country are actually low-grade ore.[3] The poor quality of ore results in higher operating costs per ounce of metal produced since less metal is recovered for every ton of ore mined and processed in the country.

Philippine experience also shows that mining investments are vulnerable to the prevailing socio-economic environment in the country. Mines across the country were closed down, suspended, or scaled down during the latter part of the 1980s as the Philippine economy struggled to cope with political uncertainty. By the mid-1990s, the number of active mines being operated in the country had fallen from 58 in 1981, to just 27 in 1997. As a result, the average annual employment in mining and quarrying fell by 7.5 percent during the 1990s. Average mineral production during the same period likewise fell by 18.9 percent to US$967 million, while mineral exports also dropped by 3.8 percent to US$709 million.

The ambiguity of government policies has also caused the decline in mining activities as it did in the 1990s. The passage of the Mining Act in 1995 was supposed to clarify and streamline existing government policies towards revitalizing the domestic mining industry. However, public sentiment weighed heavily against mining following the 1996 Marcopper tragedy in Marinduque. A year later, various environmental and civil society groups led by the Legal Rights and Natural Resources Center – Kasama sa Kalikasan (LRC –KsK) managed to stay the implementation of the Mining Act by challenging its constitutionality before the SC.

Environmental Woes

The impact of mining on the environment may be difficult to measure but the adverse economic and social effects are real. To date, most of all FTAA and mineral production sharing agreement (MPSA) applications in the country will employ open-pit mining or combination of open-pit and other forms of extraction. The practice of open-pit mining has already been banned in several industrialized countries including the United States and Canada, because of its negative impact on the environment. Open pits are usually over 2.5 km. long, 0.5 km. deep, and 1.2 km. wide. It has been estimated that three tons of mineral waste are produced for every gold wedding ring made. Waste materials and smelters are also known to cause sulfurous dust clouds that result in acid rain. Abandoned strip mines are often used as unregulated landfills for hazardous wastes. Tailings runoffs can contaminate nearby water sources with heavy metal pollutants used in mining, such as cadmium, mercury, sodium cyanide, and zinc, rendering them useless as sources of food, water, and livelihood. It has been estimated that 160,000 tons of mine tailings find their way into rivers, lakes, and irrigation systems across the country everyday.[4]

Mining disasters have not helped the cause of the industry and have only created negative public sentiment. There have been several documented cases of river poisonings across the country but all of them pale in comparison to the infamous Marcopper tragedy in 1996, considered to be one of the biggest environmental disasters to ever hit the Philippines. Up until today, the effects of the breach of the tailings dam which spilled some three million toxic tailings, are still felt. It has resulted in the biological death of the Boac and Makulapnit rivers, and inundated an additional 823 hectares of once productive farmland. It has likewise adversely affected the physical wellbeing and livelihood opportunities of more than 20,000

[3] MGB presentation made during the joint meeting of the Senate Committees on Natural Resources and Ways and Means, 11 January 1994

[4] Environmental Science for Social Change – Bishop-Businessman's Conference, 1999

Table 8. River Systems Affected by Mine Wastes and Tailings

Affected River Systems	Immediate Province Affected
Upper Agno River	Benguet
Lower Agno River	Pangasinan
Ambalanga, Bued, and Mankayan Rivers	Benguet
Upper Amburayan River	Mt. Province
Lower Amburayan River	La Union, Ilocos Sur
Sto. Tomas River	Zambales
Taft River	Samar
Makulapnit and Boac Rivers	Marinduque
Tao-Angan River	Negros Occidental
Sipalay River	Negros Occidental
Pagatban River	Negros Oriental
Sapang-Daku River	Cebu
Ngan, Tagum, and Higo Rivers	*Davao del Norte*

Source: Tujan and Bella-Guzman, 2002

families living in 42 communities adjacent to the Boac River.

