

THE SEVENTH PH-EITI REPORT (FY 2019):
Resiliency in Transparency

Chapter 3: INDUSTRY OUTLOOK (Draft)

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EXECUTIVE SUMMARY

Ceteris paribus, the extractive industry in the Philippines is poised to grow in the long term at an annual rate of 10.3 percent from 2020. This will mainly be driven by the oil and gas sector's 20-year CAGR of 26 percent on the back of the Philippines' relatively slow transition to decarbonization. The non-metallic mining sector's compounded growth rate of 10 percent per year is also a major contributor to the industry's expansion over eight years, given the former's strong average export performance worth 1.1 billion USD in FOB per annum. The contributions of the coal and metallic mining sectors are single-digit at 9.7 and 7.7 percent, respectively, but significant nonetheless with the production of coal and metallic minerals steadily growing.

However, the projected growth rates of the extractive industry and its sectors were stymied by the onset of the COVID-19 pandemic that caused a huge slump in consumer demand and a consequent slowdown of the global economy. Instead of the oil and gas, coal, metallic, and non-metallic mining sectors expanding yearly in the short run at respective rates of 73, 13, 10, and 12 percent until 2023, they contracted to an average of -16 percent erasing all gains that were made from nearly 20 years ago. Primary exports of their major commodities fell such as gold by 2.9 percent, chromium ore by 13, petroleum products by 21, and copper concentrates by 71 between 2019 and 2020. Employment was also down in July 2020 vis-à-vis the year before when joblessness in this industry increased by 87 percent while the mean hours of work decreased by 9.1 percent. As a surrogate for the industry's local and national payments, its gross revenues declined by 29 percent quarter-on-quarter (QOQ) from April to June 2019.

Recent political changes are resetting the trajectory of the extractive industry toward positive territory. EO 130 that lifted an almost decades-old moratorium on new mining projects is expected to boost mineral production by around 15 billion PHP more every year until 2023 and up to an additional 43 billion annually until 2027. The introduction of these entrants will be able to increase exports by 1 to 2 billion USD per annum as well as employ as many as 1.3 times more workers. With 100 new players in the pipeline, the government can receive upwards of 34 billion PHP in taxes and fees from this sector. Moreover, the passage of the new tax regime, CREATE, reduced the Corporate Income Tax from 30 to 25 percent effectively allowing companies in the extractive industry to reinvest their savings toward further expansion.

Stricter government regulation, though, on environmental protection brings the possibility of narrowing the extractive industry's profit margin; but technological advancements and the potential for the extraction of rare-earth elements are two major factors that can also serve to widen it. Economic developments as well are paving the way for the metallic mining sector onward to greater export revenues. The global post-COVID-19 recovery is pushing the need for higher gold purchases as a liquid resource and an investment safeguard against another possible pandemic. The worldwide trend of utilizing EV over conventional ones is focusing market attention on nickel as an essential component of their rechargeable batteries. As such, both gold and nickel are anticipated to contribute a conservative maximum of 19 billion USD in foreign exchange earnings for the Philippines in seven to eight years' time.

I. INTRODUCTION

The Philippines is an archipelago endowed with plentiful natural resources, and it is one of the most mineralized countries in the world¹. The country's rich minerals are mostly a result of its volcanic geology and its position along the Ring of Fire². In terms of metallic minerals; it is a leading producer of nickel; a considerable source of gold and copper; and an exporter of iron ore, chromium, zinc, and silver³. Its non-metallic minerals that are economically important are sand and gravel, marble, clay, and limestone⁴. Except for some gold sold to the country's central bank, Bangko Sentral ng Pilipinas (BSP), almost 100 percent of metallic mineral production is exported⁵. Non-metals are produced for domestic use and most of it that are converted to non-metallic mineral product manufactures are exported⁶. As an energy source, coal is also extracted, along with crude oil and natural gas; albeit the output of these commodities is not totally sufficient for local consumption⁷.

Being a country that started to implement the Extractive Industries Transparency Initiative (EITI) for eight years from its membership, the Philippines was the first to successfully obtain a Satisfactory Progress assessment in 2017⁸. Every year since 2013, the Philippine Extractive Industries Transparency Initiative (PH-EITI) has published annual reports on contextual and reconciliation information on the extractive industry⁹ with themes ranging from elevating, extracting value in, and moving beyond transparency; to forging new frontiers and synergizing such transparency for sustainability. This is the third chapter of the Seventh Report and, with the latter's theme of "Resiliency in Transparency" for fiscal year (FY) 2019, it is an appropriate addition to the annual publications as it provides a rational and objective outlook on the oil and gas, coal, metallic mining, non-metallic mining, and small-scale mining (SSM) sectors in particular as well as on the said industry in general.

¹ Ingrid Gorre, et al.; "Philippines: Seizing Opportunities Increasing Transparency and Accountability in the Extractive Industries," *National Resource Governance Institute* at https://www.resourcegovernance.org/sites/default/files/Philippines_TAI.pdf, accessed 23 June 2021.

² "Natural Resources," *Oxford Business Group* at <https://oxfordbusinessgroup.com/overview/island-nation-unique-geography-has-bred-diverse-culture-and-history>, accessed 10 April 2021.

³ "Overview," *Extractive Industries Transparency Initiative (EITI)* at <https://eiti.org/philippines>, accessed 10 April 2021.

⁴ Dr. Roberto Raymundo, *Industry Career Guide: Mining* (Malate, Manila: Department of Labor and Employment; and De La Salle University, n.d.), n.p.; and PSA, *2019 Philippine Statistical Yearbook* (Diliman, Quezon City: PSA, 2019), page 179.

⁵ Ronald Recidero, Executive Director of the *Chamber of Mines of the Philippines*, commenting on the domestic production of metallic minerals last 24 June 2021.

⁶ "Highlights of the Philippine Export and Import Statistics: December 2019," *PSA* at <https://psa.gov.ph/statistics/foreign-trade/fts-release-id/160003>, posted 11 February 2020.

⁷ "Overview," *United States (US) Energy Information Administration (EIA)* at <https://www.eia.gov/international/analysis/country/PHL>, accessed 10 April 2021.

⁸ "PH 1st Country to Get Global Extractives Transparency Standard," *Philippine News Agency (PNA)* at <https://www.pna.gov.ph/articles/1012376>, posted 11 October 2017.

⁹ Henceforth, for semantic purposes, the term "extractive industry" in the singular refers to its five sectors in the plural, namely, oil and gas, coal, metallic mining, non-metallic mining, and SSM.

A. SCOPE AND DELIMITATION¹⁰

The year 2019 is notable for the Mining and Quarrying (MAQ) Industry for two reasons. The first is that its share in Gross Domestic Product (GDP)¹¹ decreased by 1.7 billion Philippine pesos (PHP) to 0.83 percent, largely as a result of several mines closing¹². This was despite the fact that the Philippines' GDP increased by 1.3 trillion PHP. As presented in Chart 1 in line with the rest of the data from the Philippines Statistics Authority (PSA)¹³, the average annual growth rate (AAGR) of the country's GDP from 2013 was 8.4 percent, and it was consistently increasing every year with 2018 being the highest at 10 percent. Even so, year-on-year (YOY) growth in MAQ was fluctuating; falling in 2015 to -17 percent, and eventually peaking in 2017 at 18 percent. Much of the reason for this fluctuation is the stifling regulation of the extractive industry¹⁴. As a matter of fact, the substantial drop after 2014 was attributable to "The Philippine Mining Act of 1995" which stipulates that the state owns all mineral resources on public and private lands within the territory and exclusive economic zones of the country¹⁵. In effect, the act regulated the Philippines' mineral resource development eventually deliberalizing it.

¹⁰ Unless otherwise indicated; differences, percentages, etc. are extrapolations by the author as taken from the raw data. For percentages, numbers may not add up due to rounding off; and the digit is rounded up if the rounding figure is higher than 5 (e.g., 30.5→30 but 20.51→21 for the nearest tens). As per metrics on the number of individuals, any decimal is rounded up to represent another person.

¹¹ "Gross National Income and Gross Domestic Product, by Industry," *PSA OpenSTAT* at https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2B__NA__AN__1SUM/0052B5CPRA1.px/table/tableViewLayout1/?rxid=c49b3920-0c43-4142-aacb-ffec862f8b9a, posted 8 April 2021.

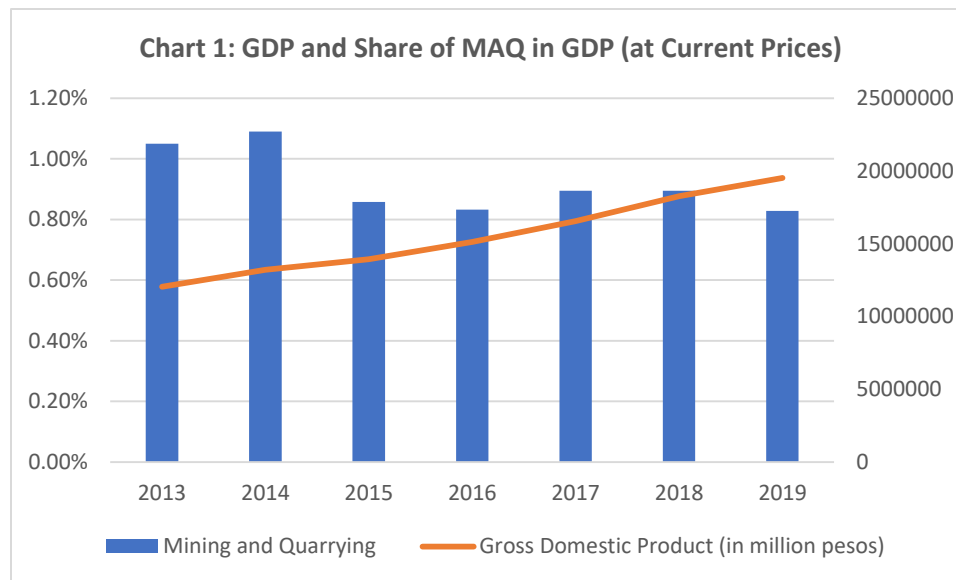
2013 was the base year following the Philippine Extractive Industries Transparency Initiative's (PH-EITI) first annual report.

¹² "Gina Lopez, Philippine Anti-Mining Advocate, Dies Aged 65," *British Broadcasting Company (BBC)* at <https://www.bbc.com/news/world-asia-49399205>, posted 19 August 2019.

¹³ Op. cit. (11)

¹⁴ "The Philippine Mining Sector's Murky Regulatory Environment Impedes Expansion," *Oxford Business Group* at <https://oxfordbusinessgroup.com/overview/philippine-mining-sectors-murky-regulatory-environment-impedes-expansion>, accessed 11 July 2021.

¹⁵ Yolanda Fong-Sam, "The Mineral Industry of the Philippines," *US Geological Survey (USGS)* at <https://prd-wret.s3-us-west-2.amazonaws.com/assets/palladium/production/atoms/files/myb3-2015-rp-0.pdf>, posted 6 November 2018.



The second reason is that it was during the latter part of 2019 when COVID-19 was first identified in Wuhan, China¹⁶. This is a new and emerging disease caused by a novel coronavirus that was not previously seen among humans, and most people who contract the virus can have mild symptoms or experience severe illness and even death¹⁷. Its name is actually an abbreviation wherein “CO” stands for corona, “VI” for virus, “D” for disease, and “19” for 2019 when the outbreak began¹⁸. The following year became the start of a global health emergency that eventually hit the Philippines, prompting the government to impose an official lockdown in most parts of the country beginning on 17 March 2020¹⁹.

It makes legitimate sense to include COVID-19’s impact on the extractive industry and its sectors in 2020 in this 2019 annual report because it was during the said fiscal year when the virus causing such a disease was officially acknowledged. More so, the eighth report of PH-EITI for FY 2020 is scheduled for publication either toward the end of 2021 or in early 2022; thus, having a chapter on the outlook for MAQ during and after the pandemic by then will be moot and academic as the timing will have already been too late. At the same time, a thorough investigation of this coronavirus’ impact for the whole of 2020 will render the next report’s coverage of it futile; hence, this chapter has set to analyze the viral outbreak’s consequences until the arbitrary cut-off which is the second quarter (Q2) unless quantitative data and qualitative information pertaining to them are only available annually.

¹⁶ “Coronavirus Disease 2019 (COVID-19),” *Centers for Disease Control and Prevention (CDC)* at <https://www.cdc.gov/coronavirus/2019-ncov/cdcresponse/about-COVID-19.html>, accessed 5 April 2021.

¹⁷ “Frequently Asked Questions: Basics,” *CDC* at <https://www.cdc.gov/coronavirus/2019-ncov/faq.html>, CDC, accessed 7 May 2021.

¹⁸ *Ibid.*

¹⁹ Franco Luna, “Duterte Places Entire Luzon Under ‘Enhanced’ Community Quarantine,” *The Philippine Star* at <https://www.philstar.com/headlines/2020/03/16/2001320/duterte-places-entire-luzon-under-enhanced-community-quarantine>, posted 16 March 2020.

It is worth noting that, unlike previous PH-EITI reports in which the first chapter on contextual information summarizes short-term movements of certain metrics in the extractive industry, the proceeding sections go way before then so as to determine trends and establish projections. In short, the contextual report provides statistics from a year or two before FY 2019 whereas this industry outlook chapter does so way before then. Both chapters discuss the state of the oil and gas, coal, and mining sectors in 2019; but with greater detail in this particular report.

B. RESEARCH AND METHODOLOGICAL APPROACH²⁰

The Industry Outlook Chapter has been three-tiered in its analysis: pre-, peri-, and post-pandemic; and its research methodology two-pronged using both quantitative and qualitative approaches. Future trends have been based on statistics before the pandemic that are available as far back as the year 2000. They have also been assessed during this worldwide crisis using figures until, if not around, the Q2 or the end of 2020, depending on when data are present monthly, quarterly, or annually. Information from firsthand surveys and secondary information from proper entities have also been gathered and utilized.

Being that the Philippines and the rest of the world are still reeling from COVID-19 in 2020 and even beyond, its current adverse impacts and after-effects have been carefully considered in the chapter's projections for the aforementioned extractive industry and its sectors. Current and constant prices have also been presented depending on whether numbers are respectively compared within the same year; for instance, as proportions; or across a certain time period.

Finally, it should be reiterated that this part of the Seventh Report serves to show future prospects based on past perspectives as well as prevalent circumstances and is, ergo, descriptive; but certain facets of the chapter's findings are inevitably prescriptive, so they merit some recommendations both at the industry and government levels. In the matter of the time horizon, short-term prognoses are for a range of until four years or from 2020 to 2023, whereas long-run forecasts are from seven to eight years or until 2027²¹. All in all, the economic

²⁰ The minimum sample size with most statisticians agreeing to provide any kind of meaningful result is 100. From "How to Choose a Sample Size (for the Statistically Challenged)," *tools4dev* at <http://www.tools4dev.org/resources/how-to-choose-a-sample-size/>, accessed 30 September 2020.

Ideally, the availability of monthly statistics from 2000, or even way back, to the second quarter (Q2) of 2020 produces the most reliable results with a set of 246 figures. Prior to the former year is even more desirable. Most public metrics, however, are published quarterly; but 82 data points from this time period are still closer to a hundred. When only annual statistics are available, 21 years of information is far from the ideal number yet still necessary to come up with a conclusive quantitative analysis.

²¹ With the standard WB methodology as basis, a short-term time horizon refers to a period of three to four years and up to eight years for the long-term. From Elena Ianchovichina and Pooja Kacker, "Growth Trends in the Developing World: Country Forecasts and Determinants," *Policy Research Working Paper No. 3775* (WB; Washington, DC: November 2005), pp. 17-20.

And as the chapter relies heavily on historical and; hence, solidly reliable; data, short-term projections are based on the average annual growth rates (AAGR) whereas long-term forecasts are on the basis of the compounded annual growth rates (CAGR).

projections developed here are principally based on hard quantitative historical data so every effort has been made for the industry and its sectors' outlook to be non-speculative.

II. PRE-PANDEMIC PERSPECTIVES

According to PSA's 2009 Philippine Standard Industrial Classification (PSIC)²², MAQ includes the extraction of minerals occurring naturally as solids such as coal and ores, as well as liquids and gases like petroleum and natural gas, respectively. The main divisions under this industry are the Mining of Metal Ores, Other Mining and Quarrying, Extraction of Crude Petroleum and Natural Gas, and Mining of Coal and Lignite; which correspond to and are consistent with this chapter's sectors, namely, metallic mining, non-metallic mining, oil and gas, and coal.

The following sections have been intended to give an up-to-date picture of MAQ with an emphasis on economic variables that have a solid bearing not only on their operations and but also on the Philippine economy. The first and second sets of statistics are the volume and value of production that show the prevailing quantity of the said commodities and sales figures of these different sectors. The third metric is Gross Value Added (GVA) which measures the contribution of a particular sector to a country's GDP and is computed by subtracting the cost of production inputs from the gross output of a specific industry²³. The fourth are exports, and fifth are employment data, whose numbers can be transformed and translated into useful information to be used in coming up with micro- and macroeconomic decisions²⁴. The last is the contribution of these extractive companies to government revenues with the aim of showing a complete description of this industry which is essential in coming up with a valid and substantive outlook.

A. MORE ON THE EXTRACTIVE INDUSTRY

Taking off from the first chapter of this Seventh Report that detailed GVA numbers by the extractive industry's top contributors and by region, its total value addition in 2019 was 162 billion PHP²⁵. As per Chart 2 with raw values from PSA²⁶, the mining sector had the highest gross share, making up almost two-thirds of it. This was followed by oil and gas at 24 percent then coal at 14 percent. With the still insignificant contribution of SSM to the industry, figures at this level are not yet disaggregated, coupled with the fact that this sector's output is already incorporated in the other sectors that are mining and coal.

²² "Section B: Mining and Quarrying," PSA at <https://psa.gov.ph/classification/psic/?q=psic/section/B>, accessed 11 April 2021.

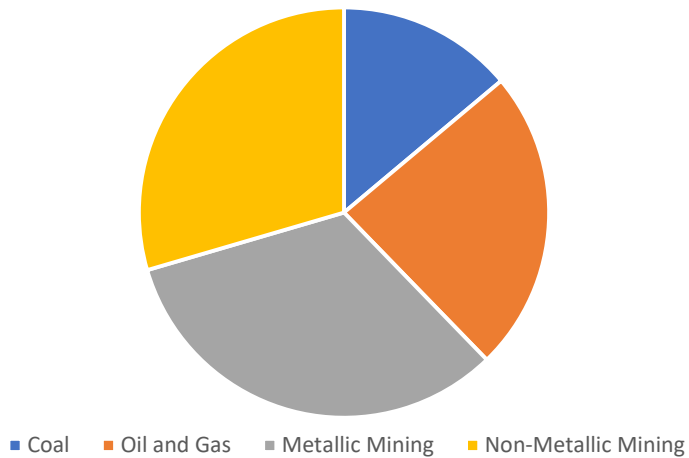
²³ "Glossary of Statistical Terms: Gross Value Added," *Organisation for Economic Co-operation and Development (OECD)* at <https://stats.oecd.org/glossary/detail.asp?ID=1184>, accessed 8 May 2021.

²⁴ "Importance of Employment Statistics and Numbers and How to Interpret Them," *Management Study Guide* at <https://www.managementstudyguide.com/importance-of-employment-statistics-and-numbers.htm>, accessed 8 May 2021.

²⁵ "Gross Value Added in Mining and Quarrying, by Industry," PSA *OpenSTAT* at https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2B__NA__AN__9MAQ/0422B5CMQA1.px/table/tableViewLayout1/?rxid=829a743d-2a8a-44ac-a40d-2bc05cfe8257, posted 8 April 2021.

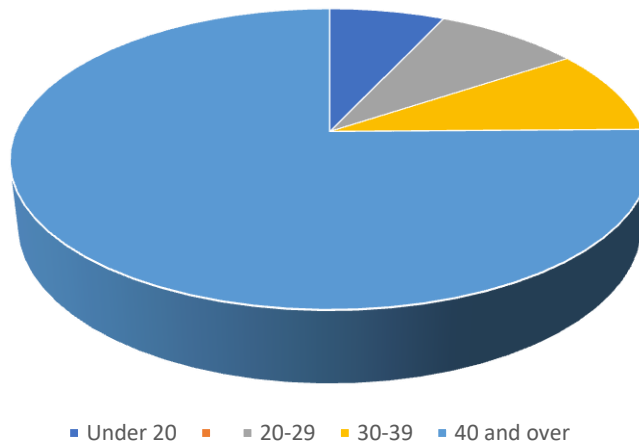
²⁶ *Ibid.*

**Chart 2: 2019 Share of MAQ Sectors in Industry GVA
(at Current Prices)**



With regard to employment, the mining and quarrying industry had around 210,961 workers in July 2019²⁷. According to PSA’s Labor Force Survey (LFS) for the same month²⁸ as illustrated in Chart 3, among the 206,481 who were working at that time, majority or 75 percent of them were employed full-time in MAQ; followed by those working from 30 to 39 hours at 9.1 percent, 20 to 29 hours at 8.7 percent, and under 20 hours at 6.9 percent.

**Chart 3: 2019 Employee Breakdown by Total Hours Worked
per Week in MAQ**



1. MINING

²⁷ “Table 10: Percent Distribution of Employed Persons by Total Hours Worked by Sex and Major Industry Group July 2019.xls,” PSA at <https://psa.gov.ph/content/july-2019-statistical-tables>, posted 4 February 2020.

²⁸ Ibid.

Workers who were employed in MAQ but not at work accounted for the difference.

On top of the data on gross production value and employment described in the first chapter, it should be restated that the mining sector had the biggest shares of these metrics in the extractive industry²⁹. And in addition to the information on exports in the said contextual report, mineral products and non-metallic mineral manufactures comprised 6.6 percent of total exported commodities which were valued at 4.9 million USD³⁰. As far as government revenues from these sectors were concerned, it is worth reiterating that it contributed more than a quarter billion PHP in the form of national and local taxes, fees, and royalties.

a. METALLIC

In accordance with the Mines and Geosciences Bureau (MGB)³¹, there were 50 metallic mines in operation; 10 of which extracted gold, 3 copper, 31 nickel, 3 chromite, and 3 iron. And as per PSA³², metallic mining had the biggest contribution to GVA of the MAQ industry at 35 percent. It also had the greatest gross share in the production value of mining at a little less than 67 percent. The Philippines, therefore, has more metals in its production of these commodities.

b. NON-METALLIC

There were more non-metallic mines in operation in the same period at 53 with 28 being limestone/shale quarries, 3 marble/marblelized limestone, 2 silica, 13 aggregate, 1 dolomite, 3 clay, 1 sand and gravel, 1 volcanic tuff, and 1 greywacke/pozzolan³³. With respect to its share in MAQ's GVA, it stood at a little more than 31 percent³⁴. As a proportion of the mining sector's volume of gross production, non-metallic mining's was 33 percent which, in absolute terms, was almost half of that of metallic mines³⁵.

2. OIL AND GAS

For FY 2019 as per statistics from the Department of Energy (DOE)³⁶ and as summarized in Chart 4, oil production in the Philippines was all sourced from the fields of Galoc, Nido, Matinloc, and Alegria. Galoc was the most prolific among these four areas, comprising 96

²⁹ "Mining Industry Statistics," MGB at https://mgb.gov.ph/images/Mineral_Statistics/MIS_3Yr-2017_to_1st_to_3rd_Qtr_2020_for_UPLOAD_as_of_14_Dec_2020.pdf, posted 1 December 2020.

As per publication, 2019 figures are preliminary.

³⁰ Ibid.

³¹ "Minerals Industry at a Glance," MGB at https://mgb.gov.ph/images/Mineral_Statistics/mining_facts_and_figures_updated_September_1_2020.pdf (page 2), posted 1 September 2020.

³² Op. cit. (25)

³³ Op. cit. (31)

³⁴ Op. cit. (25)

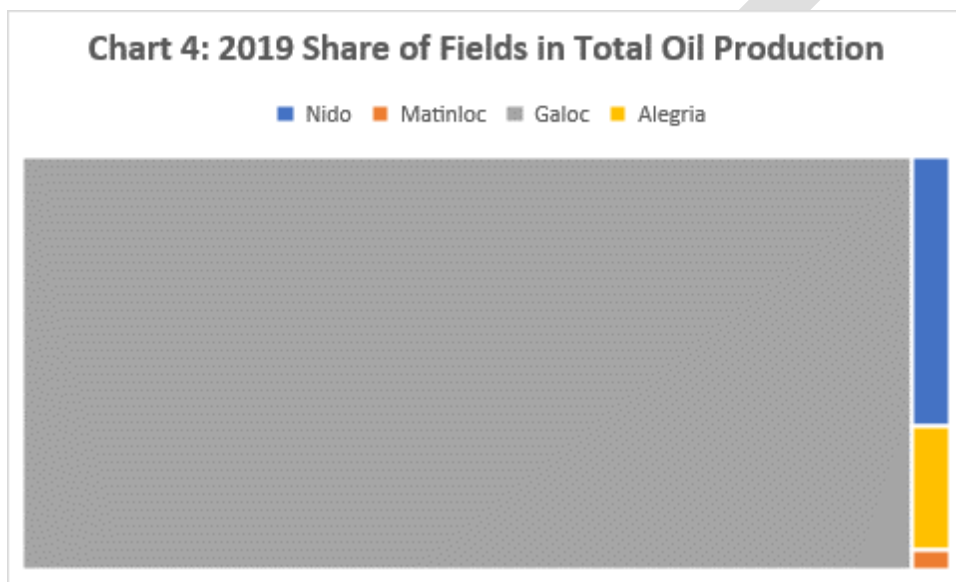
³⁵ Op. cit. (29)

Small-scale gold mining which was worth 0.6 billion PHP comprised the remaining 0.31 percent of gross production value in mining.

³⁶ "Philippine Petroleum Production: CY-2019 Monthly Production," DOE at <https://www.doe.gov.ph/energy-information-resources?q=energy-resources/petroleum-statistics>, posted 31 December 2019.

CY stands for calendar year.

percent of the total extracted at 744,449 barrels. Nido was a far second at 20,634; followed by Alegria at 9,468; and Matinloc at 1,542. As previously stated in the contextual report, the latter oil field only produced those numbers of barrels until the first quarter (Q1) and the former until Q2. Again when it came to gas and condensate production, the output from the Malampaya field was not as significant in comparison with these oil fields. Conforming to PH-EITI³⁷, the petroleum service contract operators that voluntarily report to the organization are The Philodrill Corporation, Galoc Production Company WLL, the state-owned PNOC Exploration Corporation (PNOC-EC) of the Philippine National Oil Company (PNOC), Shell Philippines Exploration B.V. (SPEX), and China International Mining Petroleum Company Ltd.



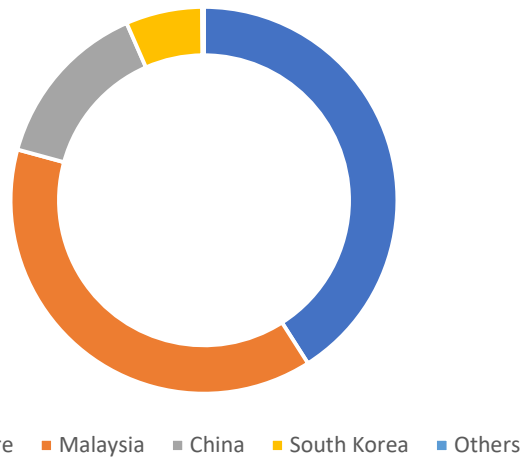
On the matter of exports and based on 2019 PSA metrics³⁸, Chart 5 shows a total of 548 million gross kilos of petroleum products which were exported to 15 countries around the globe. Most of them went to Singapore and Malaysia at 41 and 38 percent, respectively; then to China at 14 percent. A small percentage was exported to South Korea at 6.4 percent; and the rest to other countries like Vietnam, Cambodia, and the United States of America (USA).

³⁷ PH-EITI letter to SEC Chairperson Emilio Aquino dated 7 May 2021.

³⁸ "Philippine Exports by Commodity (sic) Group (GRT)," PSA OpenSTAT at https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2L__IMT__PCG/?tablelist=true&rxid=bdf9d8da-96f1-4100-ae09-18cb3eae313, posted 15 May 2020.

GRT stands for Gross Registered Tonnage.

Chart 5: 2019 Exports of Petroleum Products



Regarding state income from oil and gas production, aggregated data from the 2019 annual reports of Philodrill, PNOC-EC, and SPEX reveal that 31 billion PHP of their 229 billion gross sales were paid in total to local government units (LGU) and the national government in the form of taxes, duties, licenses, royalties, and fees³⁹. In shorter words, the Philippine economy directly benefited from 14 percent of their earnings. Similar with the year before when it first took effect⁴⁰ and with that of mining companies, the increase in the excise tax rates on these commodities with the implementation of the Tax Reform for Acceleration and Inclusion (TRAIN) law raised important revenues for the country.

3. COAL

Semirara Mining and Power Corporation (SMPC) operates the largest and most modern pit mine in the country, with its truck and shovel operations boasting an average output of 16 million metric tons (MMT) of coal per year⁴¹. The corporation has been a virtual monopoly in its production in the Philippines. In 1999, almost 100 percent of the total volume of coal was

³⁹ "Financial Statements for the Years Ended December 31, 2019 and 2018," *Pilipinas Shell Petroleum Corporation* at https://pilipinas.shell.com.ph/investors/financial-reports/_jcr_content/par/textimage.stream/1593664160793/dd55d7c392ee036e5ed0ebb053ca10666fc83823/2019-shlph-audited-financial-statements-stamped.pdf;

"2019 Annual Report," *PNOC Exploration Corporation* at <https://drive.google.com/file/d/1d8ljCGRQeJcBVxGcTM8cYx9Qs6eI16W1/view>;

and "Annual Report Pursuant to Section 17 of the Securities Regulation Code and Section 141 of the Corporation Code of the Philippines, for the Calendar Year Ended December 31, 2019," *The Philodrill Corporation* at https://www.philodrill.com/disclosures2020/OV_2020_0630_sec_17a.pdf, all accessed 13 April 2021.

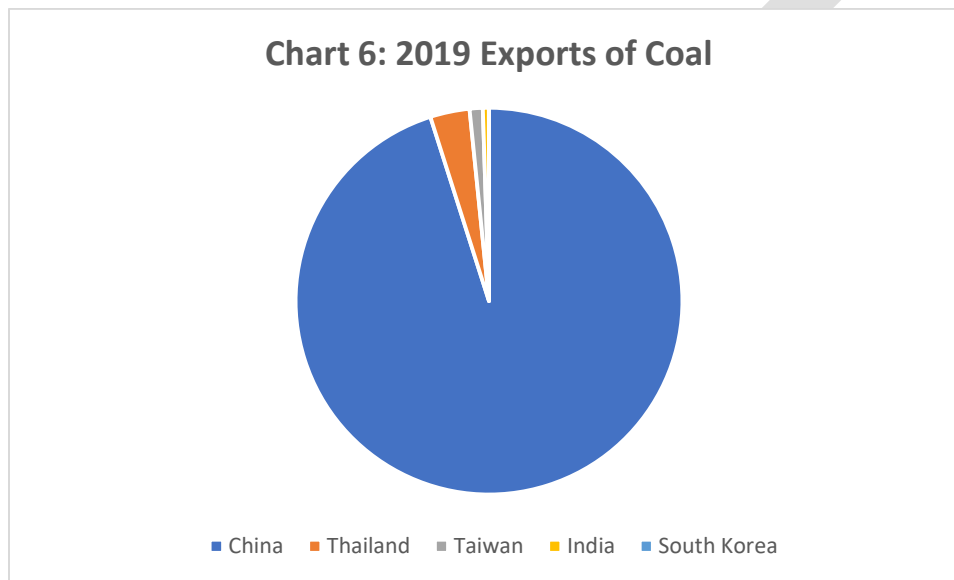
It should be noted that the 2019 annual reports of Galoc Production Company WLL and China International Mining Petroleum Company Ltd. are not publicly available, and the PH-EITI Secretariat has yet to receive their audited financial statements from SEC.

⁴⁰ Atty. Maria Karla L. Espinosa and Linnet Madelane C. Chan, *Synergizing Transparency for Sustainability: The Sixth PH-EITI Report (FY 2018)* (Malate, Manila: PH-EITI, 2021), page 12.

⁴¹ "Our Business," *SMPC* at http://www.semiraramining.com/our_business, accessed 12 April 2021.

produced by SMPC which gave the company gross revenues of 29 billion PHP⁴². Of this amount, 407 million PHP went to the Philippine government as the company's total payment for taxes, permits, and licenses⁴³.

On the account of PSA during the same fiscal year⁴⁴ and as conveyed in Chart 6, total exports of this commodity were destined to only five different countries. The bulk of them, valued at 438 million USD, was exported to China; then 15 and 5.1 million USD to Thailand and Taiwan, respectively; and the remaining to India and South Korea. At the same time, the Philippines imported close to 28 MMT of coal which was almost twice more than its domestic production⁴⁵.



It is, at first, ironic that the country both exports and imports coal. The reason is that this domestically produced commodity is mostly of the sub-bituminous kind⁴⁶ which typically contains 35 to 45 percent carbon⁴⁷. This lower-grade type of coal is imported to China to

⁴² "SEC Form 20-IS: Semirara Mining and Power Corporation and Subsidiaries Consolidated Statements of Comprehensive Income, Years Ended December 31, 2019 2018 2017," *SMPC* at http://www.semiramining.com/uploads/files/AFS/SMPCS_CFS1219.pdf (page 7a), accessed 13 April 2021.

⁴³ *Ibid.*, page 51b.

⁴⁴ Figures were especially requested from *PSA* since public data are under Other Exports where coal is aggregated. File can be found at https://docs.google.com/spreadsheets/d/1RPrOIUTY0OycPdsWkPh2enM_1Mdq2aYO/edit?usp=drive_web&oid=112151248450072162493&rtpof=true, sent 19 November 2020.

⁴⁵ "Overall Coal Statistics," *DOE* at <https://www.doe.gov.ph/energy-statistics?q=energy-resources/overall-coal-statistics>, accessed 5 July 2021.

⁴⁶ "Technical Report on Energy Asset Accounts: Asset Account for Coal of the Philippines," *PSA* at <https://psa.gov.ph/sites/default/files/Asset%20Accounts%20for%20Coal%20Resources%20of%20the%20Philippines.pdf>, accessed 5 July 2021.

⁴⁷ "Coal Explained: Types of Coal," *US EIA* at <https://www.eia.gov/energyexplained/coal/>, accessed 5 July 2012.

supplement its domestic supply as households use it for heating and cooking⁴⁸. For the Philippines' energy requirements primarily for electricity generation⁴⁹, it imports bituminous coal with 45 to 86 percent carbon content⁵⁰.

4. SSM

In keeping with Republic Act (RA) 7076 or "The People's Small-Scale Mining Act of 1991", SSM "refers to mining activities which rely heavily on manual labor using simple implement and methods and do not use explosives or heavy mining equipment"; and this law was aimed "to promote, develop, protect, and rationalize viable SSM activities" and passed "in order to generate more employment opportunities and provide an equitable sharing of the nation's wealth and natural resources"⁵¹. Figures from MGB show that there were 3,389 SSM operators in the Philippines by Q2 2020 covered by permits issued by LGU's⁵².

Central to the state regulation of SSM's is the "Minahang Bayan" scheme that officially designates areas where small-scale miners can operate; legally enabling the government to better monitor and regulate their extractive activities while helping promote worker safety, protect the environment, and generate revenues for the country⁵³. Conversely, there are still illegal SSM operators in the Philippines who do not have the official government license nor the local permits for their activities⁵⁴.

For the SSM operators that extracted gold in 2019, they produced 17 kilos of this mineral which was worth 35.8 million PHP⁵⁵. In the same year, they collectively mined 4,680 dry metric tons of chromite which were sold for 11.4 million PHP⁵⁶. To date, export data of minerals from this sector are not yet broken down from the total volume of exports, and no reliable study has been done on how much of their earnings are paid to the government as state revenue.

B. COMMODITY PRICING AND DEMAND

⁴⁸ Andrew Mullen, "China Coal: Why Is It So Important to the Economy?," *South China Morning Post (SCMP)* at <https://www.scmp.com/economy/china-economy/article/3121426/china-coal-why-it-so-important-economy>, posted 13 February 2021.

⁴⁹ "Power Generation Mix," *DOE* at <https://www.doe.gov.ph/energy-statistics?q=energy-resources/powermix>, accessed 5 July 2021.

⁵⁰ Op. cit. (47)

⁵¹ "Republic Act No. 7076: An Act Creating a People's Small-Scale Mining Program and for Other Purposes; Section 2, Declaration of Policy," *The LAWPHIL Project: Philippine Laws and Jurisprudence Databank (Arellano Law Foundation)* at https://lawphil.net/statutes/repacts/ra1991/ra_7076_1991.html, passed 27 June 1991.