The fact that there has been no clear resolution to the tragedy further erodes the confidence of the public on the capacity of the government to regulate the industry[5]. To this day, Marcopper and its former majority shareholder, Canadian mining firm, Placer Dome Inc., continue to deny responsibility for most of the damages caused by mining activities in Marinduque. Placer Dome Inc., the second largest mining firm in Canada, has since then divested its share in Marcopper and continues to operate mines around the globe. Marinduqueños, on the other hand, continue to daily contend with the adverse effects of the tailings dam breach.

Economic Contribution

Despite the rich mineral deposits in the country, mining has only contributed on the average, 1.44 percent of the country's gross domestic product in the past 35 years. The highest contribution of mining to GDP was 2.16 percent in 1985 but this was due to the contraction of other sectors of the economy in general. In terms of exports, mining exports' share to total exports only

[5] The provincial government of Marinduque has filed a suit against Placer Dome Inc. in October this year seeking at least US$100 million from Placer Dome for the rehabilitation of the area affected by the discharge of thousands of tons of toxic waste mine tailings.

Table 9. Share of Mining to the Economy

Period	Total GDP (at constant PhP million)	Mining & Quarrying (GVA at constant PhP million)	Percent Share (%)	Average Annual Employment
1970s	453,163.1	6,122.2	1.35	54,889
1980s	631,481.4	10,437.7	1.65	134,300
1990s	800,758.9	10,723.5	1.34	124,200
2000s	1,022,285.3	14,543.6	1.42	107,400
Average	674,799.3	9,615.7	1.44	**125,167**

Source: National Statistical Coordination Board

Table 10. Selected Mineral Statistics, 1980-2003 , in US$ million

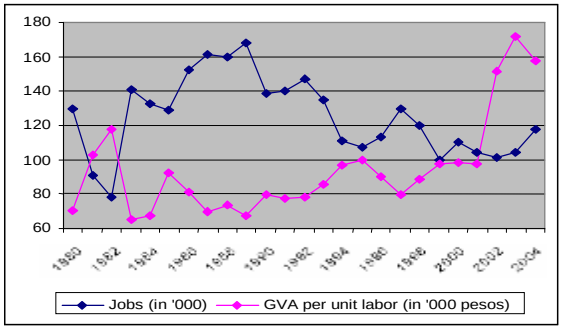
Period	Average Annual Mineral Production Value	Average Annual Mineral Exports	Average Annual Exports	% Share of Mineral to Total Exports
1970s	n.a.	455.78	2,396.00	19.65
1980s	1,191.88	736.93	5,701.34	13.03
1990s	966.74	709.00	17,945.37	4.97
2000s	679.22	631.80	35,417.00	1.65
Average	**1,012.63**	**628.20**	**11,826.32**	**11.27**

Sources: Bangko Sentral ng Pilipinas, Department of Labor and Employment, National Economic and Development Authority

average 11.27 percent, with a high of 24.56 percent in 1973.

Over the past decades, the jobs provided by the mining industry have decreased as mining companies employ more labor efficient technologies and means of production. Mining employment has dropped from an average 0f 134,000 annually in the 1980s to 118,000 in 2004. Meanwhile, real gross value added (GVA) per unit labor has risen from PhP70,000 in 1980 to PhP158,000 in 2004.

Figure 1. Trends in Employment in Mining



Source: Mines and Geosciences Bureau

Mining as a Development Strategy

Mainstream mining operations in the country are largely dispersed in the different regions of the country with the biggest mines found in Benguet and Compostella Valley. Ideally, the natural resources in these provinces should help increase the output of these regions and improve the economic condition of its residents. Apparently, mining operations have contributed very little to the alleviation of poverty in mining dependent provinces. In Masbate, Camarines Norte and Agusan, where the country's bigger gold and copper mines are situated, poverty levels are one of the highest in the country. In Region IV, where the contribution of mining to regional output is the highest at 17 percent, poverty levels have remained at 39.7 percent, well above the national average of 24.7 percent. While it is true that poverty levels are determined by many other economic and social variables, the contribution of mining in alleviating poverty levels in mining dependent provinces is not obvious.