⁵² Op. cit. (31)

⁵³ Catherine Teves, "More Minahang Bayan to Boost Small-Scale Mining Watch," *PNA* at <https://www.pna.gov.ph/articles/1067135>, posted 12 April 2019.

"Minahang Bayan" is roughly translated as "Local Mine."

⁵⁴ Lilybeth Ison, "Chamber of Mines Renews Call vs. Illegal Small-Scale Mining," *PNA* at <https://www.pna.gov.ph/articles/1060126>, posted 26 January 2019.

⁵⁵ "Table 2: Philippines Gold Production - 2020 vs 2019," *MGB* at https://mgb.gov.ph/images/Mineral_Statistics/2020_Metallic_Review/PHILIPPINES_METALLIC_MINERAL_PRODUCTION_2020_VS_2019.pdf, accessed 17 April 2021.

⁵⁶ *Ibid.*, "Table 5: Philippines Chromite Production - 2020 vs 2019."

With most primary goods, the domestic and export prices of these commodities are driven by their commodity prices as a function of both supply and demand. Two main factors distinguish them from nominal prices which are their volatility with greater fluctuations when it comes to global production and consumption, as well as their denomination in one currency which is almost always the United States dollar (USD) that also adds to their already volatile characteristic⁵⁷. Conversely, nominal or the everyday prices of certain commodities are sticky or often not changing and are based on the local currency.

1. HISTORICAL PATTERNS AND FUTURE PROJECTIONS

A commodity price shock is when the price of a basic good suddenly decreases or markedly increases over a relatively short period of time⁵⁸. For any business, a price drop is detrimental because their now-lower revenues will not be able to cover their usual costs. A surge in the price of a commodity is also unfavorable since it will adversely affect the demand for that product and hurt their bottom line. This section is about commodity prices before COVID-19 and the prospective changes forecasted to happen ex-pandemic.

a. Metallic Minerals

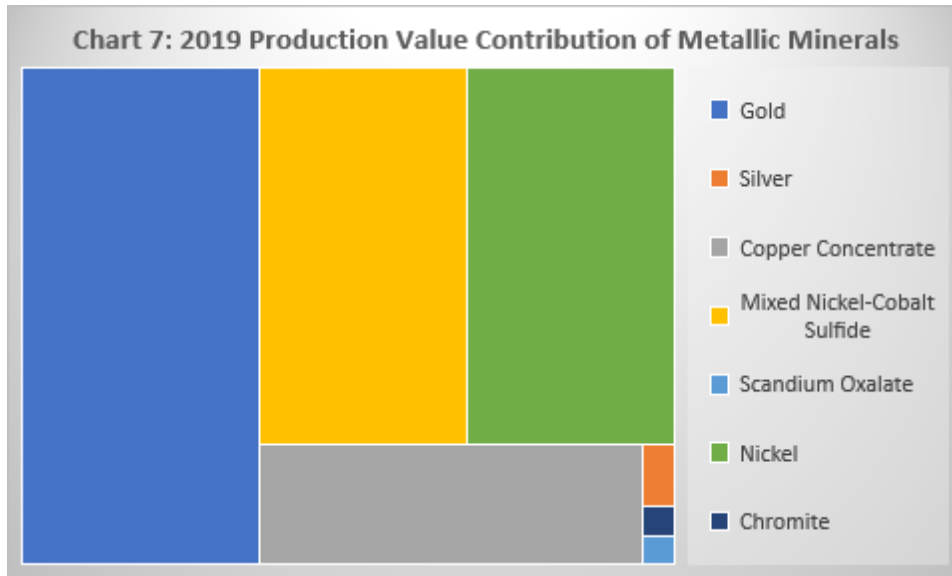
Regarding the value of production of metallic minerals in 2019 with MGB as the source of information⁵⁹; gold, mixed nickel-cobalt sulfide, nickel, and copper concentrate had the respective majority share in their 131 billion PHP economic contribution at 36, 24, 24, and 14 percent. Chart 7 itemizes these amounts. As far back as pre-history, the former has always been a major and precious resource metal in the Philippines when the archipelago was referred to as the “Isles of Gold”⁶⁰.

⁵⁷ Takashito Ito and Andrew K. Rose, eds.; *Commodity Prices and Markets: East Asia Seminar on Economics (Volume 20)* (Chicago, IL: University of Chicago Press, February 2011), pp. 6-7.

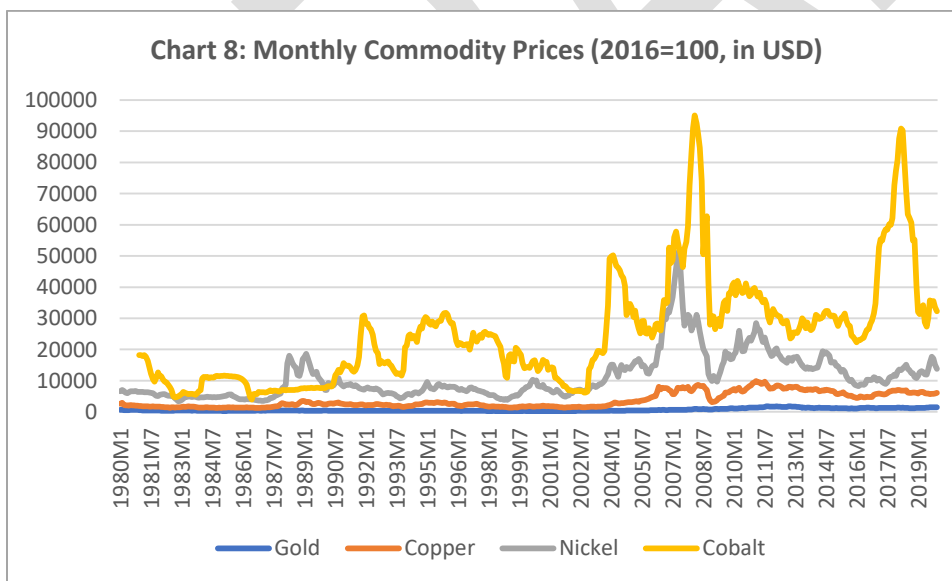
⁵⁸ Stefania Fabrizio, *Managing Global Growth Risks and Commodity Price Shocks: Vulnerabilities and Policy Challenges for Low-Income Countries* (Washington, D.C.: IMF, 2012), n.p.

⁵⁹ Op. cit. (55), “Table 1: Philippines Metallic Mineral Production - 2020 vs 2019”

⁶⁰ Salvador P. Lopez, *Isles of Gold: A History of Mining in the Philippines* (New York: Oxford University Press, 1992), n.p.



The commodity prices of these main metallic minerals, which were taken from the International Monetary Fund (IMF) database on a monthly basis from 1980 to 2019⁶¹ with commodity prices expressed in USD per troy ounce⁶² for gold and USD per metric ton for copper and nickel, are plotted in Chart 8. As a surrogate measure for mixed nickel-cobalt, the spot price in USD for cobalt was instead used. These indices also started to be available as early as December (M12) 1980. As such, several periods of commodity price shocks can be noted for each commodity over the last twenty years from 2000.



⁶¹ "IMF Primary Commodity Prices: Primary Commodity Prices-Indices and Market Prices-Excel Database," *IMF* at <https://www.imf.org/en/Research/commodity-prices>, accessed 18 April 2021.

⁶² According to the United Kingdom Royal Mint, one troy ounce is equal to exactly 31.1034768 grams. From James Chen, "Troy Ounce," *Investopedia* at <https://www.investopedia.com/terms/t/troyounce.asp>, posted 31 January 2020.

In a nutshell, metal price jumps and collapses were clustered around major economic events which were the global recession from 2008 to 2009 and the periods of slowdown in the international economy in 2001 and 2012⁶³. The recession that started in 2008, more commonly referred to as “The Great Recession”, was linked to the so-called “subprime mortgage crisis” in the United States and Western Europe where home loans were granted to borrowers with poor credit histories⁶⁴. Their non-payments ultimately resulted in the crashing of the stock market in the former and several countries in the latter which defaulted on their national debts⁶⁵. Prior to this, there was a global economic slowdown in 2001 due in large part to “9/11” or the infamous terrorist attacks in America that year⁶⁶. In 2012, developing countries were still hit hard by the said financial and economic crisis a few years before as they did not have the resources to stimulate their economies and granted that trade and monetary inflows from the few countries that had recovered were slow⁶⁷.

To be able to compare the four metallic minerals, their commodity prices were normalized⁶⁸ and their metrics computed later on. As enumerated on Table A, the most volatile metallic mineral was gold having the highest standard deviation of 0.28 with nickel the least at 0.15. Historically, these two along with copper and cobalt had decreases in commodity prices in many more months from 2000 to 2019 with their computed z-scores as bases. Nickel also had the cheapest average price in relation to copper that was the most expensive. Forging ahead, the metallic mining sector should expect these trends to continue which primarily are much volatility in the price of gold, relative stability in nickel, and longer periods of decreasing prices across all these major metallic mineral commodities.

TABLE A: SUMMARY STATISTICS OF SELECT METALLIC COMMODITIES

	GOLD	COPPER	NICKEL	COBALT
MINIMUM COMMODITY PRICE	257	1,272	3,434	3,990
MAXIMUM COMMODITY PRICE	1,772	9,881	51,783	95,023
MEAN (NORMALIZED)	0.2658	0.2806	0.1597	0.2308
STANDARD DEVIATION (NORMALIZED)	0.2849	0.2778	0.1519	0.1898
NO. OF DATA POINTS WITH NEGATIVE Z-SCORES	322	310	297	254

⁶³ “Special Focus: Causes and Consequences of Metal Price Shocks,” *WB* at <https://thedocs.worldbank.org/en/doc/c5de1ea3b3276cf54e7a1dff4e95362b-0350012021/related/CMO-April-2021-special-focus.pdf> (page 13), posted 20 April 2021.

⁶⁴ “Great Recession,” *History* at <https://www.history.com/topics/21st-century/recession>, posted 4 December 2017.

⁶⁵ *Ibid.*

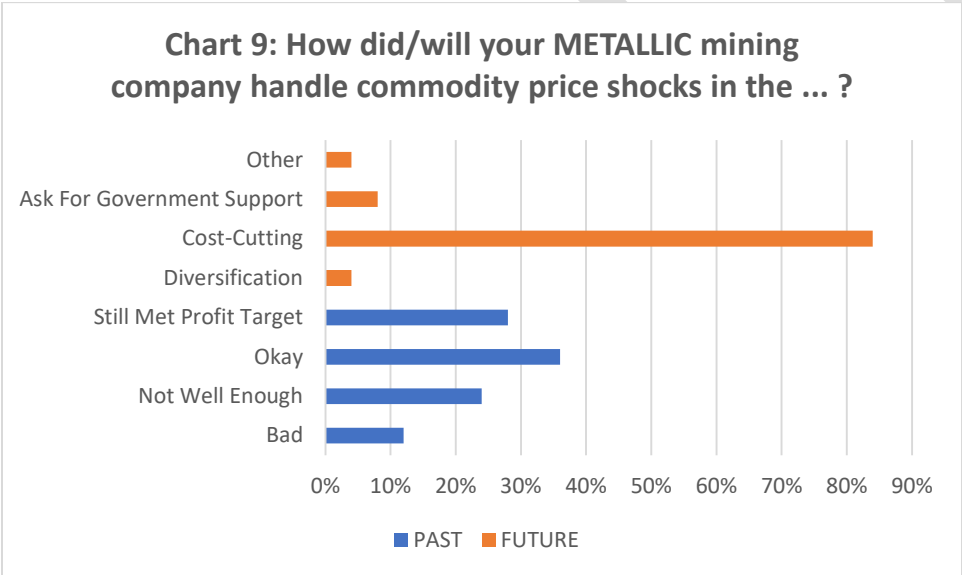
⁶⁶ Dick K. Nanto, “9/11 Terrorism: Global Economic Costs,” *Congressional Research Service Reports* at https://digital.library.unt.edu/ark:/67531/metacrs7725/m1/1/high_res_d/RS21937_2004Oct05.pdf, posted 5 October 2004.

⁶⁷ Bruno Gurtner, “La crise économique-financière et les pays en développement,” *Open Edition Journals* at <https://journals.openedition.org/poldev/144>, accessed 6 July 2012.

⁶⁸ $X_n = (X_i - \text{minimum}) / (\text{maximum} - \text{minimum})$. From “Calculus How To: About Normalized Data,” *Calculus How To* at <https://www.calculushowto.com/types-of-functions/normalized-function-data-normalization/>, accessed 19 April 2021.

NO. OF DATA POINTS WITH POSITIVE Z-SCORES	158	170	183	215
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History would indicate that, as described in Chart 9, the majority of metallic mining companies which participated in this chapter’s qualitative online survey⁶⁹ were able to handle commodity price shocks well in the past. Most of their bottom line was unaffected with a proportional increase in demand, and the profit targets of most of them were still met by countering these sharp pricing changes with adjustments to their selling price or volume as well as by implementing a conservative approach to their hedging of export sales. In the coming years, many of them plan to resort to cost-cutting for the purpose of adapting to any substantial increase or decrease in the price of metals over a short period of time. Other responses are for contingency plans to be in place and to closely coordinate them with company action as well as to prudently and conservatively implement risk management strategies such as their hedging of export sales.



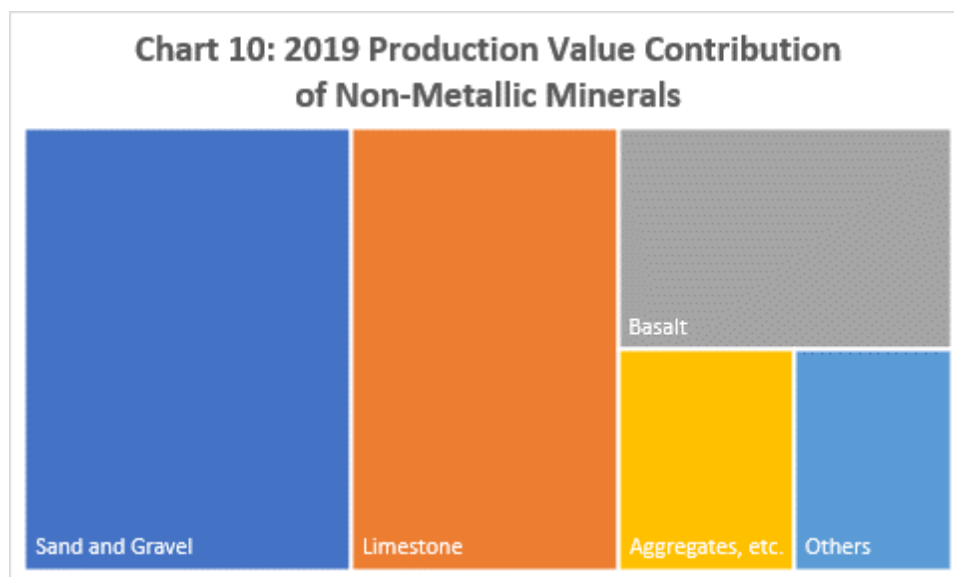
b. Non-Metallic Minerals

Not as considerable as the production value contribution of metallic minerals, the non-metallic mineral sector in 2019, as stated by MGB⁷⁰ and by looking at Chart 10, generated 9 billion PHP worth of these commodities for the Philippine economy. The bulk of these non-metallic minerals are sand and gravel that made up 35 percent of the total, followed by limestone at 29 percent, and basalt at 18 percent. Aggregates, etc.; for example, boulders, blasted rock, and

⁶⁹ Out of the 50 large-scale metallic mining companies that report to PH-EITI, 26 of them participated in this chapter’s online ex-pandemic survey found at <https://www.surveymonkey.com/r/8DFX5RX> which is also included in the Annex.

⁷⁰ Data extrapolated from each of MGB’s regional websites under “Mineral Statistics: Production; Mineral Production by Commodity - 2019,” MGB at <https://mgb.gov.ph/>, accessed 22 April 2021.

filling materials; were a far fourth at 9 percent. A close fifth at 8 percent were the rest of the non-metals like dolomite, quicklime, and shale.

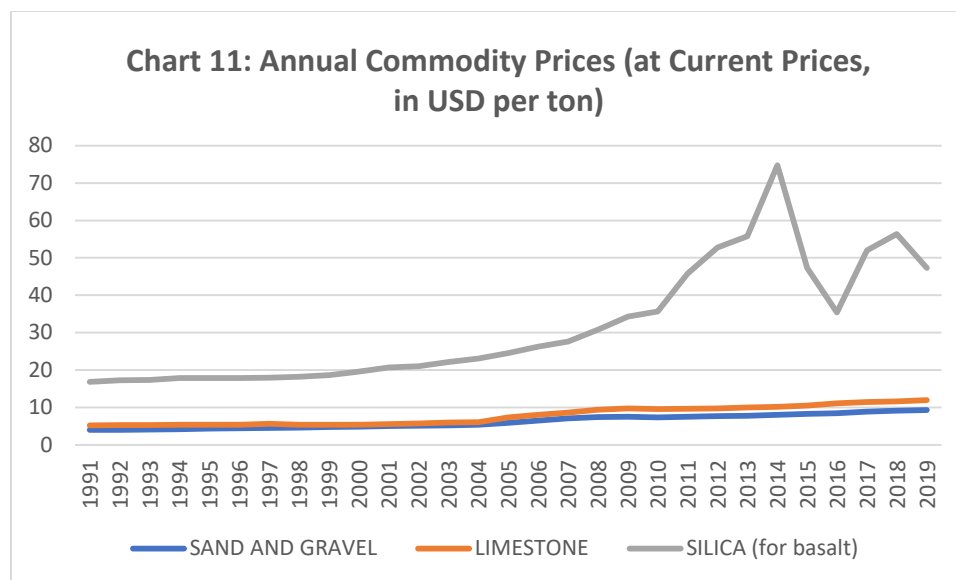


Since IMF does not have commodity pricing data on the Top 3 non-metallic minerals that were produced this fiscal year, annual prices from the United States Geological Survey's National Minerals Information Center were utilized in this section instead from the years 1991 to 2019⁷¹. One thing to note is that there are no price statistics available on basalt. Since this mineral has a silicon oxide (SiO₂) content ranging from 45 to 52 percent⁷², the commodity value of silica was used as a substitute metric. All these three non-metals are priced in USD per ton. Chart 11 points out that the commodity prices of sand and gravel as well as limestone were relatively stable over the years relative to those of silica, which was the only non-metallic mineral that was prone to a number of shocks in the last two decades.

⁷¹ "Commodity Statistics and Information," *USGS National Minerals Information Center (NMIC)* at <https://www.usgs.gov/centers/nmic/commodity-statistics-and-information>, accessed 13 April 2021.

One ton=907.18474 kilograms (kg), and one metric ton=1,000 kg.

⁷² Zhishen Wu, et al.; "Chapter 13: Mineral Fibres - Basalt," in Ryszard M. Kozłowski and Maria Mackiewicz-Talarczyk, eds., *Handbook of Natural Fibres: Volume One - Types, Properties and Factors Affecting Breeding and Cultivation (Second Edition)* (Cambridge: Woodhead Publishing Ltd.; 2020), n.p.



The price of silica peaked in 2014 to invest more in its production, upgrade the capability to meet its growing demand, and reflect the tight supply-and-demand balance in the market of this commodity⁷³. Its price settled down in 2016 but was again rising until 2018 principally because of suppliers offsetting rising production costs and supporting investments toward continued capacity upgrades⁷⁴.

So as to compare them across the board, the commodity prices of sand and gravel, limestone, and silica were also rescaled with the aim of computing their means and standard deviations. As indicated from 1991 to 2019 on Table B, the costs of these non-metallic minerals were relatively stable as they only deviated from their average by less than 50 percent⁷⁵. The non-metal that had the least stable price was limestone with a standard deviation of 0.36 versus silica whose prices were moving less at 0.27. Despite seeming to be the most expensive non-metallic mineral per ton in absolute terms, the average price of silica was relatively the cheapest at 0.25; while sand and gravel were the most expensive at 0.42. All three non-metallics had more data points with relatively lower prices. In the years to come, it is inferred for the following patterns to persist; the commodity price of limestone changing more frequently albeit not by a considerable amount, that of silica less, and decreases in the prices of these non-metallic commodities to be felt more than their increases.

⁷³ "U.S. Silica Announces Price Increases on Ground and Fine Ground Silica Products," *US Silica* at <https://ussilica.gcs-web.com/news-releases/news-release-details/us-silica-announces-price-increases-ground-and-fine-ground>, posted 24 June 2014.

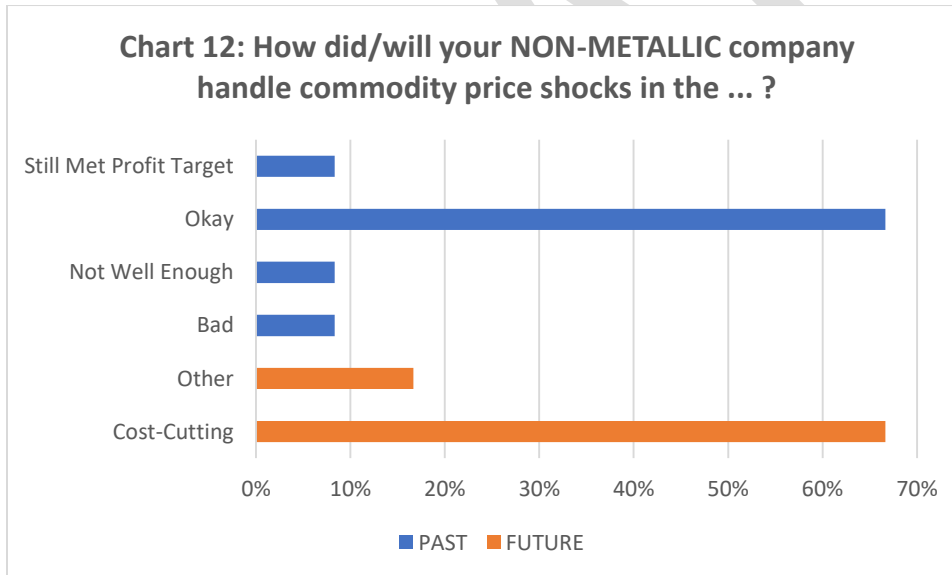
⁷⁴ Tomi Kilgore, "U.S. Silica to Raise Prices up to 9% for Most Products," *Market Watch* at <https://www.marketwatch.com/story/us-silica-to-raise-prices-up-to-9-for-most-products-2018-12-05>, posted 5 December 2018.

⁷⁵ Graeme B. Littler, "Price Volatility for Most Commodities Has Returned to Historical Norms," *WB* at <https://thedocs.worldbank.org/en/doc/825481461938593619-0050022016/original/CMO2014Julyanalysis.pdf>, posted 29 April 2016.

TABLE B: SUMMARY STATISTICS OF SELECT NON-METALLIC COMMODITIES

	SAND AND GRAVEL	LIMESTONE	SILICA
MINIMUM COMMODITY PRICE	3.96	5.15	16.81
MAXIMUM COMMODITY PRICE	9.32	11.96	74.8
MEAN (NORMALIZED)	0.4232	0.3860	0.2529
STANDARD DEVIATION (NORMALIZED)	0.3327	0.3573	0.2732
NO. OF DATA POINTS WITH NEGATIVE Z-SCORES	15	15	18
NO. OF DATA POINTS WITH POSITIVE Z-SCORES	14	14	11

Similar with the metals business, the majority of companies in the non-metallic mining sector were able to withstand commodity price shocks in the past from these respondents' answers⁷⁶ in the said survey as exhibited in Chart 12. Most of them will continue to implement cost-cutting measures for any sudden drops or surges in the future prices of their commodities. Two of these strategies are to reduce their production costs and manage their pricing structure to adapt accordingly.



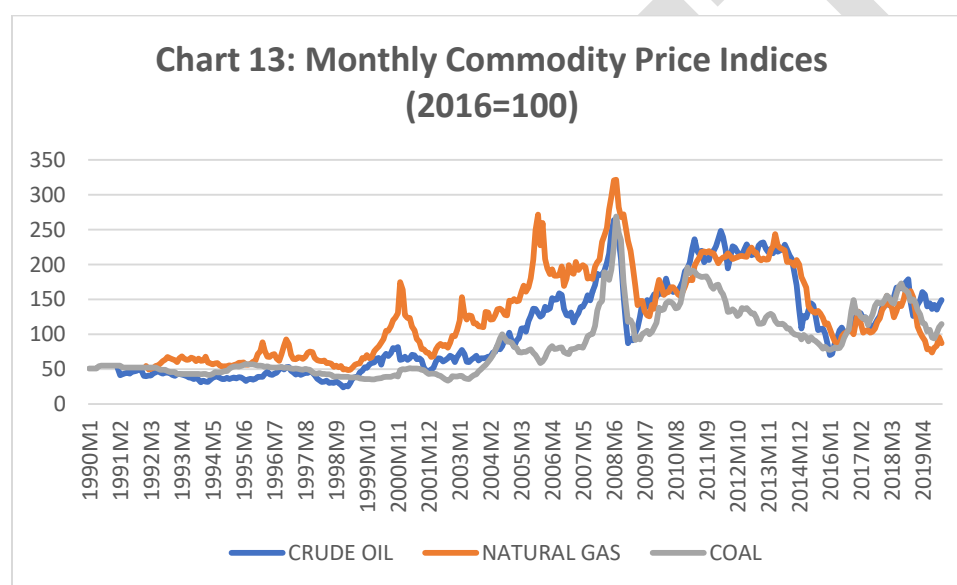
c. Oil, Gas, and Coal

Unlike the various aforementioned metallic and non-metallic minerals, there should be no cross-comparison among the commodities that are oil, gas, and coal because they have their own sets of commodity prices. Thus, there is no need for these figures to be rescaled nor the

⁷⁶ Out of the Top 25 non-metallic mining companies that report to PH-EITI, 12 of them participated in this chapter's online ex-pandemic survey on found at <https://www.surveymonkey.com/r/LVKQRM5> which is also included in the Annex.

need to calculate their respective standard deviations. IMF's indices from as early as January (M1) of 1990⁷⁷ were the bases for the different computations in this section. Indices with 2016 as the base year instead of actual USD prices were the variables considered for purposes of consistency and regularity.

Derived from IMF data⁷⁸, the one used for oil is the Crude Oil or Petroleum Price Index which is a simple average of three spot prices which are Dated Brent, West Texas Intermediate, and Dubai Fateh. For gas is the Natural Gas Price Index that includes European, Japanese, and American natural gas price indices. As for coal, the reference is the Coal Price Index which are the weighted price indices of Australian and South African coal. With reference to Chart 13, there were various periods of price shocks across all three commodities exceptionally during the first decade of the 21st century when they were at their most expensive.



A cursory visual observation of this chart makes one conclude that there are strong positive correlations among the commodity prices of crude oil, natural gas, and coal. As a matter of fact, the said coefficients of natural gas and coal to crude oil are 0.86 and 0.87, respectively. Between these former two, the figure is also very high at 0.73⁷⁹. In short, any jump or collapse in the price of one commodity directly affects the others⁸⁰. Causes of the price shocks of these commodities during that decade were either transitory or permanent, namely, the double dilemma of natural gas supply getting constrained and the demand for it skyrocketing in 2001⁸¹;

⁷⁷ Op. cit. (61)

⁷⁸ Ibid.

⁷⁹ Computations began from January (M1) 1992 when natural gas was first priced until December (M12) 2019 before the pandemic started.

⁸⁰ Narjes Zamani, "The Relationship Between Crude Oil and Coal Markets: A New Approach" in *International Journal of Energy Economics and Policy* (Vol. 6, No. 4) (Mersin, Turkey: EconJournals, December 2006), page 801.

⁸¹ Jim Wells and Mark Gaffigan, "Natural Gas: Analysis of Changes in Market Price," *US General Accounting Office (GAO)* at <https://www.gao.gov/assets/gao-03-46.pdf>, posted 18 December 2002.

the oil price increases of the mid-2000s driven as well by surging demand from emerging markets and developing economies, coupled with supply cuts by the Organization of Petroleum Exporting Countries (OPEC) and various geopolitical concerns; and the 2009 global financial crisis that slumped overall demand for these fossil fuels⁸².

Comparing the values on Table C, crude oil had the cheapest price index in 1998 and natural gas was the most expensive in 2008. The former also had the largest divergence at 78 percent from its mean commodity price with a minimum index of 24, while coal's maximum index of 269 was 212 percent more than its average price. The interpretation of these numbers is that, in the long term, oil will have a tendency to exhibit much lower prices and the latter much higher. With all three commodities having more years with cheaper indices as shown by their greater number of negative z-scores, it is most likely that changes in their commodity prices will exhibit a downward pattern. In support of these past data is the future prospect of energy transition with domestic economies being pushed by global forces to utilize lesser fossil fuels and more renewable sources of power⁸³ which are, for example, solar, wind, and water⁸⁴. Henceforth, the decline in demand for the former will mean their corresponding price decreases⁸⁵.

TABLE C: SUMMARY STATISTICS OF SELECT COMMODITIES

	CRUDE OIL	NATURAL GAS	COAL
MINIMUM INDEX	24.09	48.98	33.62
DISTANCE FROM THE MEAN	78%	62%	61%
MAXIMUM INDEX	264.61	321.28	268.89
DISTANCE FROM THE MEAN	147%	148%	212%
NO. OF DATA POINTS WITH NEGATIVE Z-SCORES	188	184	213
NO. OF DATA POINTS WITH POSITIVE Z-SCORES	160	152	147

Gathering from the responses of oil, gas, and coal companies to a series of questions emailed to them⁸⁶, SPEX⁸⁷ described how it adjusted its operations on account of commodity price shocks

⁸² John Baffes and Alain Kabundi, "Persistence of Commodity Shocks," *WB Blogs* at

<https://blogs.worldbank.org/developmenttalk/persistence-commodity-shocks>, posted 12 November 2020.

⁸³ Vyatcheslav A. Kulagin, et al., "Fossil Fuels Markets in the 'Energy Transition' Era," *Russian Journal of Economics* at <https://rujec.org/article/55177/>, posted 14 December 2020.

⁸⁴ Lora Shinn, "Renewable Energy: The Clean Facts," *Natural Resources Defense Council* at <https://www.nrdc.org/stories/renewable-energy-clean-facts#sec-types>, posted 15 June 2008.

Water energy can be subdivided into hydropower that relies on typically fast-moving bodies of water such as wild rivers and high waterfalls, geothermal bringing extremely hot underground water to the surface as steam, and ocean which is a source of tidal and wave energy.

⁸⁵ David M. Arseneau and Sylvain Leduc, "Commodity Price Movements in a General Equilibrium Model of Storage," *Federal Reserve Board* at <https://www.federalreserve.gov/pubs/ifdp/2012/1054/ifdp1054.htm>, posted 9 July 2013.

⁸⁶ Out of the 6 PH-EITI-reporting oil, gas, and coal companies; only two of them responded to this chapter's emailed questions, as included in the Annex, on their peri- and ex-pandemic operations which were SPEX and PNOEC-EC.

in the past and how it will manage them in the future. The company is also well aware that its commodities are a cyclical business so it manages their assets to remain resilient on the downside and to take advantage on the upside. Embedded in its project management, it has a continuous improvement strategy through a structural approach in which it continually seeks to simplify processes and eliminate waste; hence, maintaining a highly competitive cost profile for its production that could and can withstand these sudden changes in pricing. It cites Malampaya as an example where it has achieved an outstanding reliability track record of producing gas very efficiently. Combined with the reliability of its operations, it has been able to deliver this commodity to customers competitively throughout such a cycle.

PNOC-EC⁸⁸ also replied to the same query by admitting that commodity price shocks, particularly the downturn of oil prices, had and will have a major effect on the operational revenues of the corporation because its products, which are natural gas and coal, follow international pricing fluctuations. Despite having these changes beyond its control, it was able to ensure that cost management was in place even during the periods when commodity prices were high as a buffer while the situation started to normalize. It will continue to do such in the event of sudden changes in the global price of its outputs.

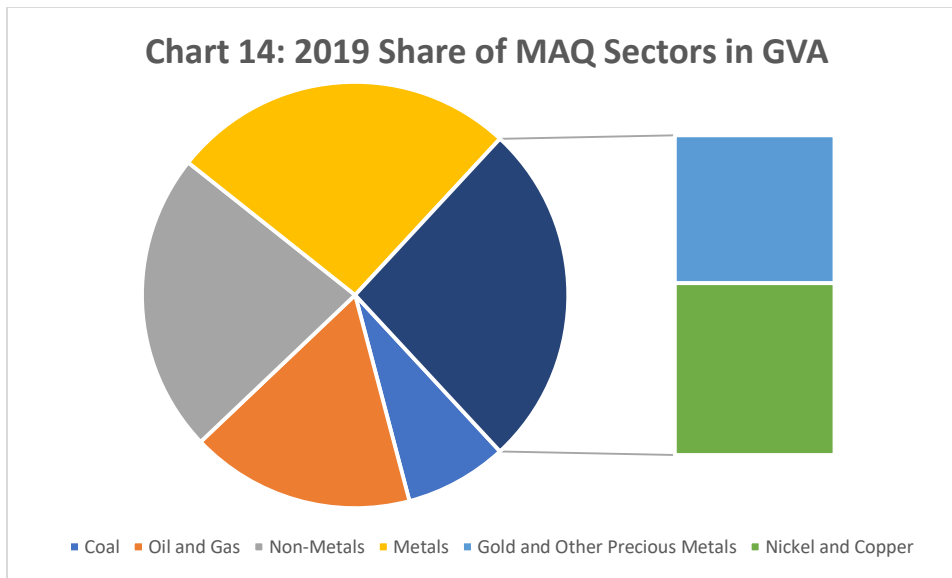
2. CHANGES IN GVA

In accordance with PSA figures⁸⁹ as laid out in Chart 14, total GVA of MAQ in 2019 amounted to more than 16 billion PHP at current prices. Majority of which was from the metallic mining sector which constituted 35 percent of the total, further broken down into gold and other precious metals at 16 percent then nickel and copper at 19 percent. Non-metals were the second biggest contributor at 31 percent, distinguishably stone quarrying and other minerals. The extraction of crude petroleum and natural gas was third at 23 percent and the mining of coal followed last at 11 percent.

⁸⁷ Ibid.

⁸⁸ Ibid.

⁸⁹ Op. cit. (25)



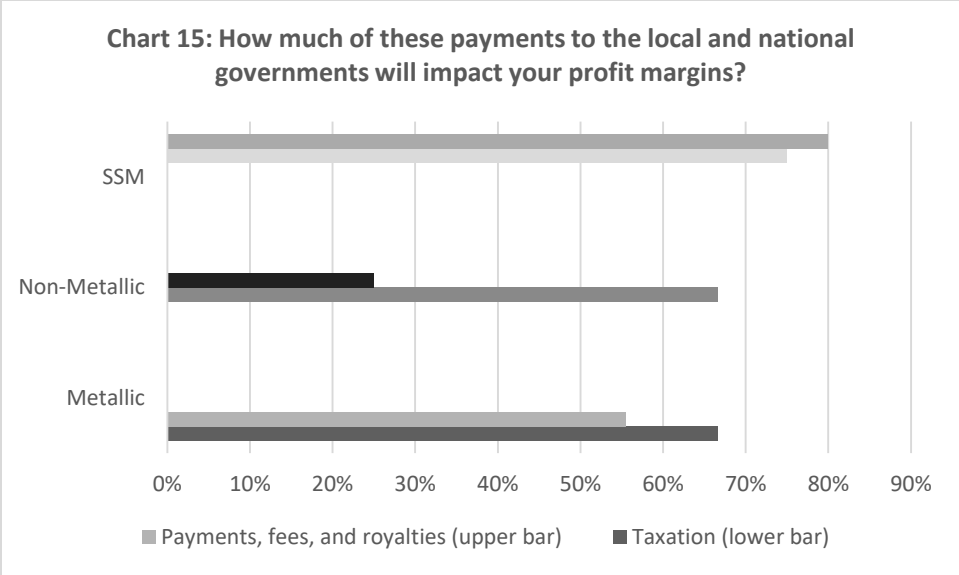
On the whole, growth in its GVA was positive for the MAQ industry with a compounded annual growth rate (CAGR) from 2000 to 2019 of 10 percent. Much of this was driven by the oil and gas sector that grew yearly by 26 percent; followed by the non-metallic mineral, coal, and metallic mineral sectors at their respective proportions of 11, 9.7, and 7.7 percent. Thereby, the future continues to remain encouraging for the industry, as a whole, and its sectors, to be specific, as the value addition of these commodities to the economy is anticipated to rise steadily over time.

To the extent that GVA is dependent on the amount of taxation that companies in an industry make; there is, then again, a caveat that this growth may not be maximized if prevailing levels of taxes and other sources of state revenue will be set higher by the government as virtually represented in Chart 15. In the online surveys⁹⁰, more than 60 percent of metallic and non-metallic mining companies which responded are concerned that tax increases will lower their GVA. More than 50 percent of the latter and a quarter of the former have a similar concern with an increase in payments, fees, and royalties. SSM operators are also wary about being taxed should these scenarios play out when 75 to 80 percent of them who each responded in a separate written questionnaire⁹¹ said that they expect to subsequently see the same or more of these government policies. Despite the fact that RA No. 11256⁹² exempts them from income and excise taxes, the TRAIN Law that doubled the latter for mining companies from 2 to 4 percent can be a precedence for them to be taxed later on by the government.

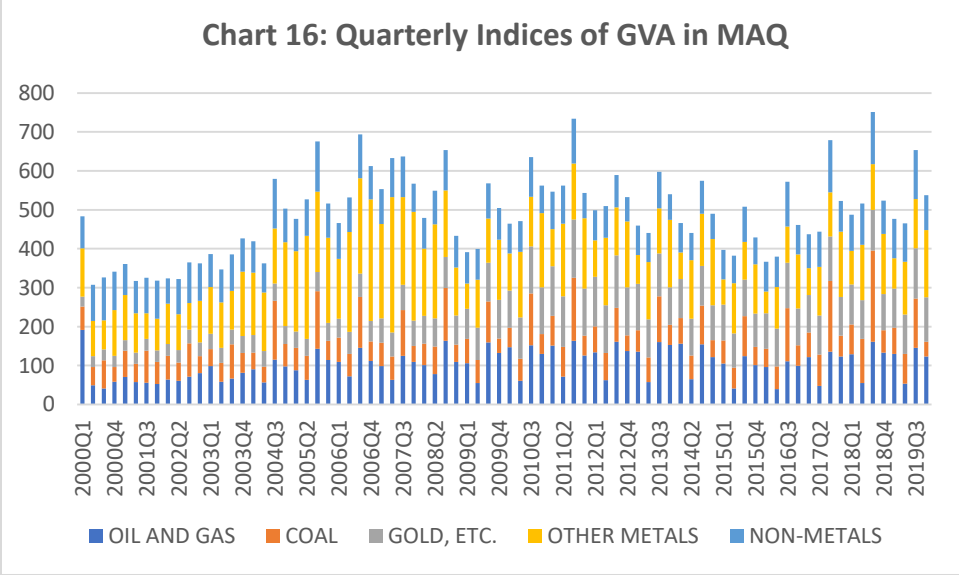
⁹⁰ Op. cit. (69 and 76)

⁹¹ 24 SSM operators replied to this chapter's written questionnaire, as included in the Annex, on their activities peri- and ex-pandemic.

⁹² "Republic Act No. 11246: An Act to Strengthen the Country's Gross International Reserves (GIR), Amending for the Purpose Sections 32 and 151 of the National Internal Revenue Code, as Amended and for Other Purposes," *Official Gazette of the Republic of the Philippines* at <https://www.officialgazette.gov.ph/downloads/2019/03mar/20190329-RA-11256-RRD.pdf>, passed 29 March 2019. Section 3 of this law specifically pertains to small-scale miners of gold.

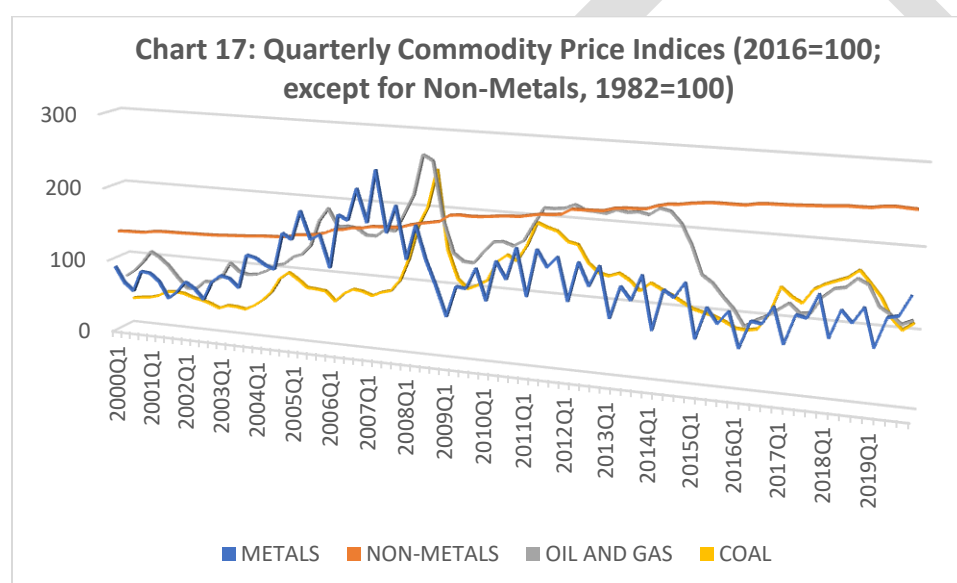


PSA publishes quarterly indices from the year 2000 and beyond of GVA of the MAQ industry that is also broken down by activity⁹³. Since these activities are not sector-specific, the following serve to represent their respective sectors; the mining of gold ores and other precious metals as well as of nickel and copper ores for metallic mining, stone quarrying and other mining and quarrying for non-metallic mining, extraction of crude petroleum and natural gas for oil and gas, and mining of coal for the coal sector. Where there is more than one activity per sector, like the mining of different kinds of metals, their average was used as a surrogate measure. The details of these aggregated numbers are in Chart 16.



⁹³ "Gross Value Added in Mining and Quarrying by Industry, Implicit Price Index," *PSA OpenSTAT* at https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2B__NA__QT__9MAQ/?tablelist=true, posted 28 January 2021.

The above indices were afterwards correlated with their corresponding commodity prices based on IMF data. Owing to the latter being broken down by month, they were recomputed quarterly to be able to compare statistics consistently across the same time period. For metallic minerals, the All Metals Index⁹⁴ was used in the computation which incorporates the Metal Price Index of base metals and Precious Metals Index. There are no commodity price indices available on non-metals from IMF or even the World Bank (WB), so monthly statistics on the Producer Price Index of non-metallic minerals and products, and not elsewhere classified from the United States (US) Federal Reserve System (FRS)⁹⁵ were utilized instead. IMF disaggregates the indices for oil and gas, so both the Crude Oil or Petroleum Price Index and Natural Gas Index were averaged on a monthly then calculated on a quarterly basis. As for coal, it was as straightforward as using the Coal Price Index using three-month averages. Chart 17 displays these IMF and US FRS numbers which are in constant prices with 2016 and 1986 as the base years, respectively.



Based on the correlation results of these commodities as they correspond with their specific price index from 2000 to 2019, only non-metallic minerals have a negative relationship, albeit very insignificant at -0.06, with commodity price changes. The primary reason for this is its market being characterized by the presence of, aside from the producers themselves, numerous small and large manufacturers as well as suppliers; thereby, the intense competition among these players severely limits any substantial changes in prices⁹⁶.

⁹⁴ Op. cit. (61)

⁹⁵ "Producer Price Index by Commodity: Nonmetallic Mineral Products: Nonmetallic Minerals and Products, Not Elsewhere Classified," *US Federal Reserve System Economic Data (FRED)* at <https://fred.stlouisfed.org/series/WPS1399>, accessed 18 April 2021.

⁹⁶ "Non-Metallic Minerals Market: Global Industry Analysis, Size, Share, Growth, Trends, and Forecast 2016-2024," *Transparency Market Research* at <https://www.transparencymarketresearch.com/non-metallic-minerals-market.html>, accessed 7 July 2012.

Conversely, the commodity price indices for metallic minerals, oil and gas, and coal have a direct relationship with each other. For instance, a 100-percent rise in the global price of metals results in a 40-percent increase in their local prices. If the commodity price of oil and gas decreases by 100 percent, then their domestic price will be lower by 42 percent. With reference to the price of coal in the international market, a 100-percent change in its price will have a similar consequence in how much it costs in the Philippines by 29 percent. Seeing that the correlation coefficients of the aforementioned variables are not that high at less than 50 percent, it can be concluded that any forthcoming commodity price shocks will not have a significant effect on GVA of these extractive sectors.

C. MICRO- AND MACROECONOMIC TRENDS

When investing in a portfolio or stock, there is always that disclaimer which says “past performance is no guarantee of future results”⁹⁷. This is because such an investment is mostly speculative; which should not be the case when it comes to providing an outlook for a particular sector, industry, or economy. In fact, predicting future movements in economic variables like GDP requires the efficient exploitation of all available monthly, quarterly, or annual information⁹⁸ as these past patterns set a firm foundation to project certain trends in the years to come.

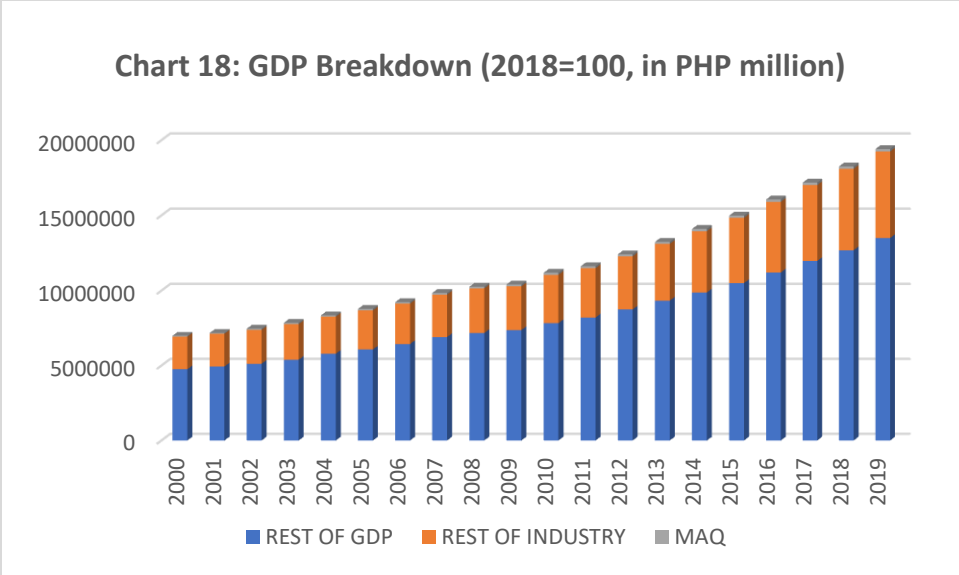
1. SHARE IN GDP

With information from PSA⁹⁹, GDP in the Philippines last 2019 reached more than 19 trillion PHP which was up by 6.1 percent the previous year. Vis-à-vis Agriculture, Forestry, and Fishing; and Services; Industry made up a considerable 30 percent of the economy, of which 2.9 percent was attributed to the extractive sectors. Over a 20-year period from 2000 as depicted in Chart 18, the average shares of MAQ in Industry and GDP were 3.4 and 1 percent, respectively. Its 20-year CAGR was 5.6 percent, which is indicative of this industry’s steady contribution to the domestic economy in the years to come.

⁹⁷ Ryan Dooyema, “Past Performance Is No Guarantee of Future Results,” *Russell Investments* at <https://russellinvestments.com/us/blog/past-performance-no-guarantee-future-results>, accessed 20 April 2021.

⁹⁸ “Forecasting Methods and Analytical Tools,” *OECD* at <https://www.oecd.org/economy/outlook/forecastingmethodsandanalyticaltools.htm>, posted December 2011.

⁹⁹ Op. cit. (11)

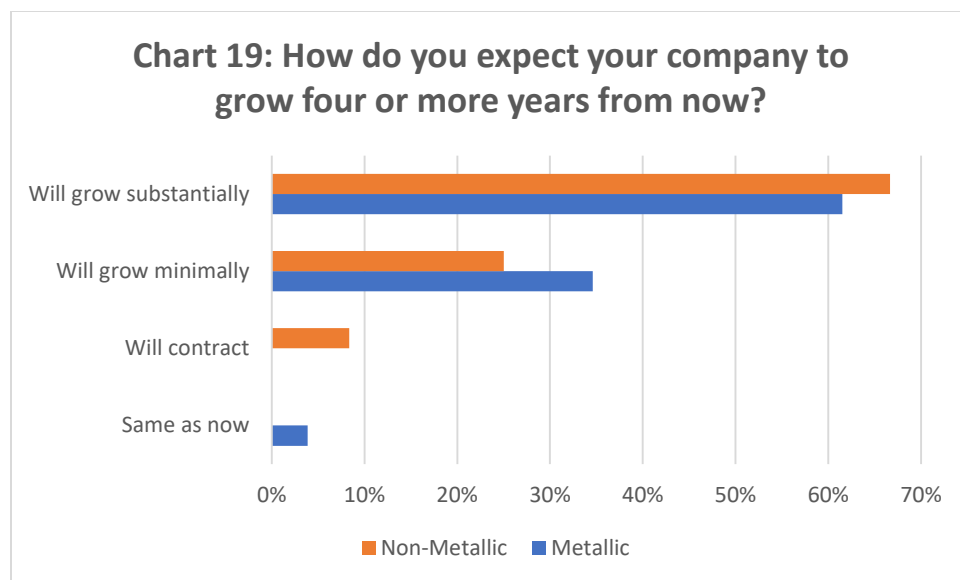


In response to the question on long-term growth¹⁰⁰, SPEX, for instance, is optimistic in achieving more gas production from new wells that it plans to drill within its existing SC's as well as from those that are a result of its ongoing license extension negotiation. PNOC-EC is also confident to grow more as a company, with the detailed exploration drilling in its new coal operating contracts (COC) following some pre-feasibility and feasibility studies. By around 2025, two of their mines are expected to be coming in full stream with additional volumes of this mineral resource.

Both the metallic and non-metallic mining sectors share the same optimism and confidence when asked about their companies' growth beyond the short-term horizon¹⁰¹. As revealed in Chart 19, more than 60 percent of the respondents believe that they will expand substantially in the long-term. At least a quarter of them are not as bullish, but they still forecast some positive growth in the long run.

¹⁰⁰ Op. cit. (86)

¹⁰¹ Op. cit. (69 and 76)

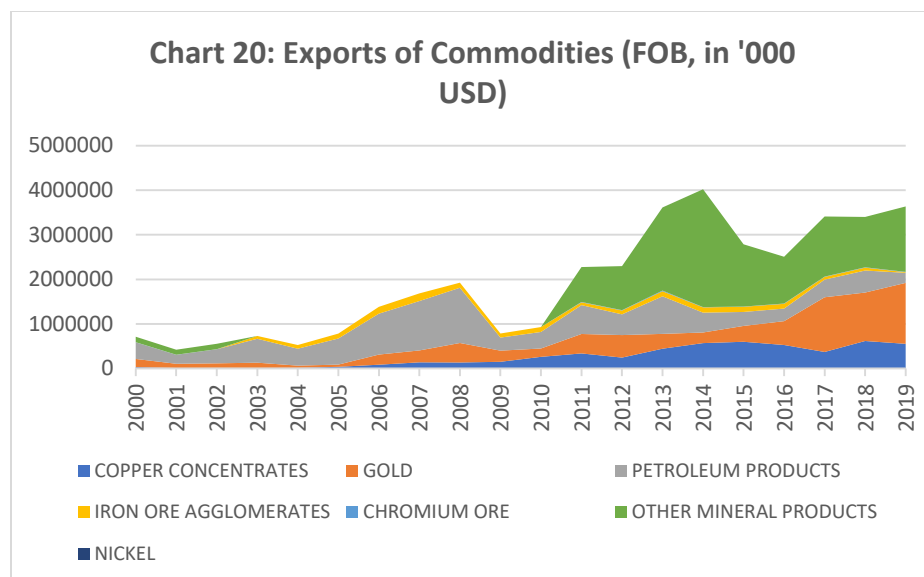


2. EXPORTS

In keeping with PSA¹⁰², commodities from the MAQ industry were exported to several countries from 2000 to 2019. As seen in Chart 20, these were copper concentrates, gold, petroleum products, chromium ore, and other mineral products. The Philippines started exporting iron ore agglomerates in 2003, and eventually nickel from 2012. In relation to the average exports, in FOB, per year, the country's major export product was other mineral products at 1.1 billion USD followed by petroleum products, gold, and copper concentrates at respective amounts of 522, 403, and 257 million USD. Iron ore agglomerates were fourth at 97 million USD, and chromium ore a far fifth at 6.5 million USD. Nickel was a farther sixth at only 57,952 USD.

¹⁰² "Philippine Exports by Commodity Group (GRT), 2000-2010" and "Philippine Exports by Commodity Group (GRT), 2011-2017," PSA OpenSTAT at https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2L__IMT__PCG/?tablelist=true&rxid=bdf9d8da-96f1-4100-ae09-18cb3eae313, posted 10 October 2018; and op. cit. (38)

There were no export data available for chromium ore and other mineral products from 2003 to 2010. The same was the case for nickel from 2014 to 2016 and 2018.



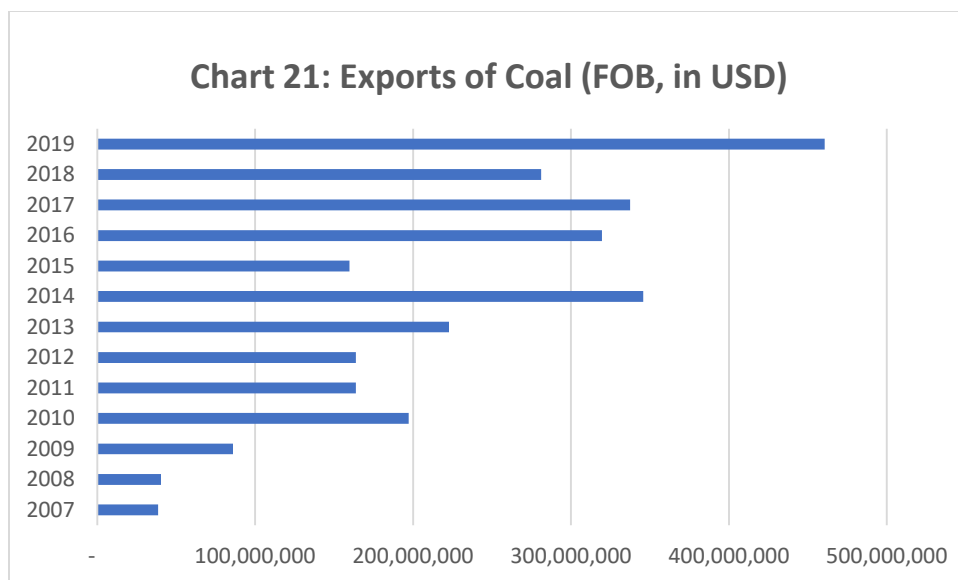
Looking at the CAGR of the above commodities; all except those of iron ore agglomerates and petroleum products were positive. Nickel's was the highest at 69 percent. Copper concentrates, other mineral products, and gold also had double-digit growth at their respective rates of 16, 13, and 11 percent. Chromium ore grew at an annualized rate of 4.6 percent. These historical figures suggest that the exports of most of these minerals will continue to grow over time.

PSA-specific data on the exports of coal are only available from 2001 to 2002 as well as in 2004 and 2006¹⁰³. Ergo, the following analysis is from 2007. As particularized in Chart 21, the pattern was fluctuating over the years, but FY 2019 was clearly the peak of this mineral's exportation. This was the result of China relaxing its coal import constraints from the year before that tried to tackle persistent severe air pollution in the country¹⁰⁴. Nevertheless, in consideration of its government's priority to boost the economy, increases in the supply of coal through such importation would maintain this commodity's moderate price and, therefore, cut down electricity costs with the objective of reducing the energy expenses of enterprises¹⁰⁵.

¹⁰³ Op. cit. (44)

¹⁰⁴ "China's 2019 Coal Imports Set to Rise More Than 10%: Analysts," *Reuters* at <https://www.reuters.com/article/us-china-coal-imports-idUSKBN1X100M>, posted 22 October 2019.

¹⁰⁵ *Ibid.*



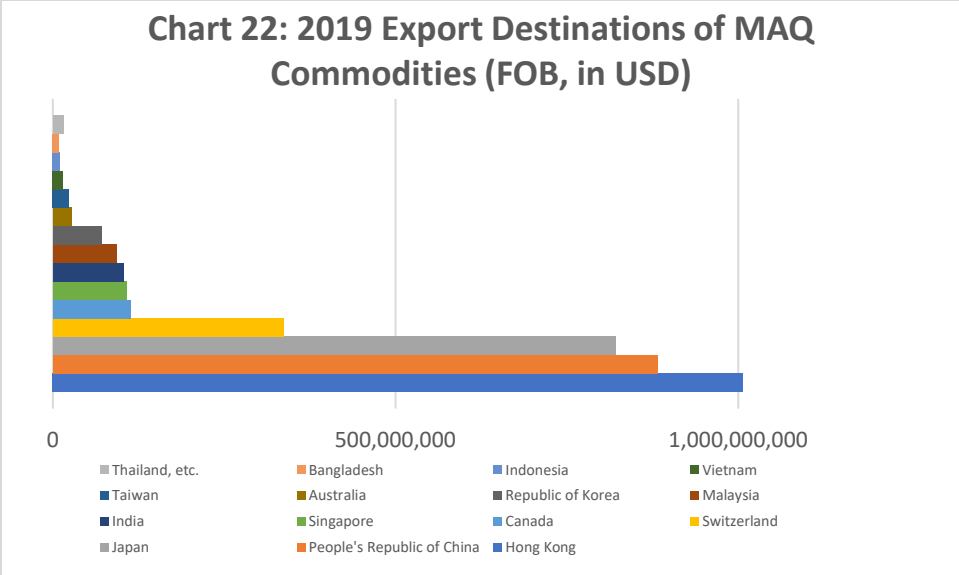
The 13-year AAGR and CAGR from 2007 of coal exports are 35 and 21 percent, respectively. These double-digit historical growth rates; alongside the predicted positive economic trajectory for China through, among others, the country’s targeted poverty reduction and effective control of financial risks¹⁰⁶ as well as the Philippines’ 2,367 MMT of coal resource potential¹⁰⁷; signify this sector’s continued contribution to the latter’s foreign exchange earnings in the coming years.

During the 20-year period from 2000¹⁰⁸, the Philippines exported commodities from the extractive industry to a total of 105 countries, territories, and sovereign states. In 2019 as put on view in Chart 22, this number went down to only 37 and the bulk of them were exported to Hong Kong at 28 percent. China was a close second as an export destination at 24 percent, with Japan closely behind at 23. Other countries which are Switzerland, Canada, Singapore, India, Malaysia, and South Korea had single-digit shares and totaled Japan’s. The remaining 2.8 percent was composed of the remaining 28 nations. All in all, a total of 3.6 billion USD, in FOB, of these commodities were delivered as exports that year.

¹⁰⁶ Plamen Tonchev, “What’s in Store for China’s Economy in 2020?,” *The Diplomat* at <https://thediplomat.com/2019/12/whats-in-store-for-chinas-economy-in-2020/>, posted 28 December 2019.

¹⁰⁷ “Coal Resources and Reserves as of 31 December 2019,” *DOE* at <https://www.doe.gov.ph/energy-statistics?q=energy-resources/coal-reserves>, accessed 7 July 2021.

¹⁰⁸ Op. cit. (102)



Conversely in the same year, Hong Kong, China, and Japan’s importation from the Philippines only accounted for 1.9, 1.1, and 1.5 percent of their respective total imports¹⁰⁹. Even relatively less considerable was the percentage of the said commodities that they imported. In Hong Kong, for instance, out of the 10 billion USD of imports from the Philippines: 10.3 percent was worth of pearls, precious stones, metals, and coins; and only 0.3 percent was the exports of salt, sulfur, earth, stone, plaster, lime, and cement¹¹⁰. With the Philippines only fulfilling less than 2 percent of their importation needs plus the consistently progressive growth in the exports of most commodities from the country itself, these will allow for greater export potential to these three major destinations in the coming times.

D. CONTRIBUTION TO THE ECONOMY

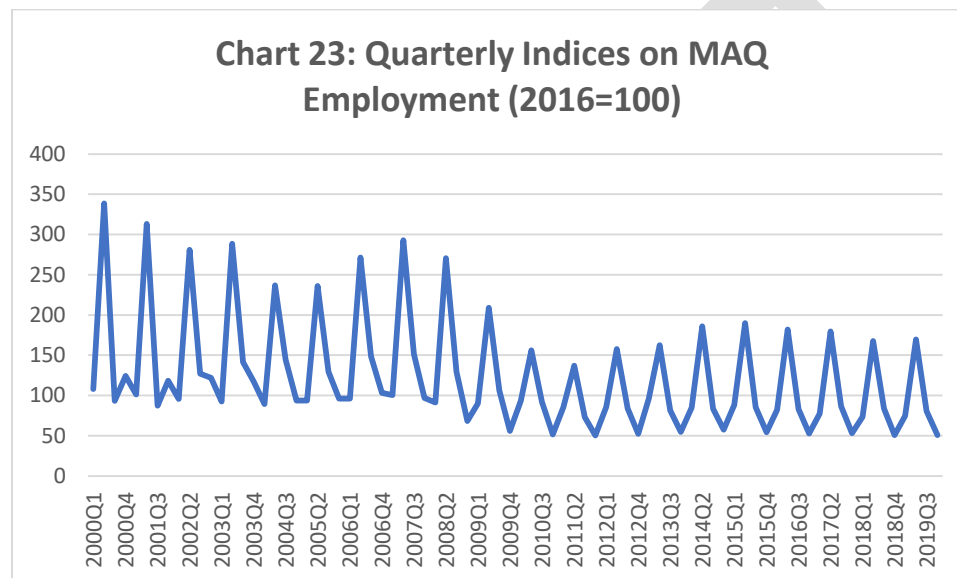
Externalities occur when the production or consumption of a good causes an impact on third parties that are not directly related to the transaction¹¹¹. In spite of the extractive industry still playing a relatively little role in the overall economy, its positive externalities cannot be underestimated in Philippine society. The spillover effects from employing MAQ workers as

¹⁰⁹ “Trading Economics: Import by Country - Hong Kong,” *Trading Economics* at <https://tradingeconomics.com/hong-kong/imports-by-country>;
 “Trading Economics: Import by Country - China,” *Trading Economics* at <https://tradingeconomics.com/china/imports-by-country>;
 and “Trading Economics: Import by Country - Japan,” *Trading Economics* at <https://tradingeconomics.com/japan/imports-by-country>, all accessed 10 May 2021.
¹¹⁰ “Hong Kong Imports from Philippines,” *Trading Economics* at <https://tradingeconomics.com/hong-kong/imports/philippines>, accessed 7 July 2021.
¹¹¹ “Externalities - Definition,” *Economics Help* at <https://www.economicshelp.org/blog/glossary/externalities/>, accessed 13 May 2021.

well as from paying the government its dues¹¹² are indispensable outcomes especially for developing countries.

1. EMPLOYMENT

PSA releases quarterly indices of employment in the MAQ industry from the year 2000¹¹³ and as featured in Chart 23, there is a seasonal pattern of hiring the most number of employed people every second quarter. As regards to averages until 2019, 144 percent more workers were hired in Q2 from Q1. Come third quarter, there were 52 percent fewer of them; but 102 percent more were employed again in Q4. Employment was highest in Q2 as there was an additional 66 percent of those working compared with the previous quarter.



From 2000 to 2019, CAGR of employment in MAQ was -0.94 percent. In this 20-year period, uneven growth in employment can also be attributed to inconsistent policies in the MAQ industry from one administration to the next¹¹⁴. More specifically, then President Gloria Macapagal-Arroyo from 2001 to 2010 had little-to-no discussion with pertinent entities when it came to her administration’s policy formulation. The opposite was the case during the term of ex-President Benigno Aquino III from 2010 to 2016 when there were conversations between the government and the extractive industry, only to be reversed during incumbent President

¹¹² Claudine Sigam and Leonardo Garcia, *Extractive Industries: Optimizing Value Retention in Host Countries* (Geneva: United Nations Conference on Trade and Development, 2012), pp. 11-12 and 15-16.

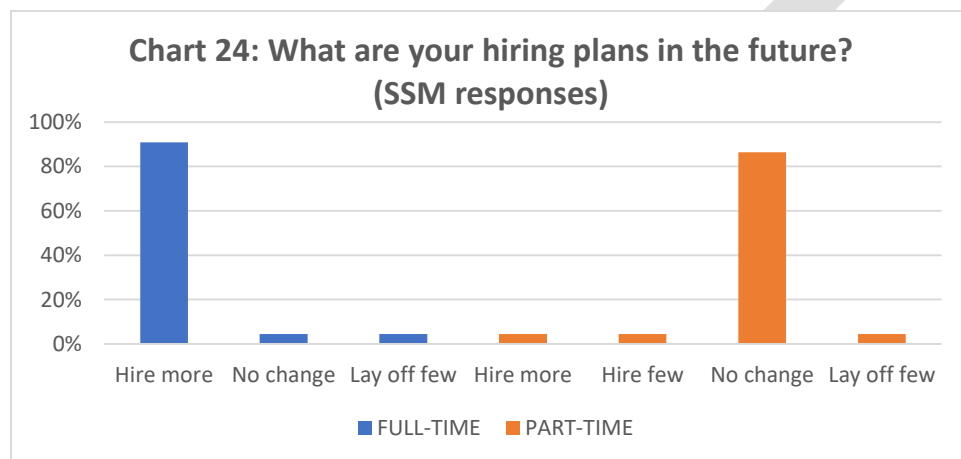
¹¹³ “Quarterly Indices on Employment (2016=100),” *PSA OpenSTAT* at https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2B__PA/?tablelist=true&rxid=bdf9d8da-96f1-4100-ae09-18cb3eae313, posted 17 December 2020.

There are no sectoral breakdowns available.

¹¹⁴ Jewellord Nem Singh and Alvin Camba, “The Role of Domestic Policy Coalitions in Extractive Industries Governance: Disentangling the Politics of ‘Responsible Mining’ in the Philippines” in *Environmental Policy and Governance (Vol. 30, Special Issue Article)* (Hoboken, New Jersey: John Wiley & Sons, Inc.; 12 August 2020), page 248.

Rodrigo Duterte’s regime when there was no regular consultation with representatives of various sectors of the industry. A said instance was the formulation and implementation of TRAIN that raised the excise taxes of mining companies.

Henceforth, as per historical data and the aforementioned inconsistent political agenda, the prognosis is fewer opportunities for additional workers in MAQ in the years to come. Additional earnings will still be possible for seasonal workers as the number of those employed always picks up every second and fourth quarters. Concerning the SSM sector¹¹⁵ as indicated in Chart 24, almost all survey participants have a succeeding plan to hire more full-time workers.



Going back to the questions sent to them by email¹¹⁶, PNOC-EC also plans to employ additional staff with its coal mines in development and in the pipeline. Lined up as well that will contribute to local employment is its programmed gas exploration drilling in 2021. SPEX, on the other hand, sees no changes in its number of workers as every move or attrition will be backfilled to ensure business continuity.

2. STATE REVENUES

The extractive industry contributes to the revenue of the Philippine government through payments to various government bodies¹¹⁷. These, namely, are the Bureau of Internal Revenue (BIR), Bureau of Customs (BOC), DOE, LGU’s, MGB, and Philippine Ports Authority (PPA). Their revenue streams are in the form of taxes for BIR, customs duties and value-added tax (VAT) for BOC, share of profits for DOE, local business and real property taxes for LGU’s, as well as royalties for MGB.

Detailed breakdowns of the above revenue streams per sector; namely, metallic mining, non-metallic mining, oil and gas, coal, and SSM; are only available annually from 2012 with the

¹¹⁵ Op. cit. (91)

As per survey result, each “Minahang Bayan” was employing an average of 10 full-time workers.

¹¹⁶ Op. cit. (86)

¹¹⁷ Op. cit. (40), page 28.

advent of PH-EITI's annual report on these commodities¹¹⁸. In other words, with only 8 years of metrics, the present data are not sufficient to come up with a quantitative analysis on the contribution of this industry to the Philippine government's budget. In lieu of the foregoing, gross revenues of MAQ and its 4 sectors have been used in this section insofar as there are quarterly figures available from 2000 and that there is a direct relationship between these two variables. To put it simply, higher gross sales from the extractive industry and the sectors that make it up means higher streams of revenue for the Philippine government, and vice-versa.

In line with PSA figures from this 20-year period¹¹⁹, MAQ's CAGR of gross revenues was at 2.4 percent. This positive increase was predominantly driven by the compounded annual growth of 3 of its 4 sectors¹²⁰, namely, oil and gas at 9.4 percent, metallic mining at 2.5 percent, and non-metallic mining at 2.2 percent. Coal was the only sector contracting at an annualized rate of -2.3 percent. Much of its growth was stunted by the Philippine government's decision to scrap planned coal power plant projects¹²¹.

The detailed breakdown of each of the sectors of the extractive industry's respective gross revenues is made clear in Chart 25. These historical values suggest that, in the future, the mining as well as the oil and gas sectors will steadily contribute to the income of the correspondent government bodies. The coal sector, on the other hand, might have less of, if not an insignificant, contribution to the Philippines' revenue streams over time.

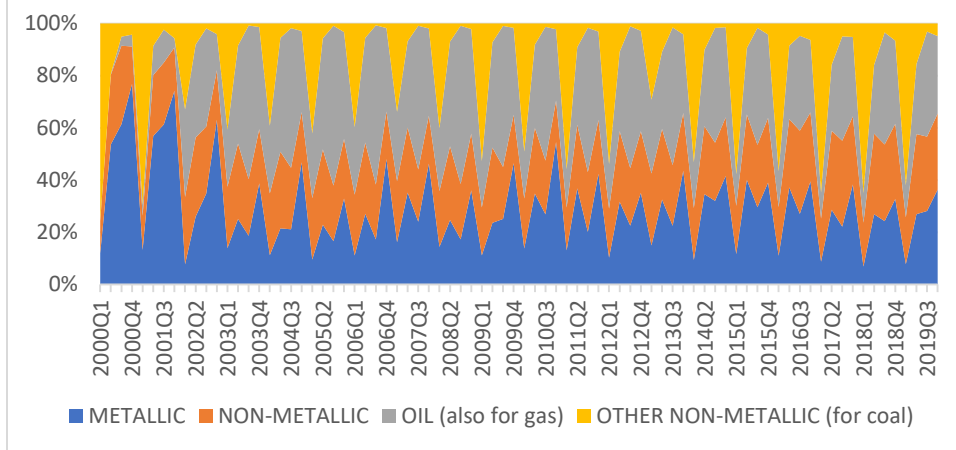
¹¹⁸ Atty. Brenda Jay A. Mendoza, ed., *Philippine Extractive Industries Transparency Initiative Report 2014: Contextual Information* (Malate, Manila: PH-EITI, 2015), page 78.

¹¹⁹ "Quarterly Indices on Gross Revenue (sic) (2016=100)," *PSA OpenSTAT* at https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2B__PA/?tablelist=true&rxid=ddf9d8da-96f1-4100-ae09-18cb3eae313, posted 17 December 2020.

¹²⁰ In correspondence with PSA's nomenclature; the sub-categories of Oil was used to represent the oil and gas sector, and of Other Non-Metallic for coal.

¹²¹ Chloé Farand, "Philippines Declares Moratorium on New Coal Power Plants," *Climate Home News* at <https://www.climatechangenews.com/2020/10/28/philippines-declares-moratorium-new-coal-power-plants/>, posted 28 October 2020.

Chart 25: Quarterly Indices on Gross Revenues by Sector (2016=100)



III. COVID-19 IMPACTS

The natural resources of a country can drive its growth, so the extractive industry is potentially the main economic driver in many countries¹²². The developed nation of Norway, for instance, is one of the largest exporters of oil and gas; and Botswana, which produces more than a quarter of the world's gemstone diamonds, is one of the fastest growing nations in Africa¹²³. Australia, Chile, and Malaysia are other examples of economies that have performed well due, to a large extent, to their resource wealth¹²⁴. The Philippines, also resource-rich, has yet to achieve a similar level of development.

This potential of the extractive industry, and other drivers of growth, to develop an economy has been stymied by the outbreak of COVID-19 and its concomitant restriction of economic activity. With government-imposed lockdowns, the pandemic has disrupted supply chains and choked off consumption¹²⁵. For the mining sector alone, it has impacted daily operations and ways of working with companies closing access to their sites or maintaining activities with minimal staff¹²⁶. For oil and gas, consuming transport fuel, for example, has dramatically decreased with movement getting restricted like planes being grounded¹²⁷. For coal, its use in

¹²² "Extractive Industries: Overview," *WB* at <https://www.worldbank.org/en/topic/extractiveindustries/overview>, accessed 30 April 2021.

¹²³ Elena Paltseva and Jesper Roine, "Are Natural Resources Good or Bad for Development?," *Free Network* at <https://freepolicybriefs.org/2011/11/21/are-natural-resources-good-or-bad-for-development/>, posted on 21 November 2011.

¹²⁴ *Ibid.*

¹²⁵ "Energy Industry and COVID-19 (Coronavirus): Strategising for the 'New Normal'," *PricewaterhouseCoopers (PwC)* at <https://www.pwc.com/gx/en/issues/crisis-solutions/COVID-19/energy-utilities-resources-coronavirus.html>, accessed 30 April 2021.