Table 11. Poverty Incidence in Mining, 2003

Province	Poverty Incidence (%)
Benguet	13.9
Kalinga	39.3
Nueva Vizcaya	16.8
Isabela	30.2
Zambales	23.7
Palawan	24.4
Marinduque	42.7
Camarines Norte	52.7
Albay	40.3
Masbate	61.5
Negros Occidental	41.6
Cebu	26.2
Zamboanga del Norte	47.0
Zamboanga del Sur	34.8
Compostela Valley	39.1
Surigao del Norte	42.6
Agusan del Sur	51.8
Average	37.0
National Average	24.7

Source: National Statistical Coordination Board

Global experience shows two schools of thought regarding the role of mining to economic development. The example of Canada, Australia, Finland, Sweden and the United States show that the active utilization of a country's natural resources can be used as a driving force behind industrialization. The development of extractive industries, such as mining, is often viewed as the "big push" developing countries need in order to escape from the "low-income trap".[6]

Various studies, however, downplay the role of mining in the history of development in various economies, particularly in developing countries. In *Digging to Development*, historical data from the last two centuries for each of Canada, US and Australia show that mining's share of annual GDP has not been significant, contributing only 1 to 5 percent. The study points out that the sustained growth of these three countries were not driven by mining and other extractive industries per se but by the successful development of upstream and downstream industries, which relied heavily on the processing of mineral products, serving as inputs to domestic manufacturing and production. The resulting increase in trade, particularly in manufacturing and agriculture, led to the rapid industrialization of these three countries, making them the economic giants they are today.

Table 12. Poverty and Mining by Region, Dependent Provinces, 2000

Region	Poverty Incidence	Share of Mining to Total GVA
CAR	24.8	11.49
NCR	5.0	0.00
I	24.4	0.71
II	19.3	0.43
III	13.7	0.09
IV-A	14.9	0.56
IV-B	39.7	17.08
V	40.5	4.96
VI	31.3	2.92
VII	23.7	0.80
VIII	35.5	0.72
IX	44.1	0.97
X	37.9	0.65
XI	28.1	5.39
XII	32.0	0.16
XIII	47.3	2.98
ARMM	45.7	0.00
TOTAL	24.7	1.65

Source: National Statistical Coordination Board

[6] Power, 2002

Recent studies have also shown that higher levels of mineral and oil dependence actually serve to undermine a country's economic growth.[7] Rather than improve it, an economic malady called the "Dutch Disease," effectively stalls a country's industrialization. The general dynamics of this disease begins with a resource boom where currencies appreciate and labor and capital tend to be diverted towards the resource sector, depriving other important sectors of the economy.[8] The lack of a mature industrial sector makes it then more difficult for developing countries to diversify their exports, thereby limiting the value-added on their goods. This ultimately reduces the ability of developing countries to compete effectively in the global market and limits their chances of achieving sustained economic growth.

A study by the World Bank and International Finance Corporation shows contrasting results as to the impact of mining in various economies. On the one hand, the study presents data showing that in countries where mining is dominant (constitutes more than 50 percent of exports), growth rates per capita have been contracting[9].

Table 13. Overview of Developing Mining Countries

Mining Products as % of Exports	No. of Countries	GNI/Capita, 1999 (US$)	Growth in GDP/capita, 1990-99 (%)
Dominant (>50%)	8	1,096	-2.3
Critical (15-50%)	22	1,040	-1.1
Relevant (6-15 %)	18	3,443	-0.7
Mining a domestic sector	3	867	6.8
All developing "mining countries"	51	1,179	1.6
All developing and transition countries	132	1,200	1.7

Source: World Bank – International Finance Corporation

The same study points out a different picture, however, when the economic performance of mining countries are compared with their regional counterparts. Data show that 13 out of 22 and 7 out of 9 mining countries in Africa and Latin America, respectively, have grown at a faster pace than their respective regional averages.