¹²⁶ "COVID-19: Mining Industry Impact and Response," *FLSmidth* at <https://www.flsmidth.com/en-gb/discover/mining-2020/mining-industry-impact-and-response>, accessed 30 April 2021.

¹²⁷ *Op. cit.* (125)

power plants has been significantly reduced as the demand for electricity dropped given the fewer factories, businesses, and establishments in operation¹²⁸. As an example, one of the electric distribution utility companies in the Philippines, Meralco, reported a fall in peak demand of almost 40 percent to 4,516 megawatts (MW) in March 2020 and to an even lower 4,289 MW in April¹²⁹.

A. BACKGROUNDER TO THE PANDEMIC

According to the World Health Organization (WHO), a pandemic is the worldwide spread of a new disease¹³⁰. The earliest recorded one, that was suspected to have been typhoid fever, was in 430 BC which started in the ancient city of Athens in present-day Greece and passed through territories that are now named Libya, Ethiopia, and Egypt¹³¹. Since then, history has borne witness to about 20 of the deadliest pandemics, notably, the Black Death or the Bubonic Plague during the 12th century that claimed around 200 million lives and the Spanish Flu during the early 1900's that killed up to 50 million people¹³². WHO officially declared COVID-19 as a pandemic on 11 March 2020¹³³.

1. GLOBAL SITUATION

The 2019 novel coronavirus or 2019-nCoV is similar to the severe acute and Middle East respiratory syndromes, or SARS and MERS, as it can cause mild infection in the upper respiratory tract as does the common cold; but can also lead to more serious lower respiratory tract infections manifesting as bronchitis or pneumonia¹³⁴. Albeit it is less deadly than these two coronaviruses, COVID-19 is also different because it is much more contagious¹³⁵. On 22 January 2020, China officially had 548 cases of COVID-19 positive individuals¹³⁶. By the end of Q2 of that year as highlighted in Chart 26, the worldwide figure of those infected exponentially

¹²⁸ "Coal and COVID-19: How the Pandemic Is Accelerating the End of Fossil Power Generation," *Potsdam Institute for Climate Impact Research* in Science Daily at

<https://www.sciencedaily.com/releases/2021/02/210208085454.htm>, posted 8 February 2021.

¹²⁹ Sara Jane Ahmed, et al.; "COVID-19: Lessons for the Philippine Power Sector," *Business Mirror* at <https://businessmirror.com.ph/2020/06/07/COVID-19-lessons-for-the-philippine-power-sector/>, posted 7 June 2020.

¹³⁰ "What Is a Pandemic?," *WHO* at https://www.who.int/csr/disease/swineflu/frequently_asked_questions/pandemic/en/, posted 24 February 2010.

¹³¹ "Pandemics That Changed History," *History* at <https://www.history.com/topics/middle-ages/pandemics-timeline>, posted 21 December 2020.

¹³² Nicholas LePan, "Visualising the History of Pandemics," *Visual Capitalist* at <https://www.visualcapitalist.com/history-of-pandemics-deadliest/>, posted 14 March 2020.

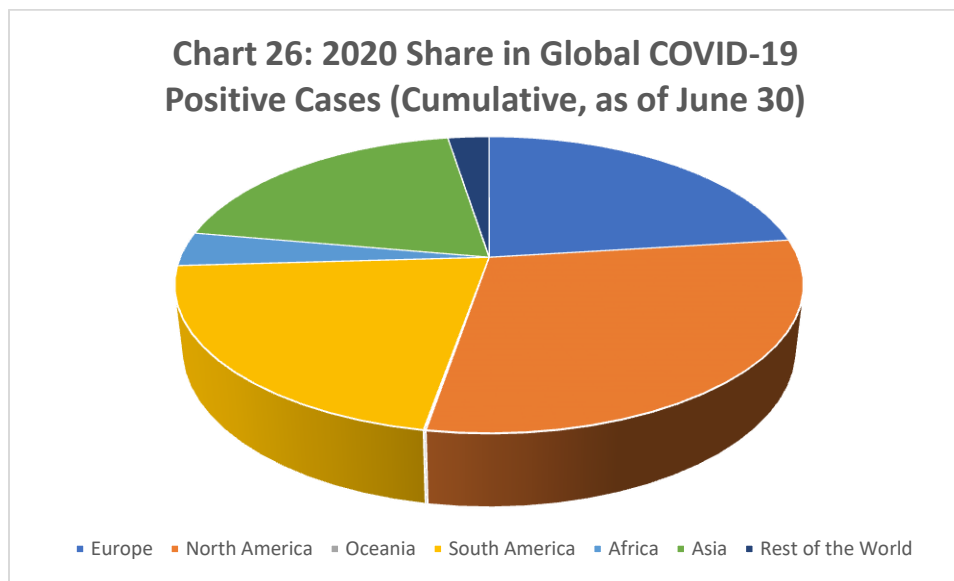
¹³³ Op. cit. (130)

¹³⁴ "How Do SARS and MERS Compare with COVID-19?," *Medical News Today* at <https://www.medicalnewstoday.com/articles/how-do-sars-and-mers-compare-with-COVID-19>, accessed 1 May 2021.

¹³⁵ Ibid.

¹³⁶ "Coronavirus Pandemic (COVID-19) - The Data," *Our World in Data* at <https://ourworldindata.org/coronavirus-data>, accessed 23 April 2021.

reached 10 million¹³⁷. Most of whom were in North America with 3.1 million. The figures in Europe, South America, and Asia followed each other closely with respective cases of 2.4, 2.2, and 2.1 million.



2. PHILIPPINE CONTEXT

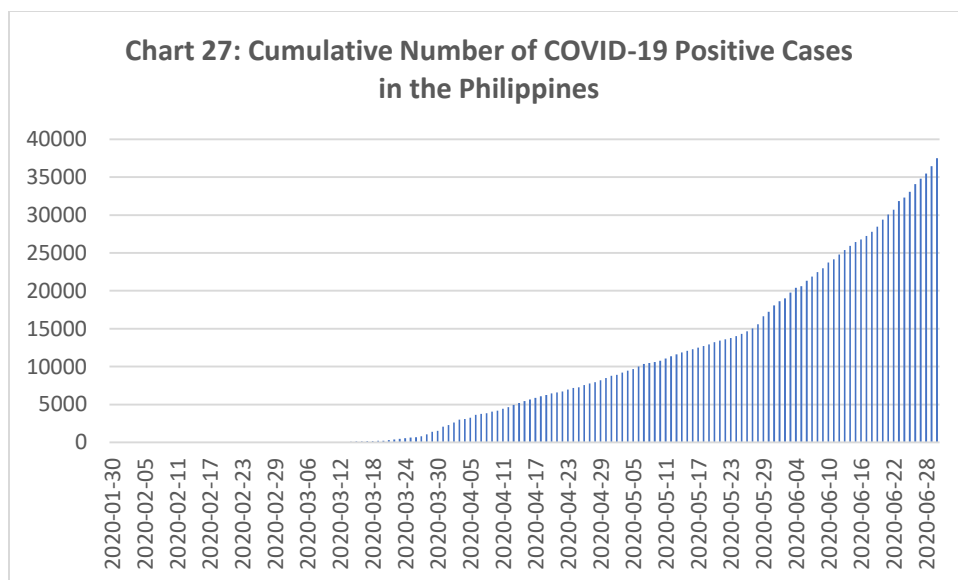
When President Rodrigo Duterte issued Proclamation No. 922 that declared a State of Public Health Emergency throughout the entire country last 8 March 2020¹³⁸, the Philippines merely had 10 confirmed cases of COVID-19¹³⁹. Less than a week later, the government imposed a lockdown first in Luzon and ultimately throughout the rest of the country. Initially, the ECQ was only meant to last until 12 April 2020; but the quarantine statuses of cities and provinces were extended way beyond 30 June when the number of positively-tested individuals that day already increased to 1,837 with a seven-day moving average of 1,258, which was way up from 88¹⁴⁰ the week this emergency was declared. Chart 27 describes how the tally of these infected people was steeply rising in the country in a matter of months.

¹³⁷ Ibid.

¹³⁸ "Proclamation No. 922 Declaring a State of Public Health Emergency Throughout the Philippines," *Office of the President of the Philippines* in Official Gazette of the Republic of the Philippines at <https://www.officialgazette.gov.ph/downloads/2020/02feb/20200308-PROC-922-RRD-1.pdf>, accessed 1 May 2021.

¹³⁹ "Coronavirus Cases in Philippines Rise to 10," *Rappler* at <https://www.rappler.com/nation/new-philippines-novel-coronavirus-cases-march-8-2020>, posted 8 March 2020.

¹⁴⁰ Ibid.



a. Cross-Border Quarantines and Movement Restrictions

On 16 March 2020, a memorandum from the Executive Secretary of the Office of the President was issued to outline preliminary guidelines on the implementation of the Enhanced Community Quarantine (ECQ) which included observing strict home isolation in all households, limiting movement to only access basic necessities, and regulating the provision of food and essential health services¹⁴¹.

i. Lockdown Classifications

Over the course of the lockdown, the government classified provinces and certain cities into one of four categories, namely and in order of stringency from most to least; ECQ, Modified ECQ (MECQ), General Community Quarantine (GCQ), and Modified GCQ (MGCQ); chiefly based on the Inter-Agency Task Force for the Management of Emerging Infectious Diseases' (IATF) risk level assessment of how these places were successfully or failingly curbing, controlling, and containing the spread of COVID-19¹⁴².

As per IATF's preliminary Omnibus Guidelines¹⁴³, ECQ refers to the implementation of temporary measures imposing stringent limitations on movement and transportation of people

¹⁴¹ "Memorandum From the Executive Secretary on Community Quarantine Over the Entire Luzon and Further Guidelines for the Management of the Coronavirus Disease 2019 (COVID-19) Situation," *Official Gazette of the Republic of the Philippines* at <https://www.officialgazette.gov.ph/2020/03/16/memorandum-from-the-executive-secretary-on-community-quarantine-over-the-entire-luzon-and-further-guidelines-for-the-management-of-the-coronavirus-disease-2019-covid-19-situation/>, accessed 28 April 2021.

¹⁴² "COVID-19 Inter-Agency Task Force for the Management of Emerging Infectious Diseases Resolutions: Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines (May 15, 2020)," *Department of Health (DOH)* at <https://doh.gov.ph/sites/default/files/health-update/Omnibus-Guidelines-community-quarantine.pdf>, accessed 28 April 2021.

¹⁴³ *Ibid.*

and strict regulation of operating industries, among other things. Unlike ECQ, GCQ implements those that limit movement and transportation as well as regulate the operation of industries. MECQ is the transition phase between ECQ and GCQ when these temporary measures are relaxed; while MGCQ is transitioning from GCQ to the New Normal or the emerging behaviors, situations, and minimum public health standards that will be institutionalized in common or routine practices to remain even after the pandemic while the disease is not totally eradicated.

Continuing with this set of rules that was amended a couple of times¹⁴⁴, if someone is not designated as an authorized person outside of residence, or APOR, intra- and interzonal movement are prohibited, if not restricted. These authorized persons are health and emergency frontline service personnel, government officials and government frontliners, duly-authorized humanitarian assistance actors, those traveling for medical or humanitarian reasons, those going to the airport for travel abroad, anyone crossing zones for work or business, and returning overseas Filipino, ROF, or locally-stranded individual, LSI, returning to their hometowns. For everybody else, their entry to an ECQ or MECQ zone is not allowed and neither is their exit from these areas. In places under GCQ or MECQ, residents are freer to move around but only if it is essential travel such as for buying food as well as other necessities and for work. Movement within and between these areas are allowed except for leisure purposes unless the Department of Tourism, DOT, and the respective LGU have already opened some places back for tourist arrivals.

Table D lists the community quarantine categories of all cities, municipalities, and provinces in the Philippines over time from the first day of lockdown until the end of Q2 on the basis of President Duterte's Proclamation Order No. 929 and the subsequent IATF resolutions¹⁴⁵. Note that places in bold represent those where there was the physical presence of extractive companies in operation, and that only certain capitals in some regions were included because they distinctly warranted their own separate classification.

¹⁴⁴ "COVID-19 Inter-Agency Task Force for the Management of Emerging Infectious Diseases Resolutions: Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines (May 22, 2020)," *DOH* at <https://doh.gov.ph/sites/default/files/health-update/omnibus-guidelines-on-the-implementation-of-community-quarantine-in-the-Philippines-0522.pdf>;

"Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines with Amendments as of June 03, 2020," *DOH* at <https://doh.gov.ph/sites/default/files/health-update/omnibus-guidelines-on-the-implementation-of-community-quarantine-in-the-philippines.pdf>;

and "Omnibus Guidelines on the Implementation of Community Quarantine in the Philippines with Amendments as of June 25, 2020," *DOH* at <https://doh.gov.ph/sites/default/files/health-update/omnibus-guidelines-on-the-implementation-of-community-quarantine-in-the-philippines-0625.pdf>, all accessed 28 April 2021.

¹⁴⁵ Collated from "Proclamation No. 929 Declaring a State of Calamity Throughout the Philippines Due to Corona Virus (sic) Disease 2019," *Official Gazette of the Republic of the Philippines* at <https://www.officialgazette.gov.ph/2020/03/16/proclamation-no-929-s-2020/>;

and "Inter-Agency Task Force for the Management of Emerging Infectious Diseases (IATF) Resolution No.'s 20, 28, 30, 31, 35, 37, 41, and 46-A From 6 April to 15 June 2020," *IATF* in *DOH* at <https://doh.gov.ph/COVID-19/IATF-Resolutions>; both accessed 29 April 2021.

TABLE D: 2020 COMMUNITY QUARANTINE CLASSIFICATIONS FROM MARCH 17

		--> April 12	--> April 30	--> May 15	--> May 31	--> June 15	--> June 30
NATIONAL CAPITAL REGION (NCR)	City of Manila	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	City of Mandaluyong	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	City of Marikina	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	City of Pasig	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	City of San Juan	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	Quezon City	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	Caloocan City	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	City of Malabon	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	City of Navotas	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	City of Valenzuela	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	City of Las Piñas	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	City of Makati	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	City of Muntinlupa	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	City of Parañaque	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	Pasay City	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
Taguig City	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ	
Pateros	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ	
CORDILLERA ADMINISTRATIVE REGION (CAR)	Abra	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Apayao	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Baguio City, Benguet	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
	Rest of Benguet	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Ifugao	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Kalinga	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Mountain Province	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
REGION I (ILOCOS REGION)	Ilocos Norte	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Ilocos Sur	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	La Union	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Dagupan City, Pangasinan	ECQ	ECQ	ECQ	GCQ	GCQ	GCQ
Rest of Pangasinan	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ	
REGION II (CAGAYAN VALLEY)	Batanes	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Cagayan	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Santiago City, Isabela	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Rest of Isabela	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Nueva Vizcaya	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
Quirino	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ	
REGION III (CENTRAL LUZON)	Aurora	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Bataan	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Bulacan	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Nueva Ecija	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Angeles City, Pampanga	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Rest of Pampanga	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Tarlac	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Olongapo City, Zambales	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
Rest of Zambales	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ	
REGION IV-A (CALABARZON)	Batangas	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Cavite	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Laguna	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Lucena City, Quezon	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Rest of Quezon	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
Rizal	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ	
REGION IV-B (MIMAROPA)	Marinduque	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Occidental Mindoro	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Oriental Mindoro	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Puerto Princesa City, Palawan	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Rest of Palawan	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
Romblon	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ	
REGION V (BICOL REGION)	Legazpi City, Albay	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Rest of Albay	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Camarines Norte	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Naga City, Camarines Sur	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Rest of Camarines Sur	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
	Catanduanes	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ
Masbate	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ	
Sorsogon	ECQ	ECQ	GCQ	GCQ	GCQ	GCQ	

Enhanced Community Quarantine (ECQ)	General Community Quarantine (GCQ)	*no community quarantine classification*
Modified ECQ	Modified GCQ	New Normal

TABLE D: 2020 COMMUNITY QUARANTINE CLASSIFICATIONS FROM MARCH 17 (Continued)

		--> April 12	--> April 30	--> May 15	--> May 31	--> June 15	--> June 30
REGION VI (WESTERN VISAYAS)	Aklan						
	Antique						
	Capiz						
	Guimaras						
	Iloilo City, Iloilo						
	Rest of Iloilo						
	Bacolod City, Negros Occidental Rest of Negros Occidental						
REGION VII ^A (CENTRAL VISAYAS)	Negros Oriental						
	Bohol						
	Cebu City, Cebu						
	Lapu-Lapu City, Cebu						
	Mandaue City, Cebu						
	Talisay City, Cebu						
	Rest of Cebu Siquijor						
REGION VIII ^A (EASTERN VISAYAS)	Biliran						
	Eastern Samar						
	Tacloban City, Leyte						
	Ormoc City, Leyte						
	Rest of Leyte						
	Northern Samar						
	Southern Leyte Western Samar (Samar)						
REGION IX (ZAMBOANGA PENINSULA)	Zamboanga del Norte						
	Zamboanga City, Zamboanga del Sur						
	Rest of Zamboanga del Sur						
	Isabela City, Zamboanga Sibugay						
	Rest of Zamboanga Sibugay						
REGION X (NORTHERN MINDANAO)	Bukidnon						
	Camiguin						
	Iligan City, Lanao del Norte						
	Rest of Lanao del Norte						
	Misamis Occidental						
	Cagayan de Oro City, Misamis Oriental Rest of Misamis Oriental						
REGION XI (DAVAO REGION)	Davao del Norte						
	Davao City, Davao del Sur						
	Rest of Davao del Sur						
	Davao Oriental						
	Davao de Oro Davao Occidental						
REGION XII (SOCCSKSARGEN)	North Cotabato						
	Sarangani						
	General Santos City, South Cotabato						
	Rest of South Cotabato Sultan Kudarat						
REGION XIII ^A (CARAGA)	Butuan City, Agusan del Norte						
	Rest of Agusan del Norte						
	Agusan del Sur						
	Surigao del Norte						
	Surigao del Sur Dinagat Islands						
BANGSAMORO AUTONOMOUS REGION IN MUSLIM MINDANAO (BARMM)	Basilan						
	Lanao del Sur						
	Cotabato City, Maguindanao						
	Rest of Maguindanao						
	Sulu Tawi-Tawi						

Enhanced Community Quarantine (ECQ)	General Community Quarantine (GCQ)	*no community quarantine classification*
Modified ECQ	Modified GCQ	New Normal

^Only 2019 data were available as per their respective MGB regional websites.

From March 17 until the end of April 2020, only the major island group of Luzon was deemed by the government to be placed under quarantine. By May 1 though, the entire Philippines was on official lockdown with a province classified as either ECQ or GCQ. A fortnight later, some places were eased to having the status of an MECQ, the less strict GCQ, or even the New Normal. At the core of the latter is a new way of thinking, deciding on, and doing one's usual affairs with an invigorated sense to remain healthy¹⁴⁶ by following the minimum health and safety protocols¹⁴⁷ of practicing social distancing, wearing a face mask, and frequently washing hands as safety precautions against COVID-19.

From the first of June though, the places designated with the New Normal category were reverted to the least stringent MGCQ while the rest of the country was placed under GCQ. The situation nearly remained the same after June 15 except for Cebu City that was classified back as ECQ attributing to the extraordinary rise in its COVID-19 positive cases. With respect to the areas where there were extractive companies physically in operation, the gist is that they spent, as a weighted average, from the first community quarantine imposition in mid-March until several extensions till the end of Q2 2019, 16 days not being under any form lockdown, 23 ECQ days, 2 MECQ, 28 GCQ, 20 MGCQ, and 2 in the New Normal.

ii. Sanctioned Enterprises and Transport

Along with the aforementioned new regulations peri-pandemic, the Department of Trade and Industry (DTI) released official guidelines on which businesses can operate and how they can go about performing their operations under each lockdown classification¹⁴⁸. With reference to the extractive industry as outlined on Table E, the oil and gas as well as coal sectors are labeled as a Category I type of business; while the metallic and non-metallic mining ones as Category II. Secondary to these companies are fuel stations and other companies that manufacture products out of these mineral resources, which are under Categories I and II, respectively.


¹⁴⁶ "What Is the New Normal?," *Research Institute for Tropical Medicine (RITM)* at <https://ritm.gov.ph/new-normal-in-our-homes-in-the-workplace-and-in-schools/>, accessed 13 May 2021.

¹⁴⁷ "Safety Prevention Protocols Still Best Defense Against COVID-19," *DOH* at <https://doh.gov.ph/press-release/SAFETY-PREVENTION-PROTOCOLS-STILL-BEST-DEFENSE-AGAINST-COVID-19%E2%80%93DOH>, posted 10 July 2020.

¹⁴⁸ "Revised Category I-IV Business Establishments/Activities Allowed to Operate in Areas Declared Under ECQ, MECQ, GCQ, and MGCQ," *DTI* at <https://www.dti.gov.ph/COVID19/infographics/revised-categ-1-4/>, accessed 1 May 2021.

TABLE E: Allowed Operating Capacities of Select Establishments

	Category	ECQ	MECQ	GCQ	MGCQ
Energy and Power Companies*	I	S			
Gasoline Stations	I	S			
Other Manufacturing**	II	X			
Mining and Quarrying	II				
Export-Oriented		S			
Domestic Production		S			

X - prohibited
 S - skeletal workforce

 - 50 percent
 - 50-100 percent
 - 100 percent

*including exploration and operations

**including non-metallic products, coke and refined petroleum products, other non-metallic mineral products, and others

It can be observed that three of the four extractive sectors apart from coal were directly and unfavorably affected by the pandemic, distinctly during ECQ when they were only allowed to have a skeletal workforce. With the exception of mining companies involved in domestic production, they did return to full operation post-ECQ but they did spend, on average, more than three weeks with very limited capacity. The situation was worse for related manufacturing companies in ECQ zones that had to close their operations and were finally given permission to operate but with only 50 percent capacity under MECQ.

On the different types of transport, their utilization was also negatively affected by these quarantine classifications. This has an impact, to be specific, on the oil and gas sector in the context of fuel demand and on the extractive industry, as a whole, with how its workers commute to and from work. Based on the Department of Transportation's guidelines¹⁴⁹ and under ECQ, public transport is prohibited except for government shuttles but with only a limited number of passengers. Things get a little better for commuters during MECQ when the rest of public transport is allowed, albeit with less than 50 percent capacity. With a GCQ and MGCQ classification, passenger utilization is increased to 50 and 75 percent, respectively.

Under the same guidelines¹⁵⁰, some forms of private transportation are allowed during ECQ which are company shuttles and personal vehicles but, again, with a limited seating capacity of less than 50 percent. Two-wheeled vehicles are still prohibited; and only the rider can use a bicycle, motorcycle, or e-scooter in an ECQ that is modified. Under both an MECQ and GCQ, the first two types of private transport can carry up to half its passenger capacity, as with the

¹⁴⁹ Margo Hannah De Guzman Quadra, "Updated Quarantine Guidelines for ECQ, MECQ, GCQ, MGCQ in the Philippines," *Good News Pilipinas* at <https://www.goodnewspilipinas.com/updated-quarantine-guidelines-for-ecq-mecq-gcq-mgcq-in-the-philippines/>, posted 18 August 2020.

¹⁵⁰ Ibid.

latter in places under GCQ. When an area is already classified as MGCQ, any kind of transportation used privately can have up to 75 percent capacity. Table F puts forth the aforementioned kinds of transport and whether they are restricted or allowed but only with a designated number of passengers.

TABLE F: Approved Means of Transportation

	ECQ	MECQ	GCQ	MGCQ
Public Transportation				
PNR, LRT, MRT	X	L		
Bus	X	L		
Jeepney	X	L		
Taxi	X	L		
Transportation Network Vehicle Services	X	L		
Tricycle	X	L		
Public Shuttle	L			
Private Transportation				
Company Shuttle	L			
Personal Vehicle	L			
Bicycle	X	L		
Motorcycle	X	L		
E-Scooter	X	L		

X - prohibited

L~ - limited capacity

- 50 percent

- 75 percent

~as per DOTR guidelines

With most employees who are either working from their homes, partially employed, or not at work, there was considerably little demand for fuel notably during ECQ. Even when some other forms of public transport were no longer prohibited as community quarantine restrictions were eased, those who had to report to their jobs and planned on commuting ended up walking to and from their place of work with the still restricted passenger capacity and limited number of vehicles allowed on the road¹⁵¹. With the introduction of Work From Home (WFH) and other alternative work arrangement to limit social mobility and, inevitably, the spread of the virus, petroleum demand dropped sizably. Economic activity slowed down with private and public transport coming to a halt. This effectively reduced fuel consumption by 23 percent in the first half of 2019, resulting in the closure of at least 10 percent of gasoline stations¹⁵².

b. Reactions from the Private Sector and Civil Society

¹⁵¹ Aika Rey, "On Their Own: Commuters and the Looming Transportation crisis in Metro Manila," *Rappler* at <https://www.rappler.com/newsbreak/in-depth/looming-transportation-crisis-metro-manila-part-2>, posted 29 May 2020.

¹⁵² "Disrupted by COVID-19, Power Sector Resets," *Philippine Energy Efficiency Alliance (PE2)* at <https://www.pe2.org/news/disrupted-COVID-19-power-sector-resets>, posted 3 January 2021.

The effects of the COVID-19 pandemic are ubiquitous, affecting everybody everywhere. No one is safe from this novel coronavirus that has recently been discovered to be also transmitted airborne¹⁵³, henceforth, the greater risk of contagion. On one hand, lockdowns safeguard people's lives and health but, on the other, they have negative consequences not just on their livelihoods but on their lives outside of work as well. To better understand the consequences of this pandemic on the extractive industry and its sectors, this section discusses how the novel coronavirus has impacted the sentiments of typical local businesses and everyday Filipino citizens in the Philippines.

i. Business Responses

BSP conducts a Business Expectations Survey quarterly. After posting 43 consecutive quarters of positive confidence from the third quarter (Q3) of 2019, the 22.3 percent overall confidence index sharply fell from 22.3 percent in Q1 2020 to -5.3 percent in Q3¹⁵⁴. The respondents echoed their pessimism for the said quarter and beyond which they attributed to the bleak business outcome with COVID-19 and its resultant community quarantine restrictions; the resultant decrease in orders, sales, and income; the resulting slowdown or temporary shutdown in their operations; and concerns over ineffective government policies which were primarily the mitigation measures that they perceive to be insufficient in countering the adverse effects of this global pandemic¹⁵⁵.

More specifically in conjunction with mining companies, Chart 28 presents the proportion of survey respondents¹⁵⁶ whose operations were impacted by the community quarantine classifications in the second quarter of 2020. The most undesirably affected were SSM operators that experienced on-and-off activities. Non-metallic companies were relatively the worst-off having the most percentage that had to cease operating, while the metallic ones were spared when most of them were business-as-usual. Expectedly, most of the former are situated in areas that had the longest days of strict quarantine vis-à-vis majority of the latter.

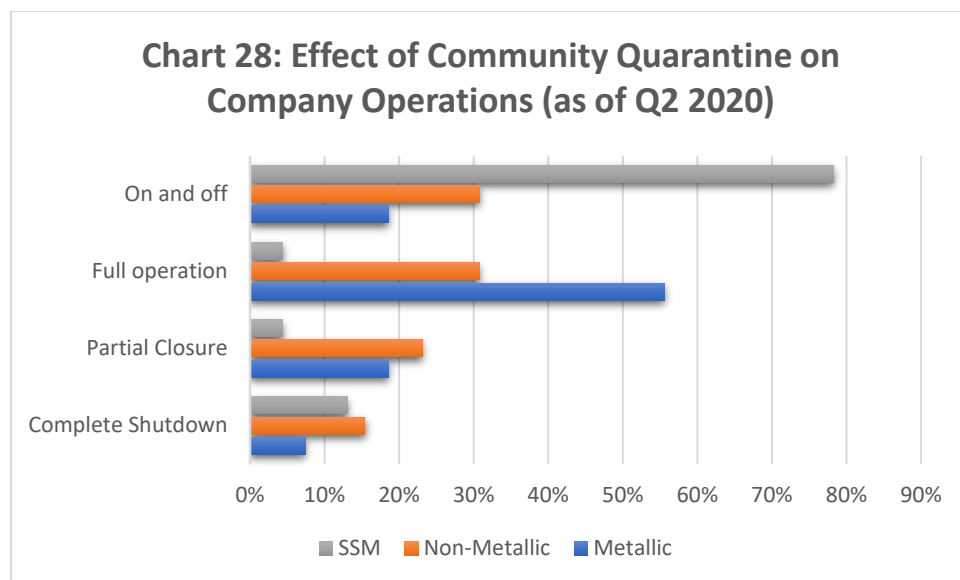
¹⁵³ Trisha Greenhalgh, et al.; "Ten Scientific Reasons in Support of Airborne Transmission of SARS-CoV-2," *The Lancet* at [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)00869-2/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)00869-2/fulltext), posted 15 April 2021.

¹⁵⁴ "Business Expectations Survey: Third Quarter 2020," *BSP* at https://www.bsp.gov.ph/Lists/Business%20Expectations%20Report/Attachments/1/BES_3qtr2020.pdf, accessed 2 May 2021.

¹⁵⁵ *Ibid.*

¹⁵⁶ Out of the 50 large-scale metallic mining companies that report to PH-EITI, 27 of them participated in this chapter's online peri-pandemic survey found at <https://www.surveymonkey.com/r/K3XV8MY>; and 13 out of the Top 25 non-metallic mining companies in theirs at <https://www.surveymonkey.com/r/LV7P355> - both also included in the Annex.

And op. cit. (91)



With respect to the oil, gas, and coal companies that responded in their respective qualitative surveys¹⁵⁷, PNOC-EC had to limit its operations and only asked extremely essential personnel to handle its day-to-day critical business transactions and activities. The corporation also encountered problems concerning the inter-zonal movement of certain staff who were assigned to implement its projects offsite due to strict travel requirements such as swab test results and a travel authority approved by the Philippine National Police. With SPEX, it faced a similar tough situation. Its operational sites namely the corporate office, supply base and onshore gas plant, and shallow water platform are all located in Luzon. Ergo, the imposition of ECQ inevitably resulted in limitations on traveling to and from these locations. Since non-essential travel was not allowed, the company’s counterparts from other countries were prohibited to enter the Philippines. In addition, certain activities that were reliant on people, materials, and services by non-Philippine-based contractors were negatively impacted.

ii. People’s Opinions

In May and afterwards in July 2020, Social Weather Stations did surveys among adult Filipinos concerning the COVID-19 pandemic¹⁵⁸. Those who believe that “the worst is yet to come” from this crisis rose from 47 to 57 percent. The highest proportion of adults with this belief at 70 percent was from the National Capital Region (NCR), up by 20 percent from a few months before. The same sentiment was shared by more people in the rest of Luzon and in Visayas, with percentages rising from 30 to 43 and 47 to 54, respectively. In connection with their educational background, this fear was highest among college graduates at 53 percent and

¹⁵⁷ Op. cit. (86)

¹⁵⁸ “SWS July 3-6, 2020 National Mobile Phone Survey - Report No. 19: Filipinos Fearing ‘the Worst of the COVID-19 Crisis Is Yet to Come’ Rise to 57%,” *Social Weather Stations (SWS)* at <https://www.sws.org.ph/swsmain/artclisppage/?artcsyscode=ART-20200915104829>, posted 15 September 2020.

lowest among those who did not graduate from elementary at 37 percent, indicating that there were reasonable grounds to have felt this way.

A survey by another private pollster, Pulse Asia, looked at how Filipino adults were responding to the Philippine government's response to the pandemic as well as to COVID-19 itself. In its 2020 "Ulat ng Bayan" Survey¹⁵⁹, 8 out of 10 Filipinos approved the job done by the Duterte administration in controlling the spread of COVID-19 and providing assistance to those who lost their livelihood during this emergency health crisis. Despite this positive opinion on the incumbent leadership, 8 out of 10 Filipinos expressed concern about contracting this novel coronavirus while nearly 10 percent are somewhat worried. As a precaution, 7 out of 10 regularly clean their hands with soap or alcohol, half wear face masks, plus a third observe physical distancing and prefer to stay home.

There is, nonetheless, an earlier survey by an international research and policy non-profit organization, Innovations for Poverty Action (IPA), toward the end of Q2 2020 in which more Filipinos, with an average age of 32, were practicing the minimum health protocols in this pandemic¹⁶⁰. Around 80 percent of respondents washed their hands more often that week than before the end of February or before the lockdown, close to 100 percent report having worn a face mask when going out in public, and 6 out of 10 were at home most days¹⁶¹.

These differences in people's behavior and practice are disconcerting because such complacency in a matter of months, between the first week of July and the second week of September¹⁶², might cause a surge in infections with the lingering presence of COVID-19 and the prevailing absence of vaccination against it. As a matter of fact, only a quarter of the respondents in the IPA survey felt that their household is at risk of contracting this novel coronavirus¹⁶³.

B. SECTORAL AND INDUSTRY CONSEQUENCES

By the end of 2019, the extractive industry was anticipated to have continued growth primarily by virtue of its 20-year performance in the Philippine economy. Its average share in Industry was growing by 3.4 percent every year, and in GDP by 1 percent¹⁶⁴. The CAGR of each of its

¹⁵⁹ Azer Parrocha, "8 in 10 Pinoys Approve Duterte Admin's COVID-19 Response," *PNA* at <https://www.pna.gov.ph/articles/1117910>, posted 8 October 2020.

"Ulat ng Bayan" is roughly translated as the nation's news.

¹⁶⁰ "Philippines RECOVER Survey Analysis," *Innovations for Poverty Action* at <https://www.poverty-action.org/sites/default/files/Philippines-RECOVER-Survey-Analysis.pdf>, accessed 2 May 2021.

¹⁶¹ *Ibid.*

¹⁶² "Some Findings on the Performance and Trust Ratings of the Top Philippine Government Officials and the Performance Ratings of Key Government Institutions: September 14 to 20, 2020," *Pulse Asia Research* at <http://www.pulseasia.ph/september-2020-nationwide-survey-on-the-performance-and-trust-ratings-of-the-top-philippine-government-officials-and-the-performance-ratings-of-key-government-institutions/>, accessed 2 May 2021.

¹⁶³ *Op. cit.* (160)

¹⁶⁴ *Op. cit.* (11)

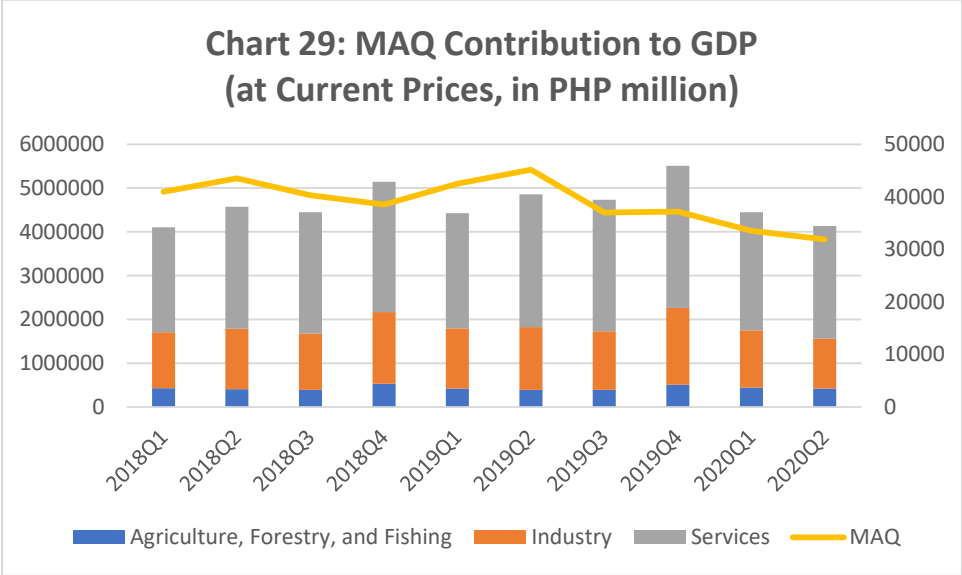
sectors' GVA were also on a positive trajectory, with the oil and gas sector having the highest at 26 percent¹⁶⁵. But then, COVID-19 came and trends like these were generally reversed by the second quarter of 2020.

1. ECONOMIC VARIABLES

Despite MAQ operations being allowed by the Philippine government during the strictest community quarantine classification, ECQ, this industry was still hard hit by the pandemic with the resultant slump in demand and slowdown of overall economic activity. This section looks at how the various metrics of the oil and gas, coal, metallic mining, and non-metallic mining sectors drastically changed from a steady rise to an unforeseen drop. It should be noted that 2018 was included in the subsequent analyses to compare it with 2019 with the aim of giving a clearer picture of this fiscal year's monthly or quarterly comparisons with 2020.

a. GDP

Chart 29 illustrates quarterly GDP from 2018¹⁶⁶ and it can be clearly seen that, when the Philippines locked down in mid-March of 2020, its ensuing effect on the economy was devastating. The domestic economy contracted by 21 percent in Q2, losing 319 billion PHP. All its three components experienced negative growth, with Industry losing the most by 15 percent from the previous quarter. At constant prices, Q2 2020 was the lowest for Industry, to be specific, and GDP, as a whole, since the same quarter of 2016. The contraction of the extractive industry was at 5 percent, compared with how it grew QOQ by 7.6 and 3.8 percent in 2018 and 2019, respectively, for reasons as previously stated.

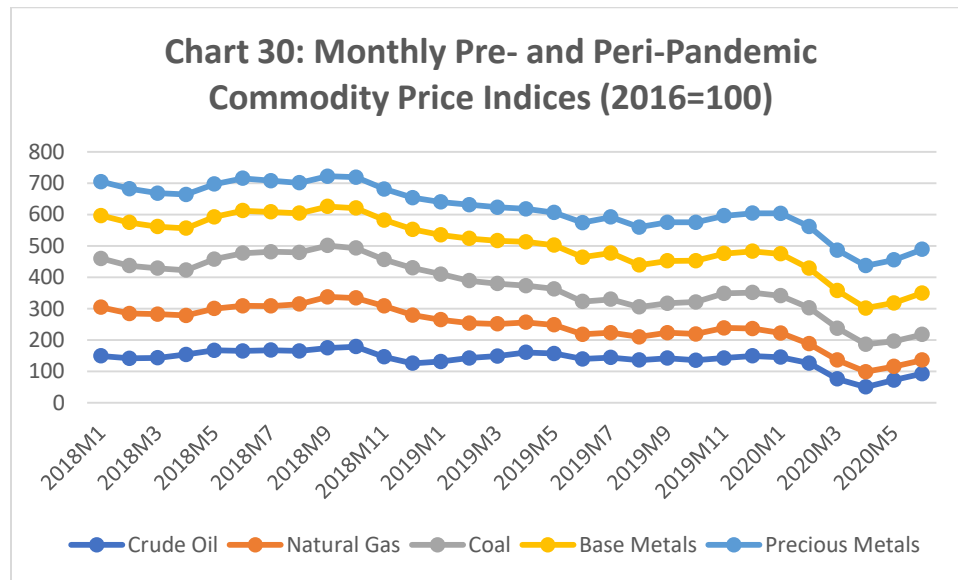


b. Commodity Prices

¹⁶⁵ Op. cit. (25)

¹⁶⁶ Op. cit. (11)

The prices of these commodities also had a downturn in Q2 2020 as per IMF data¹⁶⁷ and Chart 30. Except for the Precious Metals Price Index, all the other indices considerably dropped on M4 or at the beginning of the second quarter. The price of crude oil fell by 34 percent, natural gas by 19 percent, coal by 13 percent, and base metals by 4 percent. It is worth emphasizing that there are no available monthly nor quarterly commodity price indices for the previously discussed non-metals, thereby, excluding them from this section’s analysis.



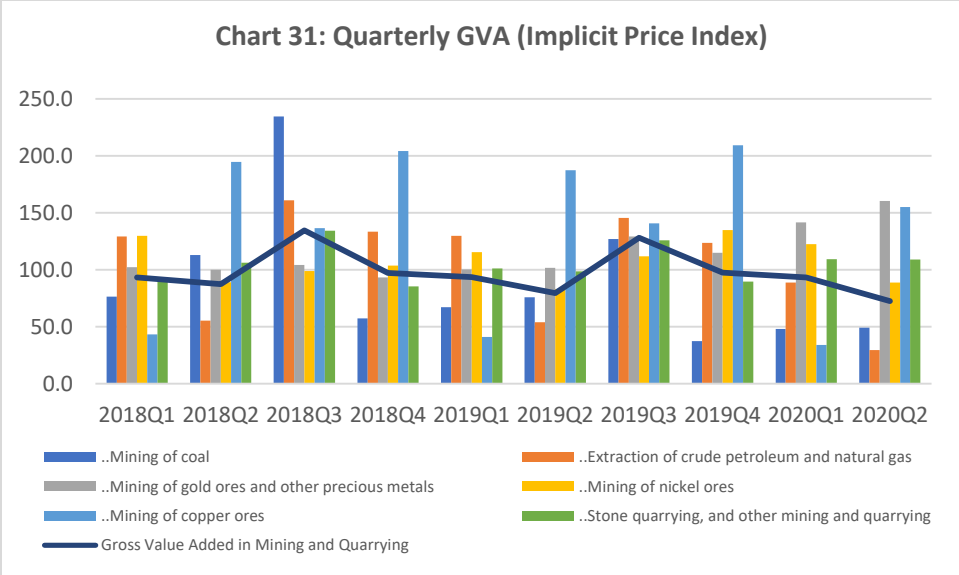
c. GVA

Consistent with the substantial changes peri-pandemic in their commodity prices, it was only the mining of gold ores and other precious metals’ GVA that was shielded from the negative effects of COVID-19. In line with PSA statistics¹⁶⁸ and as summed up in Chart 31, this metric from the extraction of crude petroleum and natural gas fell by 67 percent in Q2 2020 versus Q1 and so did the mining of nickel ores by 27 percent; as well as stone quarrying, and other mining and quarrying by 0.4 percent. GVA from the mining of coal and of copper ores remained positive during that period; but, relative to the second quarters of 2018 and 2019, they dropped more to -35 and -17 percent, respectively. Total GVA from the extractive industry decreased QOQ by 22 percent at the onset of this pandemic.

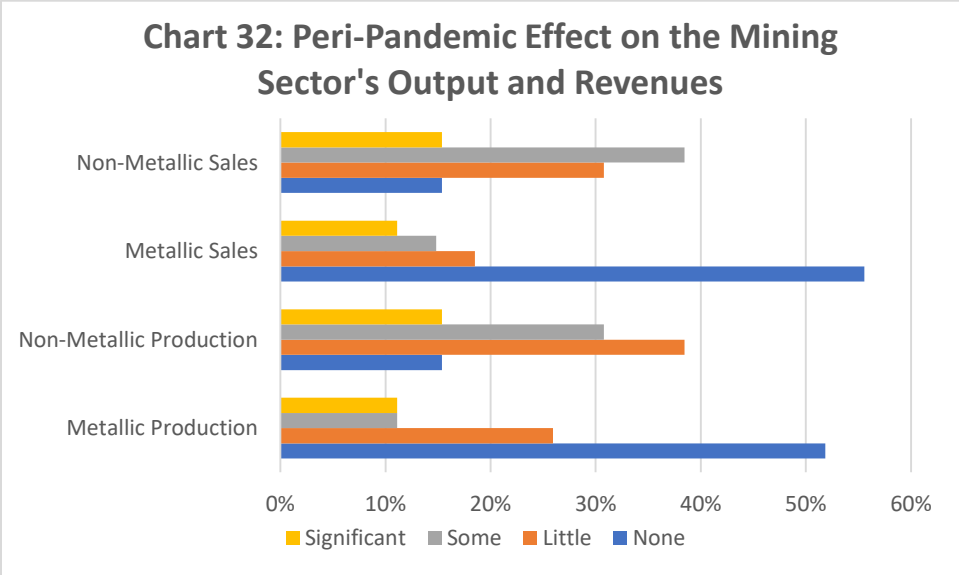
¹⁶⁷ Op. cit. (61)

USGS NMIC only has annual figures on the commodity prices of non-metallic minerals, so the insufficient number of data points prevents a thorough and substantive quantitative analysis of these variables.

¹⁶⁸ Op. cit. (93)



According to the online survey responses of mining companies¹⁶⁹ as shown in Chart 32, between the metallic and non-metallic sectors, the latter were the most affected by COVID-19. Almost half of them had their volume of production go down by around 50 percent or more, and more than half experienced a reduction in their sales by about the same proportion. This is in comparison to 3 out of 4 metallic mining company respondents saying that they suffered little or no impact on both their output and revenues during this pandemic.



As can be gathered from this chapter's previous findings, the metallic mining sector has been relatively resilient to extreme conditions like COVID-19 which is a precursor for it to also take on other long-term risks in the future. Despite the relative tenacity of these metal enterprises

¹⁶⁹ Op. cit. (156)

even in this time of a pandemic, respondents of the same online surveys¹⁷⁰ were realistic in their expectations of company growth. In the short term, 6 out of 10 of them only foresee themselves to minimally grow; while 4 out of 10 among the non-metallic mining companies believe the same. SSM operators are also not as optimistic with almost all the survey respondents¹⁷¹ expecting their output and revenues to increase only slightly in the future. This was owing to their other consensual response that both their volume of production and sales decreased by an average of 55 percent during this pandemic.

By referring to the answers of the oil, gas, and coal companies with regard to how COVID-19 has affected their production and sales¹⁷², PNOC-EC mentioned that its output of natural gas declined because of the low offtakes from gas customers in the power generation business as the country experienced lower demand for electricity. This was compounded further by the decrease in the selling price of natural gas. SPEX also expressed how demand for gas was lower compared to pre-pandemic levels.

d. Exports

To date¹⁷³, COVID-19 is still a global pandemic. It reputedly started in China¹⁷⁴ and has spread to the rest of the world. Even small-island nations with very little tourism like the Marshall Islands, that has only 6,000 annual visitors¹⁷⁵, had 4 cumulative COVID-19 positive cases by the end of 2020¹⁷⁶. Hence, the Philippines was not the only country that imposed a lockdown to curb, control, and contain the spread of this new coronavirus. With most of the world's governments telling its citizens to stay home and stay safe, there was a halt in everyday consumer activity and, consequently, in the demand for certain commodities; so not just domestic consumption was adversely affected but imported items globally or, conversely, exports from the country as well.

Chart 33 conveys collated information from PSA¹⁷⁷ on the total value of exported goods which, from 3.1 trillion PHP in 2019, dropped to 2.8 trillion PHP the year later. Since 2014, Philippine exports were on a positive trend, only to fall by almost 10 percent in 2020. Its CAGR from 2000, pre-pandemic, was 3.9 percent; decreasing to 3.3 percent caused by COVID-19. Figures are much worse when compared per quarter the years before. In Q2 2019, exported goods

¹⁷⁰ Ibid.

¹⁷¹ Op. cit. (91)

¹⁷² Op. cit. (86)

¹⁷³ As of end-July 2021.

¹⁷⁴ Op. cit. (16)

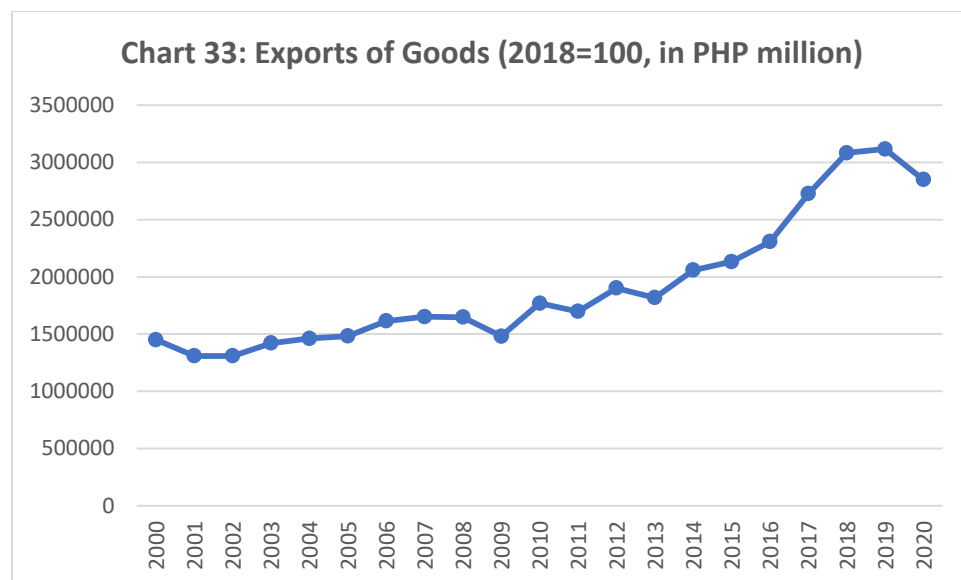
¹⁷⁵ Meagan Drilling, "The World's Least-Visited Countries - And Why You Should Check Them Out," *Far and Wide* at <https://www.farandwide.com/s/least-visited-countries-a103798e095a4ea3>, posted 30 October 2020.

Compare this with the No. 1 tourist destination, France, having around 90 million visitors in 2019. From Murad Asgerzade, "Top 10 Most Visited Countries in 2019," *pickvisa.com* at <https://pickvisa.com/blog/top-10-most-visited-countries-in-2019>, posted 8 July 2020.

¹⁷⁶ WHO, *COVID-19 Weekly Epidemiological Update as of December 27, 2020* (Geneva: WHO, 2020), page 15.

¹⁷⁷ Op. cit. (102)

increased to 2.9 percent but dropped substantially the year after to -29 percent. To reiterate, it was in mid-March of 2020 when the Philippine government officially announced a lockdown in most parts of the country that extended way beyond the month of June. By then, the Philippines had the longest quarantine restrictions in the world¹⁷⁸.



Still derived from PSA data¹⁷⁹, Chart 34 compares Philippine exports with coronavirus cases in the Top 20 nations in 2020. There was a yearly decrease in the former of 9.6 percent to 60 billion USD in comparison to 2019. This value represented 95 percent of total exports. On the subject of official COVID-19 metrics from the same year, the aggregate cumulative positive cases from these 20 export destinations¹⁸⁰ made up 50 percent of the global sum. To put it another way, 8 of them, which accounted for more than a quarter of total exports, were in the Top 20 countries with the highest cumulative novel coronavirus infections in 2020, namely; USA which was ranked number 1, India 2, France 5, United Kingdom 6, Germany 9, Mexico 12, the Netherlands 19, and Indonesia 20. If there were no pandemic, MAQ exports could have grown considerably as demand from these countries could be as high or even higher than in 2019.

¹⁷⁸ "World's Longest Lockdown Extended in Manila," *Agencia EFE* at <https://www.efe.com/efe/english/world/world-s-longest-lockdown-extended-in-manila/50000262-4354589>, posted 29 September 2020.

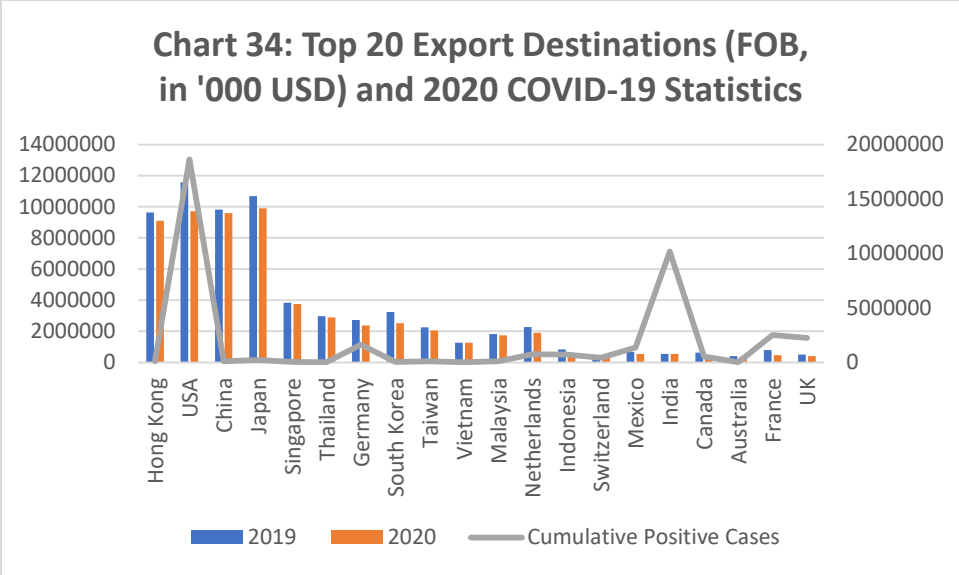
And it still is of current writing.

¹⁷⁹ Op. cit. (38)

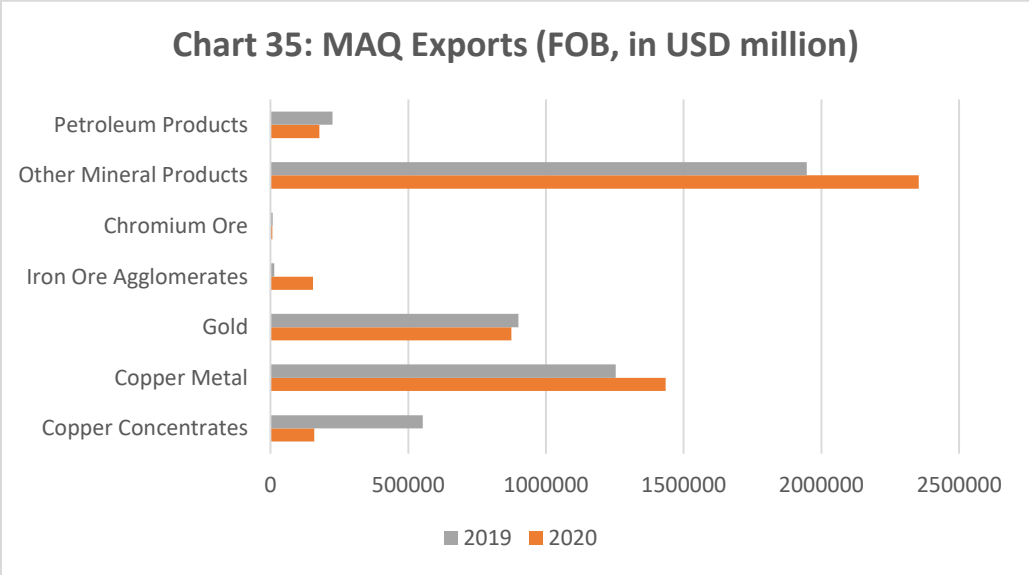
As per publication, 2020 export figures are preliminary.

¹⁸⁰ Op. cit. (176)

The total for China includes Hong Kong and Taiwan.



The situation was the opposite for MAQ in 2020. This is on the account of PSA figures¹⁸¹ itemized in Chart 36. Total exports of the extractive industry grew by 5.3 percent from the previous year to 5.2 trillion PHP. The export of iron ore agglomerates increased by almost ten-fold, other mineral products by 21 percent, and copper metal by 14 percent. Even so, not all commodities had positive export growth. Copper concentrates fell the lowest to -71 percent, petroleum products to -21 percent, chromium ore to -13 percent, and gold to -2.9 percent.



The case was even more pronounced when comparing January to July of 2019 to that of 2020 when the Philippines was still reeling from the initial effects of COVID-19. This was when the

¹⁸¹ Op. cit. (38)
Export data were not disaggregated by quarter, and no figures were available for nickel exports in 2020.

exports of copper concentrates declined by 78 percent and gold by 11 percent¹⁸². Secondary products from extractive commodities, which were markedly fewer, were also exported during the same period. These were iron and steel at -71 percent and non-metallic mineral manufactures at -19 percent¹⁸³.

As far as the exports of coal are concerned pre-pandemic which was broken down by PSA¹⁸⁴, there was a consistent annual contraction in the level of exports during the first two quarters from 2018 to 2019 as posted on Table G. Q2, however, was clearly different before and during the arrival of COVID-19. More than 75 percent of the value of coal was exported in 2019 versus 2018, but this dropped to a low of -81 percent peri-pandemic. These computations are also contrasting per semester when exports grew by 33 percent between the first semesters of 2018 and 2019, only to fall by 59 percent during the first half of 2020.

TABLE G: COAL EXPORTS (FOB, in USD)

	2018	2019	2018-2019 Change	2020	2019-2020 Change
January	52,900,000	28,046,670		41,138,296	
February	30,757,500	30,343,005		22,126,516	
March	15,910,000	33,703,510		9,344,170	
1st Quarter	99,567,500	92,093,185	-7.51%	72,608,982	-21.16%
April	27,027,360	48,944,170			
May	38,490,000	52,588,765		9,455,000	
June	24,613,340	58,111,020		20,690,000	
2nd Quarter	90,130,700	159,643,955	77.12%	30,145,000	-81.12%
1st Semester	189,698,200	251,737,140	32.70%	102,753,982	-59.18%

e. Employment

Because of the COVID-19 pandemic and its consequent lockdowns across most towns and cities in the Philippines, many workers in the MAQ industry, as taken from LFS¹⁸⁵ and computed on

¹⁸² "Table 4: Philippine Exports by Commodity Groups - January to July 2020 and 2019 (FOB in USD thousand)," PSA at <https://psa.gov.ph/content/highlights-philippine-export-and-import-statistics-july-2020-preliminary>, posted 10 September 2020.

¹⁸³ Ibid.

¹⁸⁴ Op. cit. (44)

¹⁸⁵ "July 2020 Statistical Tables: Table 10 - Percent Distribution of Employed Persons by Total Hours Worked, by Sex and Major Industry Group, July 2020.xls," PSA at <https://psa.gov.ph/content/july-2020-statistical-tables>;

and "2019 Annual Estimates Tables: Table 10 - Percent Distribution of Employed Persons by Total Hours Worked, by Sex and Major Industry Group 2019.xls," PSA at <https://psa.gov.ph/content/2019-annual-estimates-tables>, both accessed 26 April 2021.

This chapter has set Q2 2020 as the arbitrary cut-off for its analyses of the effects of the COVID-19 pandemic on the extractive industry and its sectors, but the closest official employment data available are until July which were instead used.

Table H, became unemployed and worked part-time at least until July 2020. There were 87 percent more people who were not able to work, and the number of part-time workers increased by 115 percent. Of which, 25 percent of them worked for less than 20 hours in a week, 27 percent only from 20 to 29 hours, and 47 percent from 30 to 39 hours. The number of full-time employed did increase but only marginally by 4.7 percent. In addition, the mean hours in 2019 were reduced from 44 to 40 hours peri-pandemic.

**LE H: NUMBER OF EMPLOYED
WORKERS (IN '000)**

	2019	July 2020	% Change
DID NOT WORK	238	444	86.6%
PART-TIME WORK	4,366	9,376	114.7%
UNDER 20 HOURS	1,481	2,373	
20-29 HOURS	1,380	2,576	
30-39 HOURS	1,506	4,427	
40 OR MORE HOURS	13,818	14,464	4.7%

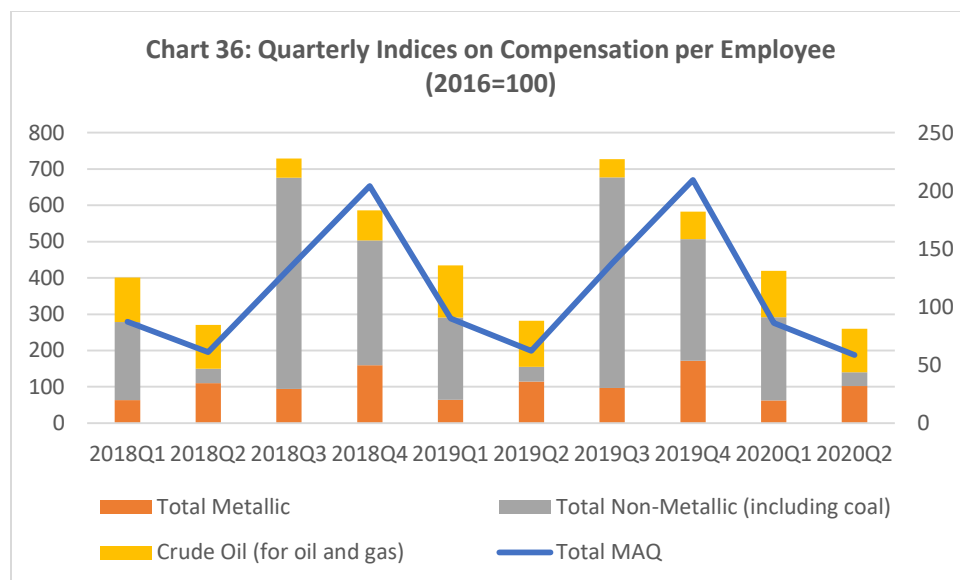
Referring to the answers of the respondents in the peri-pandemic qualitative surveys¹⁸⁶, PNOC-EC shared the information that coal extraction by their SSM permittees went down with fewer miners available with the prohibition on inter-municipal travel as the cause of it. Concerning the answers of small-scale miners to their written questionnaire¹⁸⁷, 3 out of 23 that responded admitted to having laid off workers; while another 4 hired part-time staff.

Chart 36 graphs the levels of compensation per quarter of MAQ workers from 2018 until Q2 of 2020 in congruence with PSA's official data¹⁸⁸. The salary of those employed in the extractive industry, all in all, decreased by 32 percent with the onset of the pandemic. Employees of non-metallic companies suffered a reduction of 83 percent in their quarterly earnings, and it was lower by 6.9 percent among those in the oil and gas sector. Only the ones whose jobs were in the metallic mining sector had an increase in their quarterly income.

¹⁸⁶ Op. cit. (86)

¹⁸⁷ Op. cit. (91)

¹⁸⁸ "Quarterly Indices on Compensation per Employee at Constant Prices (2016=100)," *PSA OpenSTAT* at https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2B__PA/?tablelist=true&rxid=bdf9d8da-96f1-4100-ae09-18cb3eae313, posted 17 December 2020.



f. Gross Revenues

In the same manner that the COVID-19 pandemic had a negative impact on the MAQ industry's volume of production, sales, gross value added, employment, and exports in the second quarter or toward the end of 2020, so did it result in dire consequences on the gross revenues of the extractive industry in general and its four sectors in particular. With Table I containing calculated from PSA statistics¹⁸⁹, each of the CAGR of the former and latter, except for coal, decreased from their pre-pandemic rates in 2019 having taken into account only the first two quarters of the following year. Prior to the onslaught of COVID-19, average annual growth rates of both the industry and its sectors were gaining positive ground until it reversed and went the opposite direction upon comparing the second quarters before and during the pandemic. Therefore, it can be deduced that, peri-pandemic, the Philippine government generally received a lower amount of payments from MAQ.

TABLE I: CHANGES IN GROSS REVENUES

	MAQ	METALLIC MINING	NON-METALLIC MINING	OIL (AND GAS)	OTHER METALLIC (COAL)	NON-METALLIC (COAL)
CAGR (PRE-PANDEMIC)	2.38%	2.50%	2.19%	9.40%	-2.33%	
CAGR (PERI-PANDEMIC)	2.14%	2.26%	1.93%	8.50%	-0.79%	
AAGR UNTIL 2019	6.70%	14.00%	23.50%	111.00%	780.10%	
Q2 2019 VS. Q2 2020	-28.70%	-17.80%	-43.10%	-52.60%	-25.20%	

In fact in the qualitative survey handed out to relevant government departments and agencies¹⁹⁰, BIR attested that the current pandemic has greatly affected its overall revenue

¹⁸⁹ Op. cit. (119)

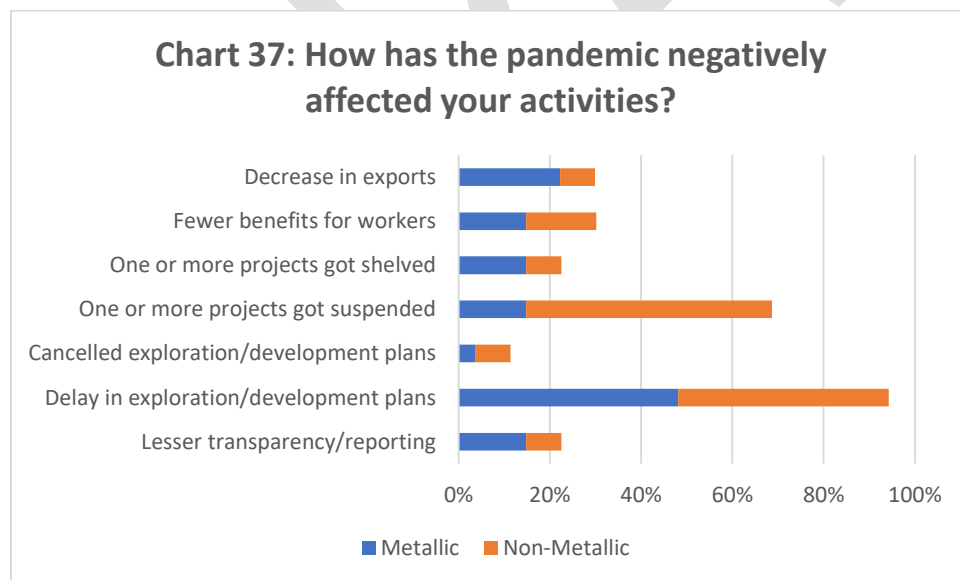
¹⁹⁰ Out of the 9 government departments or agencies, 5 of them responded to this chapter's emailed questions, as included in the Annex, on their peri- and ex-pandemic activities.

collection in 2020 when it decreased relative to the previous year's. The case was different, though, for MGB when it responded that COVID-19 did not hinder the financial obligations of mining companies to its host communities, LGU's, and the government. They described how mining operations and the transportation of commodities gradually resumed as restrictions were eased, so companies were later on still able to settle their local taxes, royalties, dividends, and other associated fees. With regard to PPA, they reported that wharfage fees, in actuality, increased from 2019 to the following year.

2. COMPANY OPERATIONS AND ACTIVITIES

As a consequence of the pandemic, the drop in figures of the operational metrics of the extractive industry and its sectors was also accompanied by the sudden changes in its day-to-day activities. This was, and still is, the situation as every individual and every entity in the economy follow the government's minimum health and safety protocols so as to prevent the spread of COVID-19.

Chart 37 tabulates the particular effects of the pandemic on the operations of the metallic and non-metallic mining companies as stated by those that participated in the aforementioned surveys¹⁹¹. Majority of the latter had to suspend one or more of their projects, while almost half of both sectors needed to delay their exploration and development plans. 15 percent of the metals enterprises either admitted to having delays in their usual reporting to related agencies and organizations, had one or more projects that were shelved or suspended, or gave fewer benefits for their workers. 15 percent of the non-metals ones also faced the same dilemma with their employees.



These two sectors also added that the pandemic necessitated unbudgeted expenditures for COVID-19 response inside and outside the organization. There was even a time during Q2 2020

¹⁹¹ Op. cit. (156)

when LGU's restricted the allowable number of foreign vessels docked on their areas, which significantly hampered their logistics. Some also shared the fact it affected their ability to get investors as the economy contracted, and that they had problems with the mobility of their staff due to the imposed travel restrictions.

On the oil, gas, and coal companies that also obliged to answer the questions of this chapter as regards to the pandemic, SPEX¹⁹² shared that there were delays in its scheduled maintenance works because of mobility issues. The consequent weaker demand from decreased economic activity particularly during the quarantine period also resulted in lower gas delivery. Ways of working were also impacted such as organizing WFH for office-based staff as well as special logistical arrangements for platform-based employees and contractors like chartered flights and pre-demobilization briefings, all of which entailed additional costs for the company. Also as per DOE circular, the invoicing of customers and the billing period of its payment terms were extended so it had to get funds from other sources for its regular expenditures.

PNOC-EC¹⁹³ acknowledged that the pandemic made the corporation more transparent. The Commission on Audit required the state-owned enterprise to report the incurred expenses of its COVID-19 response, so a task force was created that also regularly reports to DOE. In addition, its efficiency was negatively affected because of limitations in the movement of personnel. So was its project implementation particularly the development of one of its mines which was delayed as a result of the lockdown. Management was not able to conduct face-to-face deliberations of the technical and commercial issues surrounding its projects, which they deem to be more efficient than virtual meetings. Timelines of these projects were also pushed further. Finally, it was obligated to discontinue local and foreign travels unless necessary or allowed by the head of the agency, and to postpone cultural celebrations and other team-building activities that were not related to their core functions.

A substantial blow to Galoc Production Company¹⁹⁴ by the pandemic was when it decided last Q2 2020 to halt its operations by October of the said year at its oil field in northwest Palawan. The slowdown of economic activity caused by the worldwide contagion of COVID-19 has brought about low oil prices. The company incurred huge losses per barrel produced when the benchmark Dubai crude oil price fell sharply by almost 70 percent to 23 USD per barrel by end-March of the said year versus 67 USD as of end-December the year before. Its management did say that their production would only be discontinued as it was banking on a possible resumption once the world market price of oil improves.

¹⁹² Op. cit. (86)

¹⁹³ Ibid.

¹⁹⁴ Alena Mae S. Flores, "Galoc Oil Field to Halt Operation on Low Prices," *Manila Standard* at <https://www.manilastandard.net/business/power-technology/325014/galoc-oil-field-to-halt-operation-on-low-prices.html>, posted 1 June 2020.

SMPC¹⁹⁵ was confronted with a similar situation when it decided to postpone its capital spending that amounted to 3.7 billion PHP to 2021 as a consequence of the COVID-19 pandemic. Semirara announced that this was consistent with its disciplined and prudent approach to managing the company as it intends to meet its stakeholder obligations notably given that the coal market has been more susceptible to weak demand and lower market prices. On top of deferring these programmed expenditures, the company will reduce nonbusiness expenses, dispose noncore assets, and defer hiring people for inessential positions to safeguard its long-term viability.

C. RAMIFICATIONS FOR THE GOVERNMENT

The extractive industry, as with any other economic entity, does not exist in a vacuum. As such, its dynamics with the government must also be taken into consideration especially peripandemic when the state's health and safety protocols impinge upon the daily activities of the industry's different players. This section covers the Philippine government's own response against COVID-19 that has both directly and indirectly affected the oil and gas, coal, metallic mining, non-metallic, and SSM sectors.

1. MONETARY AND NON-PECUNIARY OUTLAYS

More than a week after President Duterte officially declared a state of calamity in the whole of the Philippines and imposed ECQ in Luzon, he signed into law RA No. 11469 or the "Bayanihan to Heal as One Act" to formalize the legislative response to COVID-19¹⁹⁶. One of the major provisions of this law is the amendment of the General Appropriations Act, giving power to the President to realign the 2020 budget. To put it simply, President Duterte may discontinue programs and projects despite already having an allocated budget for the purpose of diverting it to combat COVID-19¹⁹⁷. It, therefore, allows him to use government savings, unutilized special purpose funds, unreleased subsidies, cash, investments, and other state funds to address this public health emergency.

On matters apropos the extractive industry particularly regarding its part-time workers as well as SSM operators, the law¹⁹⁸ grants the government authority to give 18 million low-income families emergency cash aid ranging from 5,000 to 8,000 PHP a month for two months. It also implements an expanded "Pantawid Pamilya Pilipino Program" (4Ps), an institutionalized form

¹⁹⁵ Jordeene B. Lagare, "Semirara Mining Defers Spending P3.7B in 2020," *The Manila Times* at <https://www.manilatimes.net/2020/07/05/business/sunday-business/semirara-mining-defers-spending-p3-7b-in-2020/738020/>, posted 5 July 2020.

¹⁹⁶ Aliyya Sawadjaan, "Simplifying the Bayanihan to Heal as One Act," *Business World* at <https://www.bworldonline.com/simplifying-the-bayanihan-to-heal-as-one-act/>, posted 3 April 2020.

"Bayanihan" is a Filipino tradition of neighbors helping a family move their house from one place to another by literally carrying it on their shoulders.

¹⁹⁷ Ines Katrina M. Llanzon, et al.; "9 Things to Know about the Bayanihan to Heal as One Law," *Fortun Narvasa & Salazar* at <https://www.fnslaw.com.ph/9-things-to-know-about-the-bayanihan-to-heal-as-one-act/>, posted 28 March 2020.

¹⁹⁸ Op. cit. (196)

of welfare assistance for the poor, to include individuals working in the informal economy and those who are currently not 4Ps recipients.

Moreover for the oil and gas, coal, metallic, and non-metallic mining sectors, it¹⁹⁹ ensures the availability of credit to the productive segments of the economy by lowering the lending interest rates and reserve requirements of lending institutions. It also regulates the distribution and use of energy and fuel so that there will be efficient supplies of these; moves the deadline and timeline for the submission and filing of documents, taxes, fees, and others while in community quarantine; directs banks and other financial intermediaries to implement a 30-day grace period for payments of loans and credit card bills; and grants a 30-day grace period on residential rents within the ECQ period without incurring interests, penalties, and the like.

Government agencies distinguishably MGB²⁰⁰ have also been important in providing support not just to the metallic and non-metallic mining sectors but to their immediate community as well. Its regional offices prioritized the provision of aid to local government hospitals that were used as COVID-19 facilities. Residents and frontliners were similarly beneficiaries of aid in receiving essential items which are, for example, milk, relief goods, rice, medicine, vitamins, personal protective equipment, or PPE's, and thermal scanners. Employees were also provided with shuttle services to and from their place of work and their companies with free fuel.

The National Commission on Indigenous Peoples (NCIP)²⁰¹ is another agency that has exerted a lot of effort to work through this pandemic. It cited the heavier use of technology distinctly among Indigenous Cultural Communities/Indigenous Peoples (ICC/IP) such as their participation upon the creation of Viber groups to update each other on the status of the applications and to discuss issues in order to help speed up their processing. This necessitated management support to equip them with proper hardware and communication allowances.