What is common among the studies is that they generally point to the importance of sound economic management as a critical determinant of whether or not mining can contribute to growth. In Botswana and Namibia, which have grown at a much faster pace than the average economic growth in African economies, mining revenues have been used well to finance public sector investments. In contrast, mining revenues in Sierra Leone and Congo have only served to develop kleptocracy and armed conflicts despite their rich diamond and metal resources. A different case is presented by the examples of China and India, countries which are generally not considered as mining countries. However, mining in these countries have contributed to their economic growth as their ore and mineral resources have been used to develop their local industries. In both China and India, for example, domestically mined resources make up 60 to 80 percent of their energy mix providing affordable fuel for their manufacturing sectors. In sum, the best performing mining economies have generally shown that they were committed to outward-looking and conservative principles of macroeconomic management, have channeled large parts of the mining sector revenues to appropriate investments, and chose not to go on extended investment spending sprees.

The role of mining on reducing poverty is also an important issue in evaluating the relevance of this sector to economic development. On a macroeconomic level, economic growth (as could be the case when mining increases national output and income) is a well accepted precept to development and poverty reduction. However, more studies have to be done with respect to the impact of mining at the microeconomic level considering the various dimensions of poverty, i.e., job security, people empowerment, environmental impacts, and social costs. The mining disasters in the Philippines have shown the deleterious effects of mining in the affected communities. In some countries, mining operations have been seen as inter-related to rising rates of HIV/AIDS, particularly when large volume of migration is involved in mining operations[10].

[7] Sachs and Warner, 1995, Leite and Weidmann, 1999, and Gylfason et al., 1999

[8] Ross, 2001. According to the study, there is also a high correlation between mineral-dependence and poverty and income inequality in developing countries.

[9] "Treasure or Trouble: Mining in Developing Countries" World Bank and International Finance Corporation, Washington D.C., 2002

[10] World Bank - International Finance Corporation

Box 1. Mining: The Nauru Experience

Nauru is the world's smallest independent republic. Located in the South Pacific, the country sits on a small phosphate island with a total land area of only 21 km^2, roughly the size of Marikina City. Since 1906, the country's economy has been based solely on the phosphate mining industry. Phosphate is widely used as a fertilizer around the world. At its peak, the country produced over two million metric tons of phosphate per year. With a population of only 11,000 people, huge revenues from phosphate mining translated into one of the highest per capita incomes in the world.

However, it is widely believed that the country's phosphate deposits have been completely exhausted. Phosphate was the only source of economic activity, and with the depletion of the mineral, the country has been left with nothing else to trade. Since the country gained independence in 1968, over 60 percent of phosphate exports revenues were supposed to have been invested in long-term trust funds, designed to provide the Nauruans with future income once the phosphate deposits were exhausted. However, virtually no attempt has been made to rehabilitate any of the mined-out areas. Recent estimates show that 80 percent of Nauru's total land area has already been reduced to pitted, barren wastelands with scattered coral pinnacles. Residents are now forced to live on a narrow strip along the coast, which is the only place on the island that can still support human life. Almost all of the food in the country has to be imported since most of the natural environment has already been rendered sterile by mining.

The government of Nauru is now seriously considering relocating the whole population to another island somewhere in the South Pacific. It is widely believed that the island is no longer capable of sustaining human life. Its natural environment has been damaged considerably and there are no other economically-viable industries left in the country. Rehabilitating the natural environment will be very expensive and complicated, making it a remote possibility. One of the proposals is to rehabilitate the stripped earth by crushing the remaining phosphate pillars and covering it up with imported topsoil, humus, and other nutrients, to begin the long process of rebuilding the ecosystem. However, this proposal will take more than 30 years to complete and is estimated to cost over US$149.6 million.

Mining - Our Business?

The Philippines cannot really be considered a mining dependent country despite its vast endowments of mineral resources. The country's levels of mining, measured as a percentage of GDP and as a percentage of total exports, pale in comparison to the levels in other countries which have been the subject of studies determining the impact of mining in an economy. It may be difficult to directly infer from the experiences of other countries in this regard. The "Dutch Disease," which is a common fear against mining, may be an unlikely scenario in the country as mining exports and employment constitute only a small percent of the country's total exports and employment, respectively.