LGU's have also been active in their individual efforts to ease the hardship of their constituents during this pandemic²⁰². Their assistance ranged from providing free meals to health care workers and barangay²⁰³ officials, everyday groceries for majority of their residents, and free public transportation within their respective areas. The Department of Budget and Management²⁰⁴, in turn, released funds to them to help in their relief and response efforts

¹⁹⁹ Ibid.

²⁰⁰ Op. cit. (190)

²⁰¹ Ibid.

²⁰² Mark Jayson E. Gloria, "LGUs Talk About Initiatives to Fight COVID-19," *University of the Philippines-Los Baños* at <https://uplb.edu.ph/all-news/lgus-talk-about-initiatives-to-fight-covid-19/>, posted 7 September 2020.

²⁰³ The "barangay" is the smallest administrative division in the Philippines. From "The Local Government Code of the Philippines: Book III - Local Government Units," *Department of the Interior and Local Government (DILG)* at https://www.dilg.gov.ph/PDF_File/reports_resources/dilg-reports-resources-2016120_5e0bb28e41.pdf, accessed 4 June 2021.

²⁰⁴ Filane Mikee Cervantes, "DBM to Release Fund Assistance to LGUs for COVID-19 Relief," *PNA* at <https://www.pna.gov.ph/articles/1099013>, posted 7 April 2020.

DBM stands for the Department of Budget and Management.

against COVID-19. This was through the “Bayanihan Grant to Cities and Municipalities” that allots financial aid equivalent to one month of their internal revenue budget totaling 31 billion PHP. Likewise, the Land Bank of the Philippines²⁰⁵ launched a lending program for these local administrative units that amounted to 10 billion PHP as emergency funding for the purchase of goods and procurement of services in connection with the pandemic. These loans have an affordable fixed interest rate of only 5 percent per annum and payable up to a maximum of five years with a one-year grace period on the principal payment.

Given their reply to this chapter’s peri-pandemic questions, SPEX²⁰⁶ commends the Philippine government distinguishably DOE which supported the company to enable it to continue producing natural gas safely and effectively amidst the restrictions posed by the pandemic which are, for example, community quarantines, checkpoints, and travel bans. More specifically, the department allowed the continued movement of crew, equipment, and materials to ensure its nonstop operations. Along with the Department of Information and Communications Technology, DOE issued IATF identification documents and Rapid Pass QR, or quick response, codes to the company’s essential staff and contractors for greater mobility. The Department of Foreign Affairs and Bureau of Immigration also let the entry of essential foreign workers to the country. The LGU’s of Palawan and Batangas were equally supportive as they allowed crew changes in the enterprise’s offshore platform and gas plant, respectively. On the subject of air and sea transport despite the imposed restrictions, the Civil Aviation Authority of the Philippines gave it permission to keep on using the Ninoy Aquino and Puerto Princesa International Airports; while the PPA, BOC, and Philippines Coast Guard enabled the operations of its marine support vessels.

PNOC-EC²⁰⁷ was brief in its concomitant response as it appreciated the government’s early declaration of a health emergency which proved helpful in the company’s adapting to the pandemic. It lauded state support to the most affected sectors and the cooperation of SOE’s as well as other agencies by remitting excess funds to the national coffers to support the efforts in fighting COVID-19. Nevertheless, the corporation was wary with the LGU’s in its areas of operations as they were not flexible with the restrictions implemented which limited the speedy implementation of national programs at the local level.

2. BUREAUCRATIC PROCESSES

Because of the pandemic, the red tape that the extractive industry usually encounters in its transactions with various governmental agencies and departments has gotten even longer. With BIR²⁰⁸, for instance, the bureau admitted that the processing of these applications took a little bit longer than expected for the reason that its employees were on skeletal arrangements. This albeit the volume of licensing applications in 2020 dropping by 20 percent.

²⁰⁵ Ibid.

²⁰⁶ Op. cit. (86)

²⁰⁷ Ibid.

²⁰⁸ Op. cit. (190)

As for MGB²⁰⁹ with specific regard to the application for mining permits, hard copies of the required documents needed to be filed and evaluated. Thereby, their processing took much longer than usual as a result of the WFH arrangement implemented by this agency during the pandemic. From their end, the collection of taxes, royalties, dividends, and other accompanying fees were extended due to the series of lockdowns that the metallic mining, non-metallic mining, and SSM sectors underwent.

The converse was the case when it came to the lifting of suspended mining contracts. The process of which normally entails some delays but they were fast-tracked at the height of the community quarantines in the regions where they are located. The pandemic basically crippled the domestic economy so the government turned to tapping the potential of the extractive industry to help jumpstart it. Even under ECQ, DTI issued Memorandum Circular 20-22 which immediately included the oil and gas, coal, metallic mining, non-metallic mining, and SSM sectors on the list of establishments deemed essential and, thus, were allowed to continue their activities as they were seen to become part of the main drivers of economic recovery.

When it came to PPA²¹⁰, the processing of private port permit applications, whether new or renewal, has been unfavorably affected by the pandemic. Its skeletal workforce wherein the personnel alternately worked from home and in the office during the community quarantine only had limited access to files and resources, so all approved paperwork was still subject to post-audit. Nevertheless, the authority took immediate and necessary measures to respond to the constraints with COVID-19 as the cause, namely, the issuance of Memorandum Circular 15-2020 entitled “Guidelines in the Processing of PPA Permits During the Enhanced Community Quarantine due to the COVID-19 Pandemic” which aims to simplify procedures and documentary requirements in order to facilitate the processing of applications, the extension of the validity of these approvals and permits, plus the promotion of the use of electronic payment as well as online systems of participating banks in consideration of the clients’ own security and convenience.

With respect to NCIP²¹¹, the pandemic was the reason for the delays in licensing applications and created obstacles in processing them. Just before the lockdown, most of their personnel were allowed to go home to their respective hometowns where they remained in compliance with quarantine regulations. Henceforth, the commission’s headquarters and its field offices were only able to cope with the usual workload with a skeletal workforce. Few of the staff who reported to work had to scan and email voluminous documents to those who were tasked to review the same. There were times when the huge volume of paperwork was physically transported through public utility buses despite the greater difficulty in commuting to and from the places of those concerned who prepared the evaluation report for review and approval.

²⁰⁹ Ibid.

²¹⁰ Ibid.

²¹¹ Ibid.

D. OTHER EFFECTS

The impact of COVID-19 on the extractive industry should be taken in the context of the prevalent political and social, not exclusively economic, environment in the Philippines. This gives way to a more complete understanding of the pandemic's consequences. This section looks at how civil society has also been undesirably affected by the pandemic with emphasis on how civic space got restricted as well as how the reporting of the oil and gas, coal, metallic mining, non-metallic mining, and SSM sectors impacted their transparency.

1. RESTRICTIONS ON CIVIC SPACE

The Philippines is said to be a democracy where civic space is supposed to thrive. Such an aspect of civil society is defined as the environment which enables nongovernmental and community-based organizations, media, social movements, as well as formal and informal associations of all kinds to play an important role in the country's political, economic, and social life²¹². This people-led governance, then again, is being threatened by the COVID-19 pandemic.

These civil society institutions²¹³ matter-of-factly regard the community quarantine in the Philippines as a military lockdown or the largest population control policing measure in the archipelago's history. It is purported that the country is ranked as having among the most authoritarian response to the COVID-19 pandemic with; solely in Q2 2020; 152,000 individuals being accosted for violating quarantine rules and regulations and 38,000 of them who were reportedly arrested. IATF Resolution No. 11, for all intents and purposes, calls upon the Armed Forces of the Philippines to ensure the effective and orderly implementation of the country's lockdown measures²¹⁴.

With the continued rise in COVID-19 positive cases, the government ordered the police to accompany medics and transfer any infected patients to isolation facilities. Simply put, these men and women with guns in uniform have been doing door-to-door visits. Critics argue that these home visitations are better off led by community health workers as involving armed government personnel only increases the stigma associated with this virus and causes panic in the community at a time when everyone is already anxious with increasing infection rates.

²¹² Nicola Nixon, "Shifting Parameters of Civic Space in Southeast Asia," *The Asia Foundation* at <https://asiafoundation.org/2021/04/14/shifting-parameters-of-civic-space-in-southeast-asia/>, posted 14 April 2021.

²¹³ "CPDG: Philippine CSOs Denounce Human Rights Violations and Closing Civic Space Amid COVID-19," *IBON International* at <https://iboninternational.org/2020/05/26/cpdg-philippine-csos-denounce-human-rights-violations-and-closing-civic-space-amid-COVID-19/>, posted 26 May 2020.

CPDG stands for Council for People's Development and Governance, and CSO for Civil Society Organization
²¹⁴ "COVID-19 in Philippines: Police Deployed to Implement Fresh Lockdowns," *Deutsche Welle* at <https://www.dw.com/en/COVID-19-in-philippines-police-deployed-to-implement-fresh-lockdowns/a-54243337>, posted 15 July 2020.

WHO actually called this strategy “worrying” and urged the Philippine administration to implement a non-militarized form of contact tracing.²¹⁵

The greater authority bestowed upon the police in the time of COVID-19 has subsequently resulted in some cases of their abuse of power²¹⁶. Community quarantine violators who happen to be LGBTQ+²¹⁷ have been publicly humiliated by ordering them to kiss and dance on live video broadcast on social media. Others, distinguishably minors who are prohibited to go out of their residences, were asked to do push-ups or jumping jacks in the middle of the street; while senior citizens who also did not follow the stay-at-home protocol were left to sit or stand outside barangay or police stations under the heat of the sun.

There were even reports of a group of teenagers placed inside a dog cage as well as a police officer shooting and killing a mentally-challenged man, all of them allegedly caught for leaving their homes when they were not supposed to²¹⁸. Apparently, the latter incident was a case of his only following President Duterte’s “shoot to kill” order when, on 1 April 2020 in a televised address, he admonished those in violation of the imposed community quarantine by giving orders to the police, military, and local officials to “send (them) to (their) grave(s)”²¹⁹.

A thriving civic space means undeterred freedom of speech, which was not the reality during the first wave of the pandemic. In a major city of NCR last April 2020²²⁰, 21 protestors demanded food and other assistance that they did not receive as promised by their LGU only to be arrested for staging a rally without, according to the police, a government permit. It is one thing for them to be gathered without incident and later on go to prison; but another to be literally berated, violently dispersed, and afterwards dragged by the authorities.

Protests not at all about the pandemic were also curtailed in the second quarter of the same year. 2 labor and union leaders were arrested during a May 1 rally for their alleged breaking of enhanced community quarantine rules despite their insistence of practicing social distancing²²¹.

²¹⁵ “COVID-19 Civic Freedom Tracker: Philippines,” *International Center for Not-for-Profit Law (ICNL)* at <https://www.icnl.org/COVID19tracker/?location=99&issue=&date=&type=>, posted 12 March 2020.

²¹⁶ “Philippine Monitoring Report on the SDG16+ During the COVID19 Pandemic,” *Philippine Alliance of Human Rights Advocates* at <https://www.ohchr.org/Documents/Issues/ESCR/Health/COVID19/NHRIs/PAHRA%20PhilippineAlliance.pdf>, posted 5 November 2020.

SDG16+ is the term used to refer to all peace-related targets of the 2030 Agenda for Sustainable Development.

²¹⁷ The plus sign is meant to encompass other sexual identities. From Kendra Cherry, “What Does LGBTQ+ Mean?,” *Verywell Mind* at <https://www.verywellmind.com/what-does-lgbtq-mean-5069804>, posted 30 November 2020.

²¹⁸ Op. cit. (214)

²¹⁹ “Philippines: President Duterte Gives ‘Shoot to Kill’ Order Amid Pandemic Response,” *Amnesty International* at <https://www.amnesty.org/en/latest/news/2020/04/philippines-president-duterte-shoot-to-kill-order-pandemic/>, posted 2 April 2020.

²²⁰ “21 Protesters Demanding Food Aid Arrested in Quezon City,” *Cable News Network (CNN) Philippines* at <https://cnnphilippines.com/news/2020/4/1/quezon-city-protesters-arrested-.html>, posted 1 April 2020.

²²¹ Aika Rey, “Cops Arrest Labor Leaders Keeping Distance During Labor Day Protest,” *Rappler* at <https://www.rappler.com/nation/cops-arrest-workers-keep-distance-labor-day-protests-2020>, posted 1 May 2020.

8 activists, including some minors, also faced arrest on June 5²²² when they were rallying against the government's anti-terrorism bill. They were said to be violating a ban on mass gatherings while their city was under GCQ. Several other rallyists all over the Philippines were either detained or imprisoned not because they were protesting per se but, according to officials, due to their violation of existing anti-COVID-19 protocols²²³.

2. TRANSPARENCY AND REPORTING OF RELEVANT ENTITIES

Being a member of EITI means implementing the global standard in promoting the open and accountable management of extractive resources that are oil, gas, and minerals. This requires disclosing information on the value chain of the extractive industry from the point of extraction to how the government earns revenues as well as how these benefit the public. In other words, transparency and timely reporting are vital in strengthening public and corporate governance, promoting the understanding of natural resource management, and providing data toward reform and accountability among the industry's sectors.²²⁴

With the ongoing pandemic, EITI had to propose measures on flexibility in reporting which aim to ensure that the implementation of such a standard is safely contributing to global and natural responses against COVID-19 while upholding commitments to transparency, accountability, and multi-stakeholder dialogue. In other words, implementing countries are allowed to retain the momentum of the organization's process as they adapt to local circumstances and urgent information needs.²²⁵

In the Philippines, PH-EITI observed that oil and gas companies have been quite transparent in reporting and have been giving minimum information. Since the country's membership in EITI, their participation has remained largely voluntary with material companies, or those that have substantial payments to the government, cooperating in its process. For the Seventh Report, out of the 4 oil and gas projects of 4 companies and 1 government-owned and controlled corporation, only 2 of these participated and submitted data through the Online Reporting in the Extractives (ORE) tool. The rate of participation is 50 percent lower compared to that of the Sixth Report which was attributable to the addition of 2 companies and their projects which were both unresponsive. One of them does have a website disclosing its filings to the Securities

²²² Ryan Macasero, "Cops Arrest at Least 8 Activists at Anti-Terrorism Bill Protest in Cebu City," *Rappler* at <https://www.rappler.com/nation/arrested-anti-terrorism-bill-protest-cebu-city>, posted 5 June 2020.

²²³ "Protests in the Philippines," *Rappler* at <https://www.rappler.com/protests-in-the-philippines>, accessed 5 June 2021.

²²⁴ "The EITI Implements the Global Standard to Promote the Open and Accountable Management of Extractive Resources," *EITI* at <https://eiti.org/About>, accessed 5 June 2021.

²²⁵ "EITI Reporting During COVID-19: Flexible Measures for EITI Implementing Countries-Flexible Reporting," *EITI* at <https://eiti.org/eiti-reporting-during-COVID19>, accessed 5 June 2021.

and Exchange Commission (SEC), whereas the other has neither a website nor submitted their required documents to SEC.²²⁶

The response of SMPC is not transparent at all as it has refused to be part of EITI. As in previous reports, the company did not participate in the Seventh Report. It does disclose its SEC filings and audited financial statements on the company website. Nonetheless, PH-EITI cannot verify these disclosures with the relevant government agencies in accordance with the reconciliation process. Despite consistent invitations, it is not willing to execute a taxpayer's waiver that will allow BIR to disclose the company's tax data. To reiterate, Semirara is representative of the coal sector and other companies were not targeted to participate in PH-EITI's annual reports since majority of the total sales and production volume of this commodity is produced by it.²²⁷

Similar to those in the oil and gas sector, both the metallic and non-metallic companies were not as transparent with their reporting as they only gave out information that is minimal. This was until 2017 when the Department of Environment and Natural Resources (DENR) issued its Administrative Order 2017-07²²⁸ which mandated all mining contractors to participate in EITI. For non-participation, sanctions were introduced and show-cause letters given to them that were issued by MGB which compelled them to explain why and comply with the requirements. Of the 47 companies mining metals with 50 projects, 39 of the latter participated and submitted their data. The rate of participation when it comes to the number of projects is 0.72 percent lower when compared with the Sixth Report. There is one metallic mining company though that was not invited to participate, yet reached out to PH-EITI and gave all the required data through ORE. As far as non-metallic mining companies are concerned, there was cooperation by 26 out of the 28 targeted projects and 2 more projects were pro-actively participative.²²⁹

Such quite transparent reporting is the same with the SSM sector with their minimum disclosure, even if they were not asked to report to EITI. Grossly attributable to materiality conditions and the sector being largely informal, monitoring of their data is difficult. Even so, there have been efforts to engage these small-scale miners beginning with the production of a scoping study during the first three years of PH-EITI. Dissimilar to the Fifth Report in which a pilot research of these operators in a selected area was conducted, the Seventh Report did not include them in the scoped projects. But for the purposes of this chapter, a survey was sent to

²²⁶ Based on PH-EITI's responses to this chapter's questionnaire, as included in the Annex, on transparency and reporting.

²²⁷ Ibid.

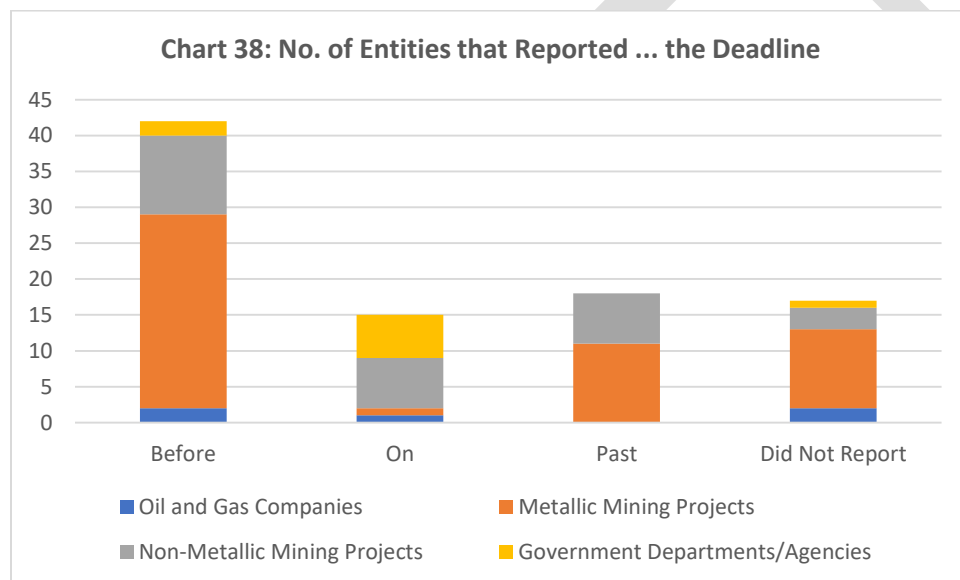
²²⁸ "DAO 2017-07: Mandating Mining Contractors to Participate in the Philippine Extractive Industries Transparency Initiative (PH-EITI)," *Department of Environment and Natural Resources (DENR)* at <https://denr.gov.ph/section-policies/laws.php?page=3&sort=&order=&filter=type&filterID=1&searchword=&tomonth=&dateval=>, passed 10 March 2017.

DAO stands for DENR Administrative Order.

²²⁹ Op. cit. (224)

them and representatives of quite a handful of small-scale operations and associations on mining responded with the support of MGB.²³⁰

On the part of the government, its participation was quite slow in reporting so certain follow-ups were necessary. Deliverables were submitted toward the end. Given that ORE was established in 2018, EITI reporting was done using manual paper templates which could be cumbersome and required dedicated manpower that pertinent agencies and departments do not have. Then again, it is noteworthy that they have become more participative with the quality and efficiency of their reports improving. Out of the 9 of them that were asked to submit data for the Seventh Report, 4 did so before the deadline while the other 4 had to be followed up. Only one did not get back to PH-EITI. Overall, majority of them were responsive when it came to being transparent with disclosing requested information and meeting the cut-off date for their reporting²³¹ as pointed out in Chart 38.



IV. EX-PANDEMIC PROSPECTS

It is not the pandemic, per se, that has undesirable effects not just on the Philippine extractive industry but on the global economy as well. It is the lockdown that is a consequence of it which restricts economic activity as the supply of certain goods and services tighten coupled with slumps in demand. Scientists reckon that the world may be living with COVID-19 for years, but this does not mean that humanity has to be living in quarantine with it²³².

With the right interplay of factors like the timely introduction of vaccines and the proper implementation of the minimum health protocols which are continued social distancing,

²³⁰ Ibid.

²³¹ Ibid.

²³² Brian Resnick, "This COVID-19 Mystery Will Help Determine When the Pandemic Ends," Vox at <https://www.vox.com/science-and-health/2020/5/15/21256282/immunity-duration-COVID-19-how-long>, posted 15 May 2020.

frequent handwashing, as well as persistent wearing of face masks, people can have their day-to-day lives a little back to normal²³³. This section, henceforth, presents an outlook to the extractive industry in the Philippines in an ex-pandemic context.

A. TECHNOLOGICAL ADVANCEMENTS

The extractive industry is both capital-²³⁴ and labor-intensive²³⁵. In order to produce oil, gas, coal, and metallic as well as non-metallic minerals in the Philippines; millions if not billions of pesos are spent on various types of equipment plus their maintenance and upkeep, with hundreds of thousands of Filipinos being employed for it. But with the passage of time is the advancement of technology, and the ongoing trend is to complement, if not substitute, current modes of production with modern methods of extraction²³⁶.

Technology has actually always been used in the extractive industry since its inception²³⁷. More specifically in the oil and gas sector, the laying of cables for the seismic testing of sites that are suspected to contain rich deposits needed a lot of manpower; but, these days, sensors, wireless communication, and computers can do the same job more quickly, cheaply, and accurately²³⁸. With regard to mining, after the simple tools that are pick and hammer came dynamite that helped clear tunnels which reached greater depths at a much faster rate; and instead of workers carrying the minerals one-by-one are the electric conveyor belts that make it easier to load and haul materials²³⁹.

The trend in automation now is the utilization of autonomous or driver-less vehicles. This unmanned technology is proven to be reliable, capable, and increasingly affordable with more and more commercial companies considering it such as in the oil and gas sector²⁴⁰. Also, these

²³³ Sarun Charumilind, et al.; "When Will the COVID-19 Pandemic End?," *McKinsey & Company* at <https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/when-will-the-COVID-19-pandemic-end>, posted 26 March 2021.

²³⁴ Op. cit. (112), page 9.

²³⁵ International Labour Organization (ILO), *Harnessing the Potential of Extractive Industries* (Geneva: ILO, 2019), n.p.

²³⁶ Mauro F. Guillén, et al.; "Five Ways Technology Will Change the Mining, Oil and Gas Industries," *World Economic Forum (WEF)* at <https://www.weforum.org/agenda/2017/05/five-ways-in-which-technology-will-change-the-extractive-industries/>, posted 8 May 2017.

²³⁷ "Mining & Metals Forecast 2020 Industry Trends: The Era of Smart Mines-Technology Trends in Mining," *Baker & McKenzie International* at https://www.bakermckenzie.com/-/media/files/insight/publications/2020/06/m_m_industry_trends_technology_in_mining_20200625.pdf?la=en, accessed 25 May 2021.

²³⁸ Op. cit. (236)

²³⁹ Ibid.

²⁴⁰ Pam Cleveland, "Oil and Gas Industry the Next Big Opportunity for Autonomous Vehicles?," *KVH Mobile World* at <https://www.kvhmobileworld.kvh.com/oil-and-gas-industry-the-next-big-opportunity-for-autonomous-vehicles/>, posted 27 September 2016.

self-driven systems are a particularly good fit for them especially when it comes to their exploration, surveying, and inspections that are either done underwater or underground²⁴¹.

With automated vehicles working around the clock, they also have the potential to improve the productivity of mining companies. Trucks with this technology, for instance, can receive information and follow directions from an operator in a central command center²⁴². They also include features such as fleet tracking and proximity detection, contributing to higher yields given the improved logistics²⁴³.

Another pattern that has started to emerge in employing technology in the extractive industry is Artificial Intelligence (AI) which increases resource efficiency across the value chain²⁴⁴. With AI, raw data from exploration, for instance, can be processed and analyzed at a relatively faster speed than convention allows; therefore, detailed geological, topographical, and mineralogical information can be more easily accessed²⁴⁵. In the matter of granulometry and sorting of minerals, the introduction of smart sensors to detect pieces of rock that are too big for the crusher can prevent prolonged downtime; and, by means of color recognition technology coupled with using x- and infra-red rays, the separation of minerals from dirt, rocks, and clay can become a much cheaper process²⁴⁶.

Intelligent sensors and satellite-based applications can also be used to detect various precious metals without the need to excavate, resulting in savings on both cost and time²⁴⁷. Operational mines also benefit from above-ground sensing with near-real-time monitoring of mining and concurrent activities by constantly safeguarding output as well as clandestinely discovering illegal and unpermitted artisanal diggings²⁴⁸.

As the employment of technology advances in the extractive industry, so does worker safety. Wearables are presently trending which are clothing and accessories of workers in its various sectors that incorporate computer and modern electronic capabilities²⁴⁹. These biometric devices focus on their health and signal real-time alerts when they are, for example,

²⁴¹ Ibid.

²⁴² "The Rise of Industrial Autonomous Vehicles," *Wipro Limited* at <https://www.wipro.com/digital/the-rise-of-industrial-autonomous-vehicles/>, accessed 25 May 2021.

²⁴³ Ibid.

²⁴⁴ United Nations (UN) Regional Commissions: Economic Commission for Africa (ECA), *Extractive Industries Transition to Sustainable Systems: Policy Brief* (Addis Ababa: ECA, 2020), page 9.

²⁴⁵ "Artificial Intelligence in the Mining Sector," *Mining Review Africa* at <https://www.miningreview.com/coal/artificial-intelligence-application-in-the-mining-sector/>, posted 25 November 2019.

²⁴⁶ Ibid.

²⁴⁷ N.C. Steenkamp, et al.; "Satellite Applications in Diamond Exploration and Mine Monitoring" in *Journal of the Southern African Institute of Mining and Metallurgy* (Vol. 120, No. 10) (Pretoria: Pinkmatter Solutions, October 2020), n.p.

²⁴⁸ Ibid.

²⁴⁹ "Future of Mining with Wearables: Harnessing the Hype to Improve Safety," *Deloitte* at <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Energy-and-Resources/gx-eri-norcat-report.pdf> (page 1), accessed 25 May 2021.

overworked, highly stressed, or sleepy preventing the risk of injury or their causing accidents²⁵⁰. They can also monitor the external environment of the workers themselves, signaling them when key metrics onsite; which are, for example, oxygen, heat, and hazardous gas levels; are below or beyond a safe limit²⁵¹.

Several companies in the oil and gas, coal, and mining sectors have also begun to entertain the possibility of implementing Digital Twin in some of their operations. This is a virtual representation of something physical; and such replica, which is essentially a computer program, can be used to simulate procedures to collect and analyze data with the ultimate goal of predicting how it will perform²⁵². As an example, virtual simulations can prove themselves to be extremely useful when planning schedules and operations for a coal company²⁵³. By simulating the actual equipment and entire work process of onsite workers, it will be able to test new methodologies with different inputs until the best outcome is produced²⁵⁴. In shorter words, this trending technology is virtually verifying an object, process, or service before refining the real²⁵⁵.

One final trend that the extractive industry in the Philippines is finally catching up with is the Internet of Things (IoT). IoT refers to the interconnectedness of equipment, devices, and the like to the Internet that all collect, process, and share data; due in greater part to the arrival of almost at-cost computer chips and the ubiquity of wireless networks²⁵⁶. Take the case of automated vehicles in a coal mine that is digitally mapped, the remote operator can analyze information from the latter to optimize the former's movement by leveraging all possible haulage routes²⁵⁷. Programmed to have pre-determined goals, it is also possible that all these different objects communicate with each other without involving a human being, adding to them a level of digital intelligence and making them smarter and more responsive²⁵⁸.

Concerning the oil, gas, and coal companies in the Philippines, the ongoing focus of SPEX²⁵⁹ is making the company digital for the optimum use of its concerned systems and technology.

²⁵⁰ *Ibid.*, page 2.

²⁵¹ *Ibid.*

²⁵² "What Is Digital Twin Technology and How Does It Work?," *TWI Limited* at <https://www.twi-global.com/technical-knowledge/faqs/what-is-digital-twin>, accessed 25 May 2021.

²⁵³ "How Ore Mining Will Be Improved Using Digital Twin Simulations," *Challenge Advisory* at <https://www.challenge.org/insights/digital-twin-in-mining/>, accessed 25 May 2021.

²⁵⁴ *Ibid.*

²⁵⁵ Jonah Baker, "Digital Twins Are Propelling the Oil and Gas Industry into the Future of Asset Optimization," *NS Energy* at <https://www.nsenerybusiness.com/features/digital-twins-oil-gas/>, posted 15 May 2020.

²⁵⁶ Steve Ranger, "What Is the IoT? Everything You Need to Know About the Internet of Things Right Now," *ZDNet* at <https://www.zdnet.com/article/what-is-the-internet-of-things-everything-you-need-to-know-about-the-iot-right-now/>, posted 3 February 2020.

²⁵⁷ Garima Jain and Dr. Madhusudan Pai, "The Rise of Industrial Autonomous Vehicles," *Wipro Digital* at <https://medium.com/@wiprodigital/the-rise-of-industrial-autonomous-vehicles-751bba661229>, posted 13 November 2018.

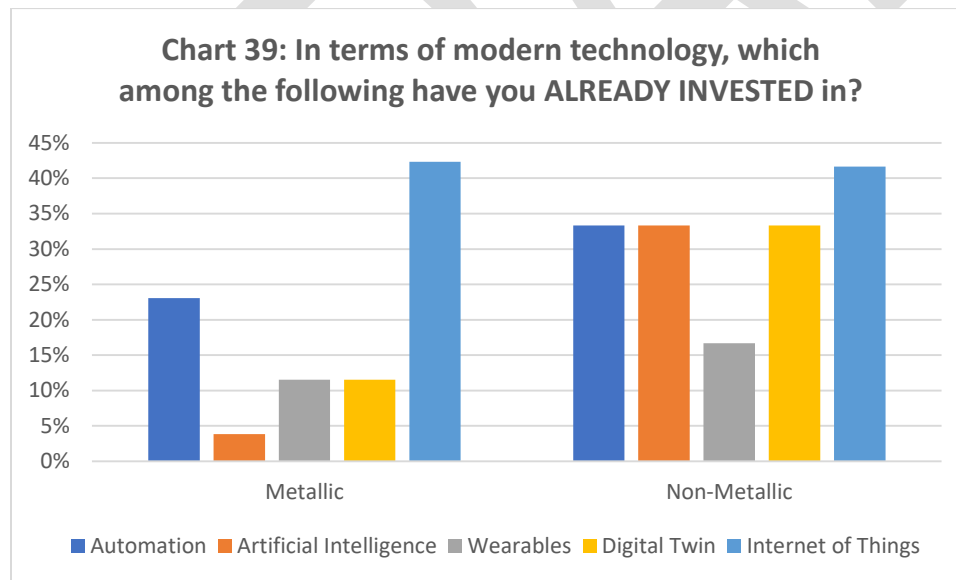
²⁵⁸ *Op. cit.* (256)

²⁵⁹ *Op. cit.* (86)

With its investments in technology, it is identifying and implementing simple, streamlined solutions for both short- and long-term value realization. It is aware of and is monitoring the use of various innovations and inventions being applied in other similar facilities around the world, and it continues to assess when it can adopt them to their own facilities in the country. Beyond FY 2019, it is looking at the viability of utilizing wearables for its sites.

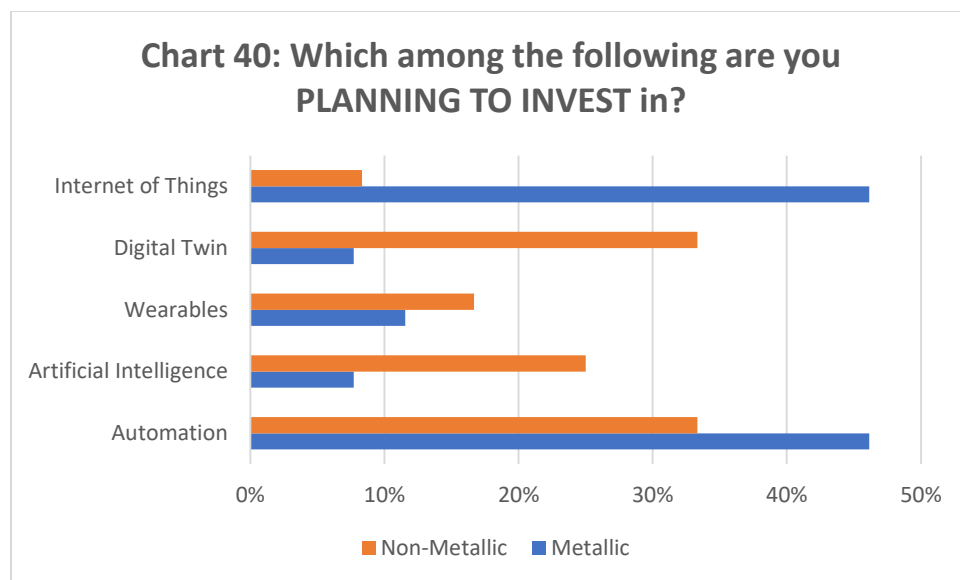
As for PNOEC-EC²⁶⁰, it already has prevalent technology to support their WFH arrangement as well as to provide employees with secure, remote connections onsite for hands-on and technical support. For its coal mining operations, the corporation will implement a combination of conventional and automatic haulage systems coupled with track-mounted personnel transport systems. Belt conveyors with continuous monitoring for airflow velocity and gas accumulations in its underground mines are also part of its development planning. Sooner rather than later, it will roll out a Digital Workplace Solution where multiple applications will be accessible in the cloud; and set up Command and Operational Centers in its field offices.

Having gathered from Charts 39 and 40 that sum up the results from the pertinent questions in the qualitative surveys for the mining sectors²⁶¹, 4 out of 10 metallic and non-metallic companies are already invested in IoT. Around 30 percent of the latter have investments in automation, AI, and Digital Twin; whereas only about a quarter of the former have started automating their systems. In reference to investing in new technology, close to 5 out of 10 companies in the metallic mining sector are interested in IoT and automation and a third of those in the non-metallic mining sector are looking into automation and Digital Twin.



²⁶⁰ Ibid.

²⁶¹ Op. cit. (69 and 76)



B. ENVIRONMENTAL CONSIDERATIONS

A conventional understanding of the extractive industry, not solely in the Philippines but globally, is that there exists a trade-off between its economic benefits and environmental costs²⁶². The extraction of non-renewable geological resources that are oil, gas, coal, and minerals is a major segment of any economy bringing in electricity, transportation, and employment, among other things. But, at the same time, its procedures that involve, for instance, digging and drilling holes into the ground, removing and processing these commodities, then transporting and utilizing them, are detrimental to the environment.

Around the world, this industry has been associated with a range of serious environmental challenges, namely, land clearance and degradation, the use of dangerous chemicals, acid drainage from mine sites, the loss of biodiversity, intensive water use, pollutants from poorly disposed waste, dust and airborne pollution, as well as its cumulative contribution to climate change²⁶³. Hence, its sectors are being pushed to achieve no wastages and decrease their carbon footprints toward the overarching goal of promoting sustainability.

The practice of Zero Waste is embedded in the concept of the Circular Economy as opposed to the linear economic model that the world has been used to²⁶⁴. The latter is also referred to as “take, make, waste” in which natural resources like minerals are extracted, then manufactured into products which are mostly used for a miniscule amount of time, and are afterwards discarded. Such a start-to-finish system is energy-intensive and incredibly wasteful, and it

²⁶² “Taking Action to Reduce Pollution in the Extractive Sector,” *United Nations Environment Programme (UNEP)* at <https://wedocs.unep.org/bitstream/handle/20.500.11822/22205/UNEA%20Background%20paper%20on%20extractives%20and%20pollution%20V6.pdf?sequence=18&isAllowed=y> (page 1), posted 4 December 2017.

²⁶³ *Ibid.*, page 2.

²⁶⁴ Erica Jackson, “The Circular Economy: What It Means for Fracking and Plastic,” *Fractracker Alliance* at <https://www.fractracker.org/2019/11/the-circular-economy/>, posted 24 November 2019.

subsequently drives demand for more natural resource extraction. Conversely, the former model incorporates recycling, reusing, and repairing to loop any waste back into the system.

Of the metallic mining companies in the Philippines that participated in this chapter's qualitative survey²⁶⁵, majority or 7 out of 10 of them are either planning to introduce Zero Waste into their operations soon or yet to include this. The rest of these metal enterprises are already invested in eliminating their wastes. The converse is the case in the non-metallic mining sector where two-thirds of the participants stated that they already have investments in this regard while the remaining one-third have either quite a way to go or are still in the planning stage.