However, the elements that determine whether a country can achieve economic progress with mining as a tool for economic growth can be very well applied in the country. The two prevailing determinants for the success of mining in different economies, good governance and wealth distribution, are highly relevant in gauging whether or not mining will also aid the country's overall economic growth.

On Good Governance. On paper, the Philippine Mining Act is among the best in the world and is considered by many industry experts to be one of the most advanced mining laws. In fact, the law holds the distinction of being the only mining legislation in the world that has built-in provisions for the protection of the rights of indigenous peoples. The social and environmental provisions are comparable to measures formulated in industrialized nations. The sad reality is that while the Mining Act may be the best piece of mining legislation in the world, there has been doubt on the capability and political will of government to fully implement it.[11]

The mining industry must be supported and regulated by stable and consistent institutions that

[11] Ross, 2001. According to the study, mineral dependent states tend to suffer from unusually high rates of corruption, government ineffectiveness, authoritarianism, increased military spending, and civil war.

ensure the protection and sustainable development of the country's peoples, cultures, and natural resources. As long as the affected communities in the Marcopper tragedy remain duly uncompensated, doubts on the capability of the government to regulate mining will continue to linger.

In the absence of a credible regulatory environment, mining activities are bound to cause more harm than good. The long-term environmental effects of open-pit mining are irreversible. To date, there is no known rehabilitation activity of any open-pit mining site in the world, which has become suitable for human occupation. Despite the talks about sustainable mining in the country, "the Philippine mining industry has yet to build a mining community where at the post-mining stage, that community can blossom into a self-reliant, progressive socio-political unit. It has yet to show a mine that, after the life of operation, has fully rehabilitated the mined-out area and restored the productive use of land."[12] The FTAA and MPSA applications in the country, which will mostly employ open-pit mining or a combination of open pit and other forms of extraction, must be evaluated in this light.

Wealth Distribution. Some sectors fear that the Mining Act will only serve as another avenue for large multinational corporations (MNCs) to earn money off the systematic plunder of the country's vast natural resources. Much doubt has been placed on mining's ability to be the development tool that will bring about a profound improvement in the quality of life of the rural poor. Their concerns are not baseless. Poverty has continuously persisted in many historic mining regions across the country. Mines such as those in Masbate and Marinduque have been in operation for decades, but the communities there remain among the poorest in the nation. Poverty and unemployment remain high in areas, which have bore the brunt of five decades of environmental mismanagement. The employment multiplier effect of mining activities is also questioned as experience shows, jobs created only require low-skill labor.[13]

Conclusion

Mining, as an activity, can provide significant gains for an economy. Besides being an important resource industry, it has been proven that mining can indeed be a generator of employment and government revenues. However, mining must be done right. If the mining industry is to be a successful driver of sustained economic growth, forward linkages must be developed so as to add substantial value to the country's mineral products. Likewise, revenues generated by government should be used to improve infrastructure in the mining areas and programs for livelihood, education and health.

The country can no longer afford to inefficiently manage what little natural resources it has left, especially in light of the mining industry's adverse impacts on both society and the natural environment. The conclusion of Ross in his 2001 study on mining can well serve as a basic policy guideline for mining. As he pointed out in his study, "when mineral development occurs in a context of underdeveloped social, political, and economic institutions, the non-renewable resource wealth tends to be squandered, the level of social conflict increases, and nearly irreparable damage is inflicted on the environment. This can leave a developing nation PERMANENTLY poorer." It is therefore imperative that the government promote sustainable economic activities which encourage the development of human and institutional capital rather than focus on industries which are environmentally disruptive. It has to prove that the projected short-term economic benefits from mining outweigh its long-term social and environmental costs. These issues have to be equally addressed by government.

[12] Horacio Ramos, former MGB director (1996-2005)
[13] Jobs created include drillers, spotters, ore breakers, drivers, and utility personnel engaged in cooking and laundry work. (Citizens Assessment of Structural Adjustment)

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