With regard to SPEX²⁶⁶, it endeavors to reduce wastage through its continued implementation of a waste management program onsite that includes segregation. It is also recently carrying out the utilization of digital tools in its operations and processes; which are, for example, digitalizing signatures as well as using online forms and document repositories; to be able to decrease the amount of paper used. Further activities that will be explored include the digitalization of the Permit to Work system. As regards to flaring generation, the company has taken initiatives in its operational reduction beginning in FY 2019 through the lowering of the amount of purge gas sent to flare. Additional opportunities toward this goal of Zero Waste will also be explored.

PNOC-EC²⁶⁷ is currently doing simple steps to be able to accomplish no wastages at all. The corporation is promoting the practice of its employees bringing to work their own containers, tumblers, and utensils to reduce the use of disposables; as well as the use of recycled paper for unofficial documents and for other similar purposes as much as possible. In view of concrete plans to this effect that directly impact its extractive operations, it has not addressed any of them unlike SPEX in the above.

Following the principle of less usage means less wastage²⁶⁸, SSM operators²⁶⁹ are also doing their share toward this objective of attaining Zero Waste. 75 percent of them who answered the questionnaire said that they are minimizing the use of water in their extraction and processing of minerals. This could mean employing a sealed recycling system approach to minimize the draw on this natural resource by using it again and again²⁷⁰. In short, the same water is utilized in this closed loop process which is basically an aspect of the Circular Economy.

²⁶⁵ Op. cit. (69 and 76)

²⁶⁶ Op. cit. (86)

²⁶⁷ Ibid.

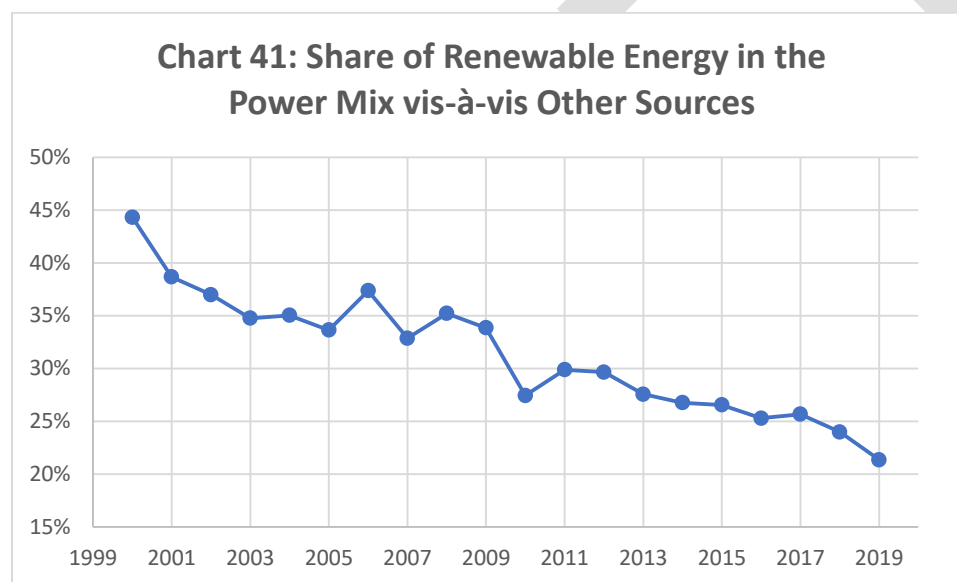
²⁶⁸ "Extractive Industries and Climate Change," *Columban Center* at http://columbancenter.org/sites/default/files/pdf/extractive_industries_climate_change.pdf, accessed 7 July 2021.

²⁶⁹ Op. cit. (91)

²⁷⁰ Op. cit. (268)

Decarbonization in, ironically, the extractive industry that produces much of the world's carbon²⁷¹ is another shift in the direction of its sectors becoming environmentally friendly. This trend involves diminishing the so-called carbon footprint or the amount of carbon dioxide emissions that are associated with all the activities of a particular entity; and these gases come from fossil-fuel combustion directly as a result of electricity and transportation²⁷²; and secondarily from the personal consumption of manufactured non-biodegradable materials such as plastics and Styrofoam²⁷³.

With respect to the oil and gas as well as coal sectors in the production of electricity in the Philippines, the country has yet to maximize its renewable sources of energy. As a matter of fact, the share of renewables in its power generation mix hit a trough of 21 percent in 2019 which was significantly lower than in 2008 when they accounted for less than 36 percent²⁷⁴. Chart 41 plots this downward pattern, with slight upticks in certain years only for these percentages to continually fall again thereafter.



At a company level distinctly for SPEX²⁷⁵, it mentioned as one of its responses in this chapter's emailed questions that their production field in Malampaya is already bridging the Philippines to the path of a zero- or, at least, low-carbon future given its output of natural gas which is

²⁷¹ Carly Leonida, "Mining Without Water," *The Intelligent Miner* at <https://theintelligentminer.com/2019/05/09/mining-without-water/>, posted 9 May 2019.

²⁷² Ibid.

²⁷³ "Single-Use Plastics: A Roadmap for Sustainability," *UNEP* at <https://www.unep.org/resources/report/single-use-plastics-roadmap-sustainability>, posted 5 June 2018.

²⁷⁴ Alena Mae S. Flores, "Renewable Energy Share in PH Power Generation Hit a New Low of 21% in 2019-NREB," *Manila Standard* at <https://www.manilastandard.net/business/power-technology/326136/renewable-energy-share-in-ph-power-generation-hit-a-new-low-of-21-in-2019-nreb.html>, posted 15 June 2020;

and "Philippines: What Sources Does the Country Get Its Electricity From?," *Our World in Data* at <https://ourworldindata.org/energy/country/philippines>, both accessed 31 May 2021.

²⁷⁵ Op. cit. (86)

typically 30 to 50 percent cleaner than other forms of fuel used to generate electricity. The company's ambition is to be a net-zero emissions business by 2050 by reducing its carbon footprint of energy goods sold. It aims to have no pollutants from the manufacture of its products and by partnering with customers to decarbonize power use by helping them reduce their consumption of non-biodegradables. It also continues to look for improvements in their operations to optimize fuel use, identify more efficient modes for emission reductions, and ensure that sources of emissions are detected, reported, and managed.

On the other hand, PNOC-EC²⁷⁶ is doing a much more hands-on approach with its energy-saving practices. Management encourages the switching off of lights and computers during lunch breaks and office hours, as well as of air conditioning units in conference rooms that are not in use. The company admits that its core business is in oil, gas, and coal; but that it is also considering new technologies in their operations to adapt to the global call for decarbonization.

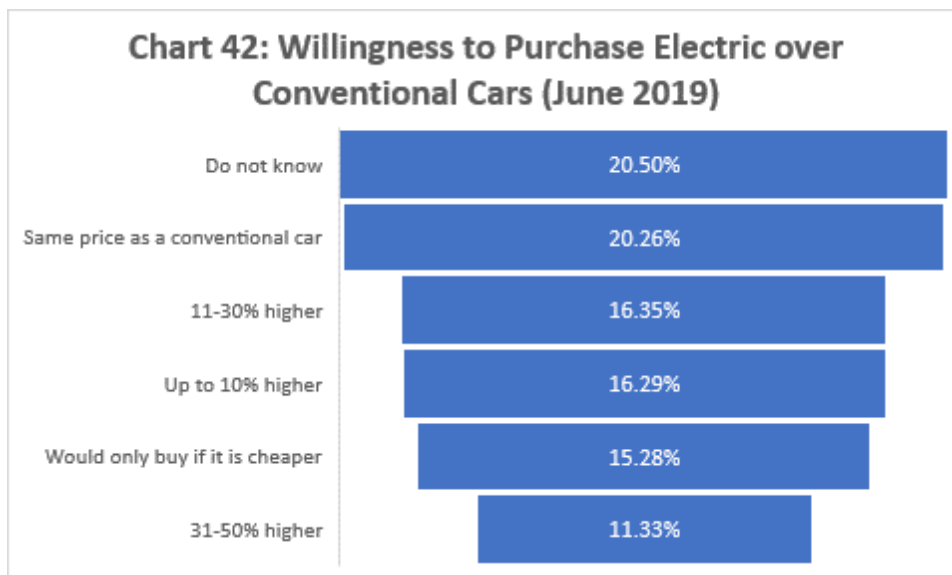
As far as SSM operators are concerned, they are doing their fair share as well when it comes to reducing their carbon footprint. In their replies to the questionnaire²⁷⁷ they received, almost all or 92 percent of them have already been practicing the proper disposal of their mine tailings, waste rock impediments, etc. to prevent soil and water pollution. Then again, only about 12 percent of them have invested in cleaner technologies.

With regard to secondary carbon emissions, the promotion of electric, if not hybrid, vehicles has started to gain ground distinguishably in developed countries. In the Philippines, however, majority of the buyers are not yet convinced to purchase them over conventional cars. Chart 42 posts the results of a public survey²⁷⁸ in which only 4 out of 10 are willing to buy the former even if faced with a higher price vis-à-vis 2 who will get them if they are cheaper and another 2 if they have the same price as the latter. The remaining 2 are undecided.

²⁷⁶ Ibid.

²⁷⁷ Op. cit. (91)

²⁷⁸ Martha Jean Sanchez, "Willingness to Purchase Electric Cars Over Conventional Cars in the Philippines as of June 2019," *Statista* at <https://www.statista.com/statistics/1030188/willingness-purchase-electric-cars-philippines/>, posted 12 May 2021.



Simply put, Philippine transportation will continue to rely on fossil fuels so the outlook is still bright for the oil and gas sectors. In the longer term, as the demand for electric vehicles (EV) rises, so will the need for nickel as a main component of their batteries. Inasmuch as the country is the Top 2 producer of this metallic mineral in 2019²⁷⁹ after Indonesia, the domestic consumption of and the export demand for nickel will continue to benefit the metals sector in the many years to come.

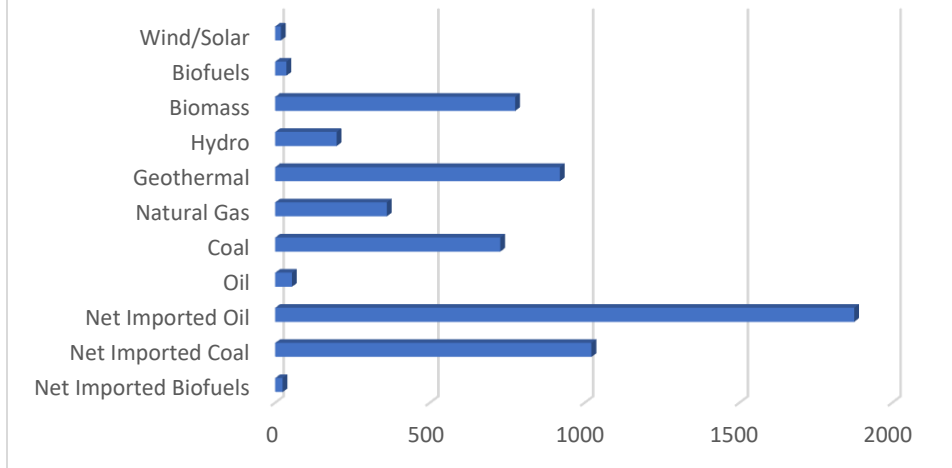
C. CURRENT AND POTENTIAL RESERVES

The Philippines is, and will still be, heavily dependent on oil and coal for much of its energy needs. By referring to DOE's metrics²⁸⁰ and Chart 43, 32 percent of the country's total energy primary supply in 2019 was from oil and 29 percent from coal. The archipelago, nonetheless, is not yet self-sufficient as it has predominantly relied on the imports of these commodities as they accounted for 48 percent of domestic consumption.

²⁷⁹ Priscila Barrera, "10 Top Nickel-Producing Countries," *Investing News Network* at <https://investingnews.com/daily/resource-investing/base-metals-investing/nickel-investing/top-nickel-producing-countries/>, posted 21 July 2020.

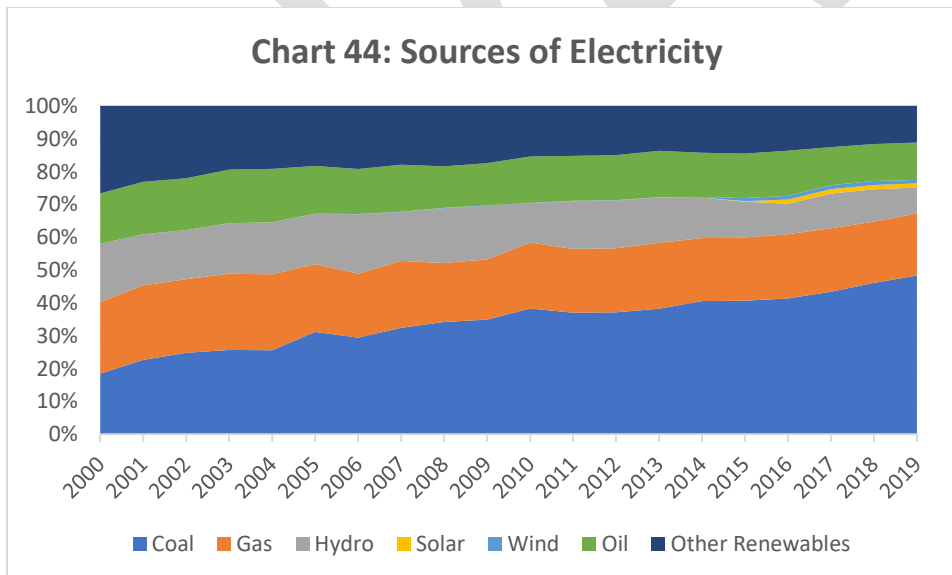
²⁸⁰ "Key Energy Statistics 2019," DOE at https://www.doe.gov.ph/sites/default/files/pdf/energy_statistics/2019-key-energy-statistics.pdf (page 35), accessed 31 May 2021.

Chart 43: 2019 Total Energy Primary Supply Mix (in MTOE)



Local transport, on one hand, is heavily reliant on oil, while electricity generation is mainly dependent on coal. In 2019, oil accounted for 96 percent of transportation, growing at an average annual rate of 4.6 percent over a period of 11 years²⁸¹. In the same year, much of the country's electrical power was from coal plants producing 48 percent of the total terawatt hours with an average annual growth of 35 percent from 2000. Compared with other sources of electricity, coal only exhibited a positive CAGR indicative of the Philippines being more and more dependent on this commodity in the long run. These values were lifted from the information collected by Our World in Data²⁸² as dissected in Chart 44.

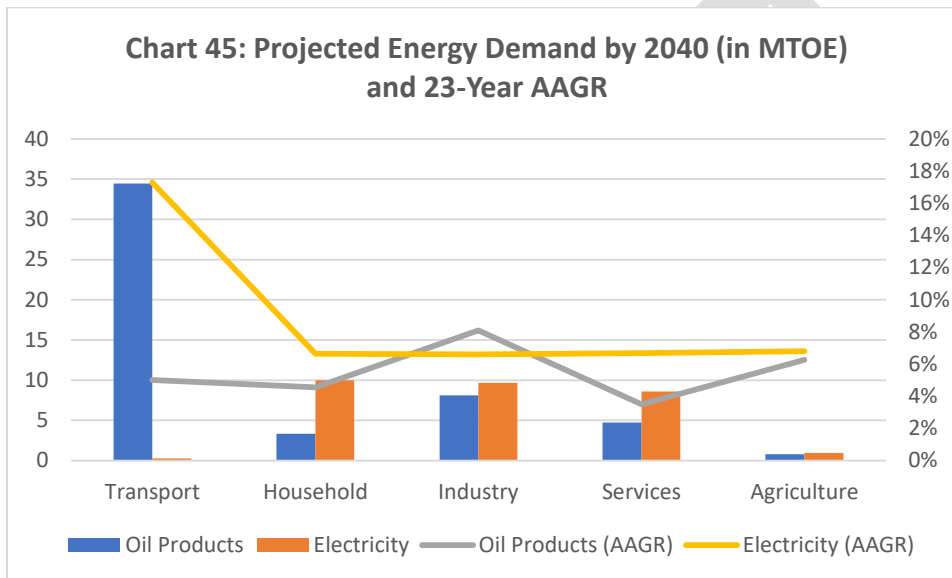
Chart 44: Sources of Electricity



²⁸¹ Ibid., page 38.

²⁸² Op. cit. (274, *Our World in Data*)

Until 2040, the Philippines is predicted to consume a significant amount of oil products and utilize electricity in accordance with DOE’s forecast²⁸³, ergo, the vital need for coal. By then, transport will require 34 metric tons of oil equivalent (MTOE) vis-à-vis only 12 MTOE that it consumed in 2018. This will be trailed by Industry, Services, and Household at their respective units of 8.1, 4.7, and 3.3 MTOE. In reference to electricity consumption, Household will be the top consumer at 10 MTOE followed closely by Industry, at 9.7 MTOE, then Services, at 8.6 MTOE. These amounts and more, along with their respective AAGR, are displayed in Chart 45.



Therefore, the country will continue to rely on the importation of oil and coal to meet its energy requirements in the coming decades. With respect to the domestic production of natural gas, the Philippines’ single source is from its Malampaya field²⁸⁴. Supplying 30 percent of the main island group of Luzon’s power consumption alone, it is predicted to be depleted by 2024²⁸⁵. The Philippines, to put it simply, cannot be self-reliant else it will have to face a mounting energy crisis unless it keeps purchasing the said commodities from other countries and starts importing gas to meet its steadily increasing demand for power.

²⁸³ “Philippine Energy Plan 2018-2040,” DOE at https://www.doe.gov.ph/sites/default/files/pdf/pep/pep-2018-2040_20210323.pdf, pp. 29 and 37, accessed 31 May 2021.

²⁸⁴ “Global Gas Report 2020,” Snam, International Gas Union, and BloombergNEF at https://www.igu.org/wp-content/uploads/2020/08/GGR_2020.pdf (page 27), accessed 31 May 2021.

²⁸⁵ Thess Sula, “Market Intelligence: Philippines Energy Markets,” International Trade Administration at <https://www.trade.gov/market-intelligence/philippines-energy-market>, posted 22 April 2020.

But the outlook is good in the medium and long terms for additional domestic oil and gas production as projected by DOE²⁸⁶. The drilling of an oil prospect in the Visayas group of islands will bring in potential recoverable reserves of up to 20 million barrels (MMB) of oil. Beginning in 2021 in West Linapacan, the Octon and Cadlao fields are forecasted to contribute 413,000 barrels. From 2022 in the same area, 540,200 barrels will be produced from Polyard Area G. And in the same year in Northwest Palawan, around 3.4 to 5.6 MMB are predicted to come from the Galoc oil field. For gas, Malampaya will still be able to supply 99 percent of the Philippines' natural gas as it contributes 584 billion standard cubic feet from a potential of 588 billion every year until its depletion.

In the long-run and based on DOE's projections²⁸⁷, there are 2 oil prospects in the Visayas and Northwest Palawan areas with recoverable reserves of 3.6 and 20 MMB, respectively. Additional oil production of 114 MMB is projected to come from major and marginal fields. Gas production of 4 trillion cubic feet (TCF) is forecasted to be supplied from several existing areas and 2 new sites. There are also 2 prospective natural gas basins in Northwest and Southwest Palawan with 3.6 trillion TCF which are targeted to be drilled between 2023 and 2040.

On the matter of prospective extractive resources in the Philippines aside from oil and gas, the country is also believed to be rich in rare-earth elements (REE)²⁸⁸. REE is a group of metals that is immensely valuable and, even in small quantities, can drastically change the properties of certain materials which is why they are irreplaceable in the manufacture of wind turbines, cars, computers, smart phones, other advanced applications, and even with green technology²⁸⁹.

Despite its nomenclature, these minerals are not exactly rare as they are relatively plentiful in the earth's crust; and what gives them their rarity is that they are difficult to separate from other minerals that they were sourced from²⁹⁰. The principal concentrations of REE are associated with uncommon varieties of igneous rocks, and one such example is scandium which is considerably present in nickel-cobalt ores²⁹¹.

²⁸⁶ "Chapter III: Conventional Fuels," DOE at https://www.doe.gov.ph/sites/default/files/pdf/announcements/3_Conventional%20Fuels_19%20Aug%202020.pdf (page 47), posted 19 August 2020.

²⁸⁷ Ibid.

²⁸⁸ Riza T. Olchondra, "In Search of Rare Metals, PH Leaves No Stone Unturned," *Philippine Daily Inquirer* at <https://business.inquirer.net/100947/in-search-of-rare-metals-ph-leaves-no-stone-untuned>, posted 2 January 2013.

²⁸⁹ "What Are Rare Earth Elements, and Why Are They Important?," *American Geosciences Institute* at <https://www.americangeosciences.org/critical-issues/faq/what-are-rare-earth-elements-and-why-are-they-important>, accessed 1 June 2021.

²⁹⁰ James Konstantin Galvez, "UP to Study Potential of Rare-Earth Elements," *The Manila Times* at <https://www.manilatimes.net/study-potential-rare-earth-elements/326278/>, posted 9 May 2017.

UP stands for the University of the Philippines.

²⁹¹ Şerif Kaya, et al.; "Concentration and Separation of Scandium From Ni Laterite Ore Processing Streams" in *Metals Journal* (Vol. 7, No. 12) (Basel: Molecular Diversity Preservation International, 12 December 2017), page 1.

Ni is the chemical symbol for Nickel.

As far back as Q1 2013, MGB²⁹² set to identify REE exploration sites in the Philippines by earmarking half a million out of the 20-million-PHP budget for the entire reconnaissance phase. The government agency already found potential areas to explore that were close to copper-gold mines and noted that Palawan and Nueva Vizcaya were the best places to start. A few years later in 2017, the University of the Philippines embarked on a survey that led to the exploration, development, and commercial production of scandium deposits and other REE in the country²⁹³. Even so, nothing as of recent came to fruition given the redundant provision on conducting REE research in the implementation of MGB's Mineral Resources and Development Program in Q1 2020²⁹⁴.

On account of this, there is an untapped opportunity for REE exploration and production in the Philippines. Such a potential is part of the much larger landscape in which 9 million of the country's 30 million hectares of total land area is identified as having high mineral potential, and that only 727,372 hectares or 2.4 percent is covered by mining tenements²⁹⁵. Another opportunity is a local university project uncovering REE's from coal fly ash (CFA)²⁹⁶, a waste material generated by coal power plants. As raw and unprocessed coal already contains a variety of metals and, at times, also these rare minerals, burning it enriches them. There are more than 25 coal power plants in the Philippines that generate considerable amounts of CFA and this study was able to achieve an average of 50 percent REE recovery from this by-product²⁹⁷. Simply put, a huge amount not just of the former but of the more common metallic as well as non-metallic minerals is yet to be extracted and produced in the archipelago.

D. STATE REGULATION

Free-market economists advocate the principle of the invisible hand that refers to the unseen market forces that end up maximizing social benefits as individuals and entities pursue their own interests²⁹⁸. Nevertheless, there are those who argue the need for government regulation in the business environment as there are flaws in the preceding system that give way to large

²⁹² Czeriza Valencia, "MGB Set to Identify Rare Earth Element Sites in Q1," *The Philippine Star* in ABS-CBN News at <https://news.abs-cbn.com/business/01/03/13/mgb-set-identify-rare-earth-element-sites-q1>, posted 3 January 2013.

²⁹³ Op. cit. (288)

²⁹⁴ "MGB Gears Up for Program Implementation and Bares Policy Directions for Year 2020," *MGB* at <https://mgb.gov.ph/2015-05-13-02-02-11/mgb-news/818-mgb-gears-up-for-program-implementation-and-bares-policy-directions-for-year-2020>, posted 2 March 2020.

²⁹⁵ Op. cit. (31), "Land Area and Mineral Potential," page 2.

²⁹⁶ "DOST-PCIEERD Study Finds Rare Earth Elements from Coal Plant Waste," *Department of Science and Technology (DOST)* at <https://pcieerd.dost.gov.ph/news/latest-news/354-dost-pcieerd-study-finds-rare-earth-elements-from-coal-plant-waste>, posted 21 June 2019.

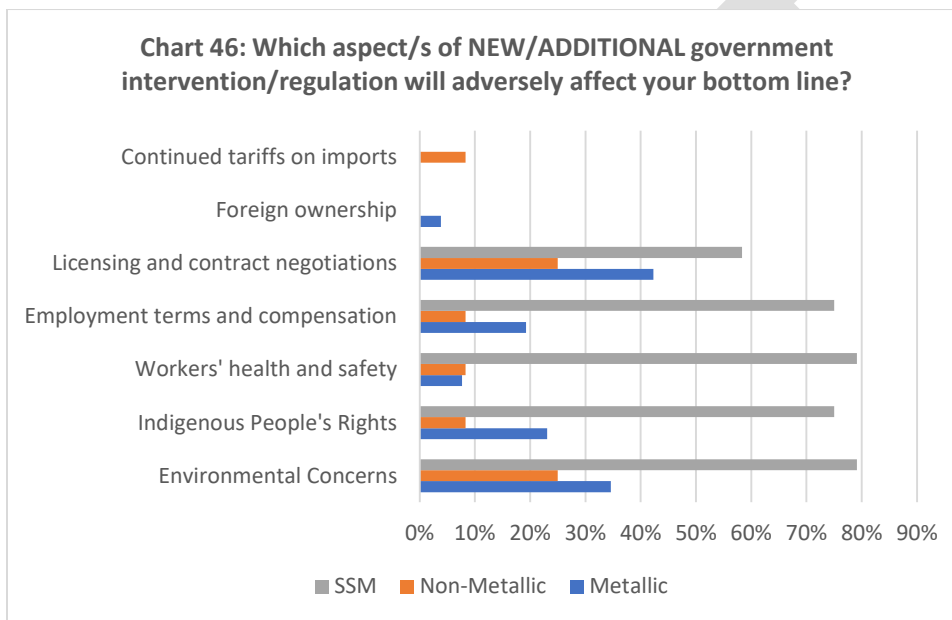
PCIEERD stands for the Philippine Council for Industry, Energy, and Emerging Technology Research and Development.

²⁹⁷ Ibid.

²⁹⁸ "What Is the 'Invisible Hand'?", *Corporate Finance Institute* at <https://corporatefinanceinstitute.com/resources/knowledge/economics/what-is-invisible-hand/>, accessed 3 June 2021.

economic imbalances²⁹⁹ such as inefficiency and poverty. In reality, there is no such economy without any form of state intervention.

The extractive industry in the Philippines is no exception to a considerable amount of government legislation aimed to not only promote efficiency in the market but also to promote equity in society³⁰⁰. Chart 46 depicts the qualitative responses of the metallic and non-metallic mining companies³⁰¹ as well as SSM operators³⁰² in which more than half of the latter are concerned with a lot of the aspects of state regulation. This is in comparison to majority of those in the former sectors who have other relevant concerns that also impinge as much on their profitability.



As a reply to a specific question among the many that were emailed to the enterprises of the oil and gas as well as coal sectors, one of SPEX³⁰³ specific concerns that relate to government intervention is the state’s conflicting as well as overlapping rules and regulations. It mentioned the proposed bill which is the “Mandatory Environmental Insurance Coverage” with its scope on monitoring the environment and guaranteeing the funds for such. The company added that there is a continued absence of specific standards that affects the sector, namely, the “Industry Specific Effluent Standards for the Offshore Oil and Gas Industry”.

²⁹⁹ “Government Intervention,” *Policonomics* at <https://policonomics.com/government-intervention/>, accessed 3 June 2021.

³⁰⁰ Harry Jones, “Equity in Development: Why It Is Important and How to Achieve It,” *Overseas Development Institute (ODI)* at <https://odi.org/en/publications/equity-in-development-why-it-is-important-and-how-to-achieve-it/>, posted 13 November 2009.

³⁰¹ Op. cit. (69 and 76)

³⁰² Op. cit. (91)

³⁰³ Op. cit. (86)

As for PNOEC's³⁰⁴ reply, the corporation is affected by the term extension until August 2030 of its COC 41 in Zamboanga Sibugay. Prior to which, there was benefit sharing between and among the concerned host communities. Ergo, payment was given directly to the LGU's without the need to give additional money to ICC's/IP's. Even so from 2020, the corporation was obligated by NCIP to procure additional benefits for them including royalties for every metric ton of coal produced in ancestral domains.

By and large, several bills are pending in the Philippine Congress that will adversely affect the bottom line of the metallic and non-metallic mining sectors³⁰⁵. These are House Bill (HB) No. 422, Senate Bill (SB) No. 927, and SB No. 225 or "An Act Establishing the Fiscal Regime and Revenue Sharing Arrangement for Large-Scale Metal Mining", and SB No. 1970 or "An Act Amending Chapter VII Title VI and Section 151, and Creating New Sections 151-A and 151-B, of RA No. 8424, Otherwise Known as the National Internal Revenue Code of 1997".

There is also HB No. 2165 or "An Act Providing for the Mandatory Domestic Processing of Mineral Ores" which seeks to amend RA No. 7942 Otherwise Known as the "Philippine Mining Act of 1995". This will implicitly inhibit the export of iron, nickel, chromite, manganese, and other strategic metallic ores given the existing practice of exporting unprocessed minerals. SB No. 1634 complicates the proposed process and makes it difficult even further as it is known as "An Act Providing for the Mandatory Domestic Processing of All Mineral Ores Before Exportation and a Certification Showing Presence or Lack of Rare Earth Elements".

Since March 2019, two bills await discussion and approval in the House of Representatives which call for an increase in the rate of royalty payments given to ICC's/IP's³⁰⁶. These are HB No. 391 that proposes 20 percent of gross output, and HB No. 4959 that seeks only 5 percent. Either will consequently decrease the affected companies' profit margins under the assumption of constant sales; but with greater production and, thereby, higher revenues, such a tax burden can be minimal yet will benefit the country as an additional source of income to their respective local communities.

V. SWOT ANALYSIS³⁰⁷

As this outlook chapter has principally looked into the future prospects of the extractive industry while accounting for the pandemic before it occurred, while it is still happening, and when it will be over; a summary of its strengths, weaknesses, opportunities and threats (SWOT) is vital to completely assess and understand the interplay of the many dynamics around it. While a SWOT analysis normally considers both the internal and external factors associated

³⁰⁴ Ibid.

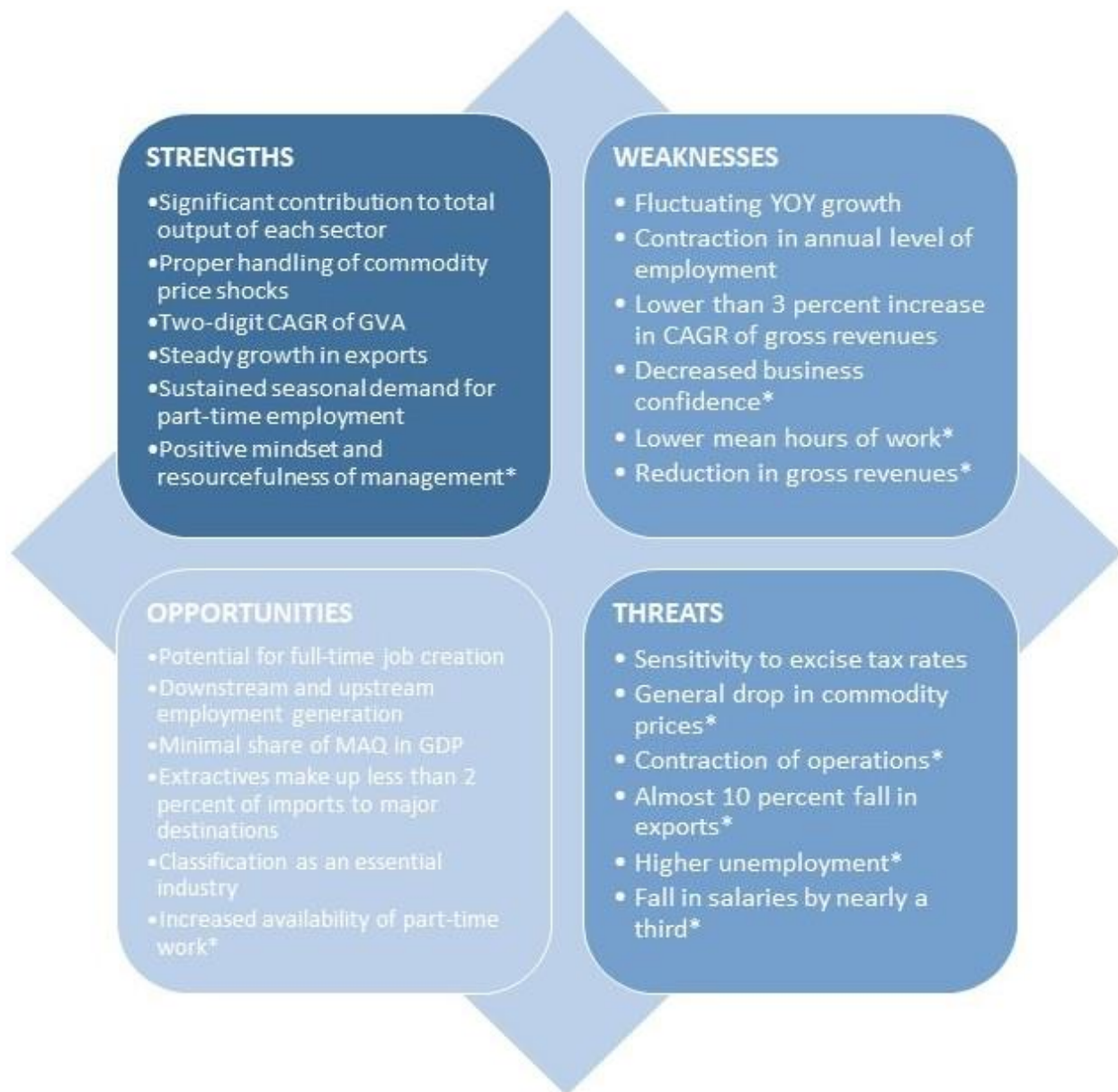
³⁰⁵ Patricia A O Bunye, "A Structured Guide to Mining in the Philippines," *Cruz Marcelo & Tenefrancia* at <https://www.lexology.com/library/detail.aspx?g=533b9bfa-5033-4372-a63e-28b10ceeeac2>, accessed 2 June 2021.

³⁰⁶ Ibid.

³⁰⁷ Strengths, weaknesses, opportunities, and threats with an asterisk (*) refer to those that are peri-pandemic.

with a particular entity³⁰⁸, this section attempts to delve deeper into it with a balanced approach to each strength, weakness, opportunity, and threat not only of the industry in general but also of the oil and gas, coal, metallic mining, non-metallic mining, and SSM sectors in particular.

A. INDUSTRY LEVEL



One of the many strong features of the extractive industry in the Philippines is the important contribution to GVA of each of its sectors with metallic mining being the highest at more than a

³⁰⁸ "Industry Analysis: Understanding the Competitiveness of an Industry," *Corporate Finance Institute* at <https://corporatefinanceinstitute.com/resources/knowledge/strategy/industry-analysis-methods/>, accessed 8 June 2021.

third and, the least, coal but still at a substantial tenth. GVA was also growing at a compounded annual rate of more than 10 percent. Exports grew steadily as well at an average of more than 15 percent per annum over a 20-year period. In addition, the industry was able to handle commodity price shocks well in a period of 4 decades as it mainly resorted to cost-cutting when faced with higher costs. Another of its strengths is how it is able to consistently generate seasonal part-time employment every second and fourth quarters of the year which is surely helpful in any labor-intensive country like the Philippines. Peri-pandemic, the industry maintained a level of openness by adapting to the necessary changes brought about by COVID-19. This is coupled with a degree of optimism that the overall business environment will get better post-pandemic.

A weak aspect of the extractive industry is that its YOY growth has been fluctuating. Despite years of increasing GDP, there were periods when its contribution to the domestic economy was falling. Albeit minimally, employment was also falling annually for 20 years in a country where the unemployed were more than 5 percent of the labor force in July 2019³⁰⁹. With the onset of the pandemic, those who were working later on faced reduced working hours, henceforth, lower income. Moreover, there was a decrease in business confidence across all sectors in the industry and a corresponding drop in its gross revenues.

As a developing country and still on the road to modernization, there is still an opportunity for the extractive industry to employ more workers. Its job creation has been shown to have a positive externality to produce additional jobs both downstream and upstream. On the subject of GDP, the industry's share was only hovering around 1 percent so there is still much room to contribute more to it. The same thing goes with its exports to major destinations that only comprised less than 2 percent of their total imports. Peri-pandemic, the industry being regarded as essential is also a welcome classification as it ensures continued operations whatever the national emergency. This has also been an opportune time for employing more part-time workers on top of the industry's seasonal demand for them.

There is always a trade-off with taxation when the state gains more and businesses earn less³¹⁰, and the extractive industry is no exception. With the implementation of the TRAIN law in 2018, the government started to tax the said industry by up to 100 percent more³¹¹. Hence, higher or new taxes on its sectors do lower profit margins but such payments are meant to pursue an equitable share in extractive revenues derived from the utilization of resources that are

³⁰⁹ "Employment Rate in July 2019 is Estimated at 94.6 Percent," *PSA* at <https://psa.gov.ph/content/employment-rate-july-2019-estimated-946-percent>, posted 5 September 2019.

³¹⁰ Aida Vazquez-Soto, "Increasing Taxes on Capital Gains Requires Trade-Offs," *Tax Foundation* at <https://taxfoundation.org/increasing-capital-gains-taxes-requires-trade-offs/>, posted 2 August 2019.

³¹¹ Marco Zaplan and Thomas Lassourd, "Philippines: Will TRAIN Run Over the Mining Sector?," *Natural Resource Governance Institute* at <https://resourcegovernance.org/blog/philippines-will-train-run-over-mining-sector>, posted 14 February 2018.

ultimately owned by the state and the people³¹². Another threat is when commodity prices substantially drop with the lower sales not covering the usual costs of production, as what has happened during the pandemic. The global slowdown in demand due to COVID-19 also translated to exports falling by almost a tenth as well as salaries by nearly a third with unemployment rising.

B. SECTORAL

A SWOT analysis is instrumental in providing a comprehensive evaluation of the extractive industry in the Philippines from both past and present perspectives with the objective of producing future prospects. For a more holistic assessment³¹³, however, it does not suffice to enumerate the strengths, weaknesses, opportunities, and threats of the industry as a whole. Therefore, the same analysis but, to be specific, by sector is also included hereafter.

1. OIL AND GAS



³¹² "Precept 7: Revenue Distribution," *Natural Resource Governance Institute* at <https://resourcegovernance.org/approach/natural-resource-charter/precept-7-revenue-distribution>, accessed 9 July 2021.

³¹³ Michael Esfeld, "Holism and Analytic Philosophy" in *Mind* (Vol. 107, No. 426) (Oxford: Oxford University Press, April 1998), page 365.

The direct correlation of oil and gas prices to the global commodity indices indicates the sector's strength with its inelastic demand. Unlike during the time of the "Oil Price Stabilization Fund" when the Philippine government had to subsidize this sector so that the relevant companies could continue charging customers a much lower price, the disequilibrium between demand and supply was not sustainable³¹⁴. Another strength of this sector is the potential for gas production from its new wells. Technology is also at its forefront with investments in digital and automated operations as well as the utilization of wearables. One other strong aspect of this sector is how it has been implementing a waste management program to reduce, reuse, and recycle its nonrenewable resources.

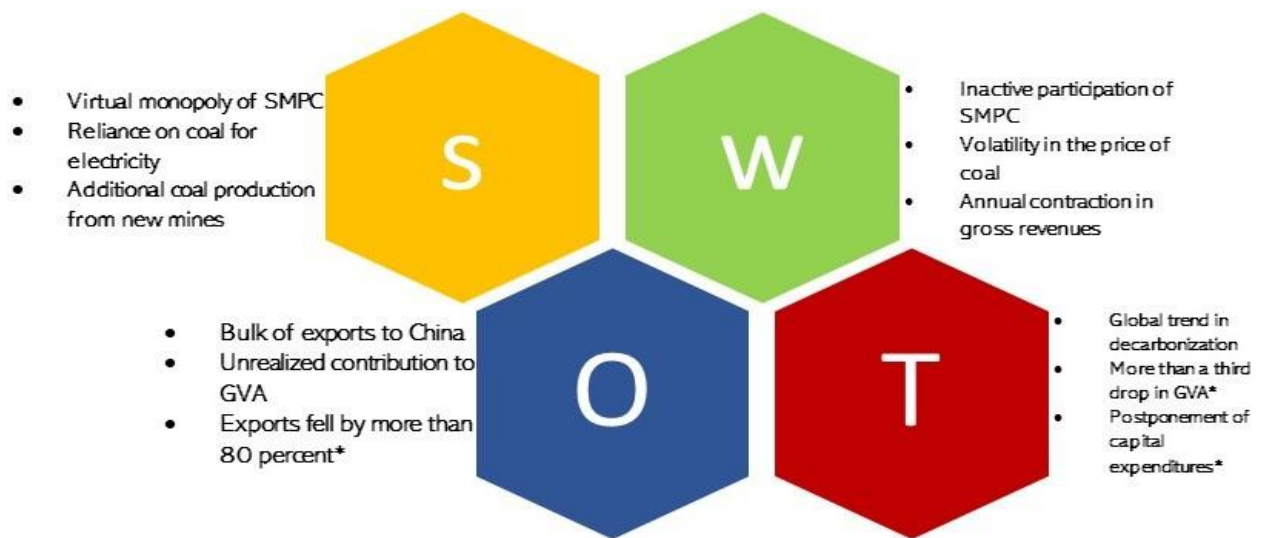
Nevertheless, the sector itself is weak when it comes to the participation of most of the companies in the reporting and sharing of data. For solely this chapter, only SPEX and PNOC-EC agreed to share qualitative information integral to firmly establishing the sector's outlook. During the pandemic, one of the weaknesses that was exposed was when the movement of their personnel and customers got restricted, henceforth, unfavorably affecting their day-to-day operations. Their capacity was also stretched given the skeletal staff that could only be physically present at work. With the downturn in demand and fall in commodity prices, this sector's GVA dropped by close to 70 percent.

By Q4 2019, only the oil fields of Galoc and Alegria were yielding production; which actually opens an opportunity for the sector to explore and drill in other areas in the country. Also, the fact that the Philippines used to export petroleum to 105 countries from the years 2000 to 2010³¹⁵; down to only 15 in 2018 and 2019, is a timely reason to seek more destinations as before. With the prevalent infrastructure and huge capital of the different companies in the oil and gas sector, the worldwide trend of decarbonization is a welcome investment for them to shift to renewable energy. In the meantime, the relatively lower demand for their products peri-pandemic presents opportunities for the sector to innovate and consider other avenues to improve their bottom line.

2. COAL

³¹⁴ Kenneth Montojo, "The Political Economy of Philippine Oil Deregulation" in *Crossroads: An Interdisciplinary Journal of Southeast Asian Studies* (Vol. 13, No. 1) (DeKalb, IL: Northern Illinois University, 1999), page 65.

³¹⁵ Op. cit. (38)



SMPC monopolizing the coal sector is, for all intents and purposes, a strength for the sector as it virtually limits, if not, eliminates competition. Another of its strong characteristics is that close to 50 percent of the Philippines' energy mix is attributed to coal³¹⁶. This mineral resource will also continue to be extracted in the country with the planned addition of more coal mines. One of the sectors' weaknesses, then again, is the inactive participation of this monopoly itself toward transparency, in general, and in reporting to PH-EITI, in particular. Other weak points are the volatile prices of coal and the average annual decrease in gross revenues which both lessen the sector's profitability.

China as the main importer of coal from the Philippines is a promising situation for SMPC and other coal operators to export to other countries. GVA of this sector is also minimal in comparison to the rest in the extractive industry, so there is still room for greater expansion. Peri-pandemic, exports of coal significantly dropped by more than 80 percent which gives the sector all the more reason to market this mineral to other markets. Similarly with the oil and gas enterprises, the worldwide push for decarbonization is threatening the coal sector when most countries have already committed to limit global warming to only up to 2 degrees Celsius³¹⁷. And unlike the latter, the prevalent infrastructure and prevailing equipment for the extraction of coal is not as easily convertible to harnessing renewable energy³¹⁸. More threats arose for this sector during the pandemic, namely, that its GVA fell by more than 33 percent and spending on capital had to be delayed.

3. METALLIC MINING

³¹⁶ Op. cit. (283)

³¹⁷ "The Paris Agreement: What Is the Paris Agreement?," *UN Climate Change* at <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>, accessed 8 June 2021.

³¹⁸ "A Struggle Between Coal and Renewable Energy in the Philippines," *Energy Transition* at <https://energytransition.org/2016/07/a-struggle-between-coal-and-renewable-energy-in-the-philippines/>, posted 11 July 2016.



Unlike the volatility in the price of coal, that of most metals have a positive correlation with the global commodity indices; and this is one of the strengths of the metallic mining sector as their domestic prices reflect the real cost of these minerals worldwide. This sector has also had a substantial contribution to GVA of the extractive industry, so much of the latter is dependent on the former's operations over the years. In the matter of technological advancement, most of these metal companies have started investing in IoT, thus, allowing them to be more cost-efficient. A weak attribute though of this sector is the sticky price of gold and other precious metals. Peri-pandemic, for example, the price of gold rose remained high relative to those of other minerals³¹⁹. Consequently, there was much lesser demand for its being still costly heightened by the consumers' lower incomes. Another weakness is that the sector has still not achieved Zero Waste. Targeting it is vital as this has positive effects on their operations and, ultimately, their bottom line. Not all metallic mining companies, furthermore, are participative in the reporting and sharing of their information; which weakens the sector even more.

The keenness of the metallic mining sector in automation is one of a handful of opportunities as it rides on the wave of advances in technology. What is most advantageous for its companies is the potential for the processing of REE distinctly from mixed nickel-cobalt sulfide and scandium oxalate which are already being extracted from existing mines. During the pandemic, it has been a promising time for them to still continue their operations. Nonetheless, the metallic mining sector is faced with the threat of having only select metals that comprise its overall output; hence, any price shocks or the like leaves it vulnerable for sudden profit losses. With regard to commodity pricing, the stickiness of the prices of nickel and cobalt may seem to be a weakness but, in reality, is a threat since they are also main sources of REEs; thus, these price inelasticities might not make it profitable to process the latter.

4. NON-METALLIC MINING

³¹⁹ Rainer Michael Preiss, "Gold Prices to Continue Rising as Coronavirus Upends Global Economy," *Forbes* at <https://www.forbes.com/sites/rainermichaelpreiss/2020/04/01/gold-prices-to-continue-rising-as-coronavirus-upends-global-economy/>, posted 1 April 2020.



Of the five sectors of the extractive industry in the Philippines, it is the non-metallic mining one that has properly handled commodity price shocks the most which is one of its strengths. Just behind metallic mining, it has also substantially contributed to the industry's GVA at a little more than 30 percent in 2019. And as with the former, its other strong suit is its having invested in IoT for cost-efficiency. But it has the weakness that it still has a way to go toward Zero Waste; and a similar one with some companies inconsistently participating in the industry's transparency and reporting processes.

What sets this sector apart from the rest, as one of the opportunities open to it, is that the pricing of its commodities is independent of the global market. Regardless of sudden price drops or surges, it is still able to charge prices set at a domestic level and continue to obtain profits from them. Another is its interest in technological advancements, namely, automation and Digital Twin, that will open the sector to smoother, safer, and cheaper operations in the long-term. During this pandemic, its production and sales largely declined which is an opportunity to reconsider its routinary processes and current practices. Equally threatening to this sector as with metallic mining is that it depends on a few non-metals that constitute the bulk of its total production. Thus, the resource depletion of just one mineral will have an adverse impact on the rest of the non-metals business. To date, there is a tariff imposed at 10 PHP per bag of imported cement by the Tariff Commission³²⁰; so the removal of which poses a threat to the sector especially given that huge parts of its production, which are limestone as well as sand and gravel, are the major component and complementary goods of cement³²¹, respectively. Lastly, the non-metallic sector is also threatened by the classification of its manufacturing establishments under the non-essential category; thereby, its related businesses were and will be halted peri-pandemic.

5. SSM

³²⁰ Othel V. Campos, "Tariff Commission Questions DTI's Cement Duty," *Manila Standard* at <https://manilastandard.net/mobile/article/342511>, posted 20 December 2020.

³²¹ "How Cement Is Made," *Portland Cement Association* at <https://www.cement.org/cement-concrete/how-cement-is-made>, accessed 8 June 2021.



Albeit there is limited public information on the SSM sector in the country, secondary data and the responsiveness of its operators were integral to analyzing it and coming up with its own outlook. One of its strengths, apart from its partnering with local institutions toward capacity-building, is its active participation in the sharing and collecting of information. The said sector has also started investing in cleaner technologies making it as strong and at par with its large-scale mining counterparts with respect to caring for the environment. With regard to its weaknesses, mineral extraction by this sector is not at all diverse so noticeable changes in the price or demand for gold, for instance, can easily have a negative effect on its operations. Other signs of its being weak are that SSM operators are hesitant to partner with bigger mining companies, and that they prefer to high fewer full-time workers instead of part-time ones which would be more needed in a country as labor-intensive as the Philippines.

An opportunity that is available to this sector is their adoption of processes that are environmentally friendly, ergo, contributing to their own share toward Zero Waste mines. It also has the opportune occasion to prioritize the welfare of its workers particularly when it comes to their financial stability³²². SSM operators are also keen on having efficient and less labor-intensive equipment not with the intention of having fewer workers but to promote their health and safety³²³. Threats to this sector is its pessimistic mindset that its operations will neither expand nor sales volume will increase remarkably in the future³²⁴. During the pandemic, this sector was threatened when lockdowns resulted in their on-and-off operations.

VII. CONCLUSION

³²² Op. cit. (91)

³²³ Ibid.

³²⁴ Ibid.

Many factors, in and out of the Philippines, have been at play that can affect the future trajectories of the extractive industry in general and its sectors in particular. In most aspects, historical gains from the year 2000 were reversed in 2020 with the onset of the COVID-19 pandemic. But quantitative data suggest that these companies are recovering quickly and steadily. Qualitative information is also suggestive of their optimistic prospects. On top of some favorable government legislation and advantageous changes in the global economy, the environment is rife for recent losses to be recouped and pre-pandemic growth to resume, if not expand much more, post-pandemic.

A. RECENT DEVELOPMENTS

Inasmuch as this chapter covers FY 2019, there have been some headways in the years that followed which have a direct and critical bearing on the industry and its sectors' outlook. This section takes a closer look at them each from a political and economic perspective. The former is an examination of recent government policies that have a considerable effect on MAQ while the latter concentrates on anticipated changes in the global economy that have a direct bearing on select extractive sectors.

1. POLITICAL

Since the start of the millennium, the extractive industry has undergone major expansion bringing with it the need for better governance. Specific policy and regulatory measures are to support local entrepreneurship³²⁵ as well as to encourage foreign investment in its sectors³²⁶; henceforth, a ban on new entrants does not bode well for the economy. Another is to heavily tax these companies at the expense of their growth³²⁷. So therein lies the right mix of government policies that should ideally result in a win-win outcome for both parties.

a. EO 130

With specific regard to mining, President Duterte finally passed Executive Order (EO) No. 130, EO 130 for short, lifting a moratorium of nine years on new mineral agreements which he signed last 14 April 2021³²⁸. This opened previously prohibited areas by virtue of former President Aquino III's EO No. 79 dated 6 July 2012 which is in accordance with one of the

³²⁵ Op. cit. (112), page 33.

³²⁶ "Countries Seek Greater Development Gains From Foreign Direct Investment in Extractive Industries," *United Nations Conference on Trade and Development (UNCTAD)* at <https://unctad.org/press-material/countries-seek-greater-development-gains-foreign-investment-extractive-industries>, posted 16 October 2007.

³²⁷ "United Nations Handbook on Selected Issues for Taxation of the Extractive Industries by Developing Countries," *UN* at https://www.un.org/esa/ffd/wp-content/uploads/2018/05/Extractives-Handbook_2017.pdf (page 3), posted 3 April 2019.

³²⁸ Kyle Aristophere T. Atienza, "Moratorium on Mining Projects Lifted," *Business World* at <https://www.bworldonline.com/moratorium-on-mining-projects-lifted>, posted 16 April 2021.

provisions of the Philippine constitution wherein the state shall protect and advance the right of the Filipino people to a balanced and healthful ecology³²⁹.

The Duterte administration, in the second year of the pandemic, has deemed the mining sector to be an opportunity to support various government projects with the additional tax collection and to usher in significant economic benefits to the country that includes the stimulation of countryside development with the increase in employment³³⁰. In shorter words, EO 130 aims to generate more revenues from future mine operations in view of the already two-fold increase in the excise tax rate to 4 percent and the fact that the country has, to date, only tapped less than 5 percent of its mineral resources endowment³³¹.

Prior to the said EO, a total of 309 permits were issued by MGB all over the country³³². Presently, around 100 mining projects are still in the pipeline and 35 of which are likely to be approved³³³. Based on conservative estimates with official 2020 data as the baseline, mineral production can grow by 15 billion every year until 2023 and up to 43 billion PHP more annually until 2027. Corresponding increases in the mining sector's GVA as well as taxes and fees paid are 114 and 28 billion PHP per year in the short term; and 135 and 34 billion PHP in the long run, respectively. Exports are also expected to increase within one to three years to 5.8 billion and within four to seven years to 6.9 billion USD. The same thing goes with employment as it is projected to rise by up to 243,547 toward the end of this decade. Chart 47 lays out these aforementioned effects.

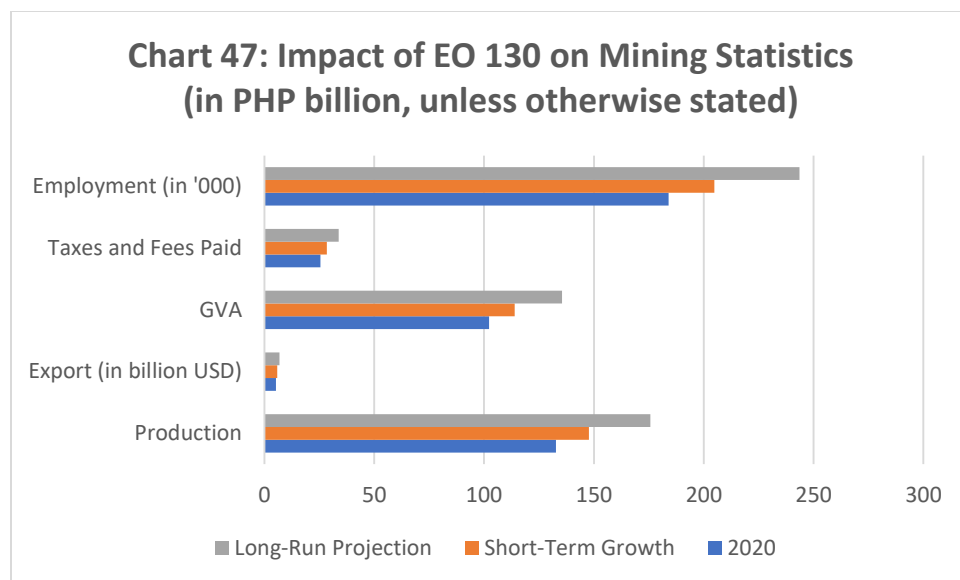
³²⁹ "Executive Order No. 79: Institutionalizing and Implementing Reforms in the Philippine Mining Sector Providing Policies and Guidelines to Ensure Environmental Protection and Responsible Mining in the Utilization of Mineral Resources," *Official Gazette of the Republic of the Philippines* at <https://www.officialgazette.gov.ph/2012/07/06/executive-order-no-79-s-2012/>, accessed 23 June 2021.

³³⁰ "Management's Discussion and Analysis for the Three Months Ended March 31, 2021 and 2020," *TVI Pacific* at http://s1.q4cdn.com/531881216/files/doc_financials/2021/q1/TVI-MDA-Q1-2021-FINAL.pdf (page 23), posted 31 March 2021.

³³¹ "Executive Order No. 130: Amending Section 4 of Executive Order No. 79, S. 2012, Institutionalizing and Implementing Reforms in the Philippine Mining Sector, Providing Policies and Guidelines to Ensure Environmental Protection and Responsible Mining in the Utilization of Mineral Resources," *Official Gazette of the Republic of the Philippines* at <https://www.officialgazette.gov.ph/2021/04/14/executive-order-no-130-s-2021/>, accessed 23 June 2021.

³³² Karl R. Ocampo, "Lifting of Ban on Open-Pit Mining Seen," *Philippine Daily Inquirer* at <https://business.inquirer.net/324392/lifting-of-ban-on-open-pit-mining-seen>, posted 8 June 2021.

³³³ *Ibid.*



In addition, MGB is optimistic that the SSM sector will also benefit from the lifting of the said mining moratorium. With the “Minahang Bayan” program being complemented by its “Big Brother, Small Brother” initiative, the issuance of new permits to large-scale mining companies will forge more partnerships with existing and new artisanal operators³³⁴. This allows the latter to use the services of the former, thus, guaranteeing greater output for both parties with more licenses issued.

Pursuant to EO 130 is the drafting and execution of its implementing rules and regulations (IRR) that also includes the lifting of the four-year ban on open-pit mining which was imposed by former DENR Secretary Regina Lopez last 27 April 2017³³⁵. Billions of dollars more are ensuingly anticipated to flow from the mining sector as this will allow two mines to resume their operations, namely, Sagittarius Mine Inc. and St. Augustine Gold and Copper Ltd³³⁶. The former has a 5.9 billion-USD project in Tampakan, South Cotabato which is believed to be the largest undeveloped copper-gold resource in Southeast Asia³³⁷. This site is estimated to hold about 2.9 billion tons of resources, graded at an average 0.51 percent copper and 0.19 g/t gold and touted to produce an average of 375,000 tons per annum of copper and 360,000 yearly ounces of gold over its 17-year mine life³³⁸.

³³⁴ Mineral Economics, Information and Publication Division; “MGB on the Lifting of Moratorium on Mineral Agreements,” MGB at <https://mgb.gov.ph/2015-05-13-02-02-11/mgb-news/965-mgb-on-the-lifting-of-moratorium-on-mineral-agreements>, posted 26 April 2021.

³³⁵ Keith Schneider, “Philippines Bans New Open-Pit Metal Mines,” *Mongabay* at <https://news.mongabay.com/2017/04/philippines-bans-new-open-pit-metal-mines/>, posted 28 April 2017.

³³⁶ Op. cit. (334)

³³⁷ “Tampakan Gold Copper Project,” *Mining Technology* at <https://www.mining-technology.com/projects/tapakangoldcopperpr/>, accessed 23 June 2021.

³³⁸ Ibid.

The other project boasts an area valued at 2 billion USD in King-King, Compostela Valley³³⁹. With a mine life of 22 years, St. Augustine's proposed pit will annually produce, on average, 138 million pounds of copper as well as 236,000 and 507,000 ounces of gold and silver, respectively³⁴⁰. There is also the one in Silangan, Surigao del Norte by Philex Mining Corporation wherein it can revert to its open mode of extraction³⁴¹. Its high-grade copper and gold ores are valued at 1.1 billion USD and is forecasted to produce up to 4 million tons of them every year until 2023³⁴².

b. CREATE

It was on 26 March 2021 when President Duterte signed into law RA No. 11534³⁴³ or the Corporate Recovery and Tax Incentives for Enterprises Act, otherwise known as CREATE. This law amends the National Internal Revenue Code of 1997 with salient provisions such as reducing the corporate income tax (CIT) from 30 to 25 percent beginning on 1 July 2020; lowering the minimum CIT from 2 to 1 percent during the period of the said date until 30 June 2023; and providing incentives for critical exporters such as an income tax holiday of four to seven years, followed by a special corporate income tax of 5 percent based on gross income earned or enhanced deductions for 10 years.

With regard to CREATE's 5-percent reduction in CIT, the law further stipulates a much lower rate of only 20 percent for corporations whose net income and total assets do not exceed 5 million and 100 million PHP³⁴⁴, respectively. Such decreases in corporate tax rates are especially pertinent considering the ongoing pandemic. The previous 30-percent was standard across all companies and was a burden to micro, small, and medium enterprises, or MSME, that

³³⁹ Op. cit. (332)

³⁴⁰ "The King-King Copper-Gold Project: Highlights of Project Economics and Key Parameters," *St. Augustine Gold & Copper* at <https://www.sagcmining.com/project/the-king-king-copper-gold-project/>, accessed 23 June 2021.

³⁴¹ Op. cit. (335)

And to continue its operations despite the open-pit mining ban, Philex has been using the underground method to extract these commodities from its mine. From Louise Maureen Simeon, "Philex to Proceed with Silangan Project via Underground Route," *The Philippine Star* in Philex Mining Corporation at <http://www.philexmining.com.ph/2019/03/23/philex-to-proceed-with-silangan-project-via-underground-route/>, posted 24 March 2019.

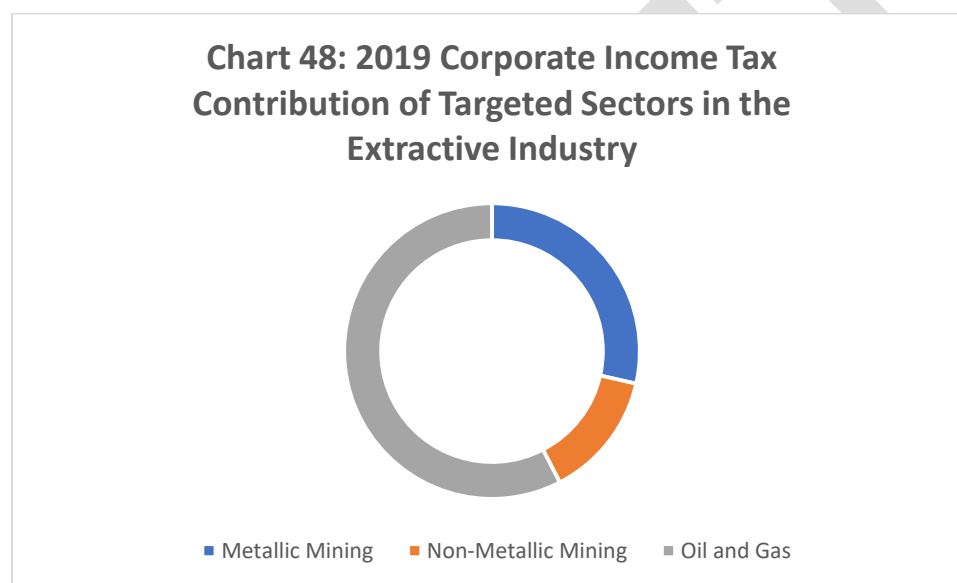
³⁴² "Philippines' Philex Sees 4 MT/Year Copper-Gold Ore from Silangan by 2023," *Reuters* at <https://www.reuters.com/article/philex-mining-copper-idAFL4N27U1GQ>, posted 14 November 2019.

³⁴³ "Republic Act No. 11534: An Act Reforming the Corporate Income Tax and Incentives System, Amending for the Purpose Sections 20, 22, 25, 27, 28, 29, 34, 40, 57, 109, 116, 204 and 290 of the National Internal Revenue Code of 1997, as Amended, and Creating Therein New Title XIII, and for Other Purposes," in *BIR* at https://www.bir.gov.ph/images/bir_files/internal_communications_2/RMCs/2021%20RMCs/RMC%20No.%2042-2021%20RA%20No.%2011534.pdf, accessed 6 July 2021.

³⁴⁴ Excluding land where the business is situated. From Ronald Bernas and Kristine Anne Mercado-Tamayo, "Philippines: Corporate Recover (sic) and Tax Incentives for Enterprises (CREATE) Act Passed into Law," in *Global Compliance News* at <https://www.globalcompliancencnews.com/2021/05/07/philippines-corporate-recovery-and-tax-incentives-for-enterprises-create-act-passed-into-law-08042020/>, posted 7 May 2021.

are still dealing with COVID-19's undesirable impact³⁴⁵. In fact, the Philippines had the highest tax rate on a company's income in southeast Asia with a regional average of only 22 percent³⁴⁶. Pre-pandemic, the relatively higher amount of taxes that local businesses were paying were, for all intents and purposes, preventing them to expand, grow, and compete with their counterparts in the region³⁴⁷.

Using preliminary data³⁴⁸, the total CIT of the extractive industry in FY 2019 was 11.5 billion PHP, ex-coal. This number is the aggregate of the above national payments from the targeted 52 metallic mining companies, 23 non-metallic, and 5 oil and gas. A look at Chart 48 reveals the latter had the biggest contribution with 6.6 billion PHP and the least were from non-metals companies with only 1.6. Had CREATE been implemented during this fiscal year with these enterprises only paying 20 percent as CIT, it could have saved them 3.8 billion PHP.



This 10-percent savings could have been used by the extractive industry to further fund their operations and retain employees. The amount that they can save annually can be invested in the revitalization of their business and to create additional jobs for Filipino workers, which reflects the government's resolve to vigorously fight against COVID-19 and get businesses back on their feet as quickly as possible³⁴⁹. Because of the limited availability of disaggregated CIT data that only date back from 2012 as well as incomplete figures as not all extractive companies

³⁴⁵ "Package 2: Corporate Recovery and Tax Incentives for Enterprises (CREATE) Act," in *Department of Finance (DOF)* at <https://taxreform.dof.gov.ph/tax-reform-packages/p2-corporate-recovery-and-tax-incentives-for-enterprises-act/>, accessed 6 July 2021.

³⁴⁶ Singapore has the lowest at 17 percent, and Myanmar the highest at 25. From Daniel Teo, "Tax Rates in South East (sic) Asia: Philippines Has Highest Tax," *HRM Asia* at <https://hrmasia.com/tax-rates-in-south-east-asia-philippines-has-highest-tax/>, posted 3 January 2020.

³⁴⁷ Op. cit. (345)

³⁴⁸ Taken from Chapter 2: Reconciliation Report.

³⁴⁹ Op. cit. (345)

voluntarily report their fiscal payments, projected numbers even in the short-term are not possible to generate.

As previously stated, other provisions³⁵⁰ of this newly enacted law that might benefit the extractive companies is incentivizing critical exporters by giving them an income tax holiday of four to seven years, depending on the business' location and industry priorities. This is followed either by a special CIT rate of only 5 percent based on gross income earned or enhanced deductions for 10 years. They will also be granted duty and VAT exemption on importations as well as VAT-zero rating on local purchases.

In addition, companies that produce critical exports will have enhanced deductions, namely, an additional 10 and 20 percent for buildings and machineries, respectively; equipment depreciation allowances of the assets acquired for the production of goods; an added 50 percent on labor, domestic input, as well as power expenses; and 100 percent on expenditures on research and development as well as training. They will also be given a net operating loss carry-over in which the amount lost in a registered project or activity during the first three years from the start of commercial operations may be carried over as a deduction within the next five consecutive taxable years immediately following the year of such loss.

As of current writing, CREATE's IRR have yet to be defined so assuming that exports of the extractive sectors are considered critical, these companies will definitely stand to gain from these aforementioned incentives. To reiterate from the first chapter of this annual report, the export of minerals, mineral products, and non-metallic mineral manufactures amounted to about 4.9 billion PHP or 7 percent of the country's total exports. The ensuing passage of this law allows for savings for these exporting companies that can be spent toward greater production and possible expansion.

2. ECONOMIC

The extractive industry in the Philippines is not isolated from the rest of the international economy. As previously discussed, the prices of its commodities are driven by global supply as well as demand factors and they are either imported, exported, or both. Any change outside the country instantly affects the dynamics within³⁵¹. The world coming out of this prevailing pandemic and transitioning to the usage of EV's are two of the most remarkable changes that can significantly impact the future of MAQ in the country.

a. COVID-19 Recovery and Gold

³⁵⁰ Op. cit. (344)

³⁵¹ Paul Stevens, et al.; *Conflict and Coexistence in the Extractive Industries* (London: Chatham House, 2013), page vii.

Despite the pandemic and contrary to most commodities whose prices went down, the price of gold increased by 27 percent in 2020 to 1,774 USD per ounce³⁵². In fact, it was the highest increase from 2012³⁵³. This was chiefly demand-driven on the heels of a perceived need for a safe haven in a financially insecure environment and in the event of an economic recovery. Gold, as with other precious metals, is considered a very liquid asset which is mainly attributable to its low bid-ask spread, so buyers can easily resell them usually at a profit³⁵⁴. Investors are also keen on buying this precious metal³⁵⁵ as it assures them with diversification and downside protection. Historically, the price of gold has been stable versus other assets' giving one's investment added security.

Nevertheless, this more-than-a-quarter increase in the price of gold is anticipated to not be sustainable in the both the short- and long-terms. Price increases will be moderated by a subsequent rise in supply post-pandemic. As governments ease their COVID-19 restrictions notably in Argentina, Canada, Mexico, Peru, South Africa; production output is expected to resume after the temporarily imposed closure of their gold mines³⁵⁶. For some other operations that slowed down predominantly caused by the inability to transport specialist personnel, the reopening of transportation will allow them to produce more of this mineral than before³⁵⁷.

Conservative estimates of the price of gold beyond 2020³⁵⁸ in the short run give it an AAGR of 11 percent based on historical data from 2005. From 445 USD per ounce during that year, it remarkably rose to 1,774 in 2020. As such, the forecast is for this mineral to cost 2,406 USD per ounce in 2023. Gold price's 16-year CAGR of 9 percent was the basis for its price expectation being 3,559 USD in 2027.

In terms of gold exports, data from BSP³⁵⁹ also as far back as 2005 show that they were valued at 71 million USD. Within a period of 16 years until 2020, they substantially grew to 1.2 billion USD with average and compounded growth rates of 39 and 20 percent, respectively. Taking into account the price of gold that year, the Philippines exported 692,921 ounces of this commodity. And since there were 11 gold mines in operation³⁶⁰, a straightforward assumption

³⁵² "Gold Prices - Historical Annual Data," *Macrotrends* at <https://www.macrotrends.net/1333/historical-gold-prices-100-year-chart>, accessed 28 June 2021.

³⁵³ Ibid.

³⁵⁴ "Gold as an Investment and the Liquidity in the Market," *J. Rotbart & Co.* at <https://www.jrotbart.com/gold-liquidity-market/>, accessed 29 June 2021.

³⁵⁵ Ibid.

³⁵⁶ Ken Hoffman and Gabriel Motta, "COVID-19's Impact on the Global Gold Industry: Implications for the Next Normal," *McKinsey & Company* at <https://www.mckinsey.com/industries/metals-and-mining/our-insights/COVID-19s-impact-on-the-global-gold-industry-implications-for-the-next-normal-and-beyond>, posted 21 September 2020.

³⁵⁷ Ibid.

³⁵⁸ Op. cit. (352)

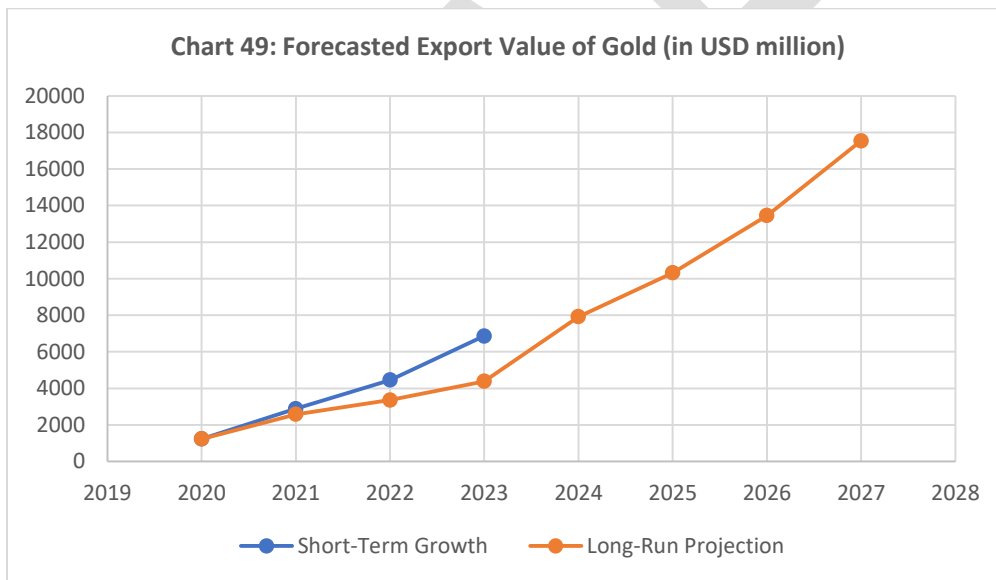
³⁵⁹ "Statistics - External Accounts: Balance of Payments BPM6 Format, New Concept - Net Goods," *BSP* at <https://www.bsp.gov.ph/SitePages/Statistics/External.aspx?TabId=1>, accessed 28 June 2021.

³⁶⁰ Op. cit. (31)

is that each mine produced 62,993 ounces which is equivalent to 1,959 kilos³⁶¹ worth of these precious exports.

Ceteris paribus, the Philippines will export 58 metric tons (MT)³⁶² of gold in 2024 and up to 75 MT in 2027. With the implementation of EO 130, these figures will even be higher alongside the proceeding assumptions. Based on statistics from MGB³⁶³, gold mines accounted for 22 percent of the 50 metallic ones in 2020; hence, it is assumed that, out of the new operations that will soon be allowed due to the lifting of the mining moratorium, eight will be producing gold in the short-term. From 2024 when the rest of the 65 mines are deemed for approval, there will be 14 more of them.

In other words, the export of gold will increase by an average of 23 MT every year to 89 MT until 2023. In the long run, the estimate is that it will go up to 168 MT four years forward when, assumingly, there will already be a total of 33 gold mines in operation. The forecasted export values of gold from the Philippines with 2020 as the baseline are highlighted in Chart 49. In the short term, this amount will increase by as much as 5.6 times in 2023. And it is conservatively calculated to reach up to 18 billion USD in 2027.



b. The EV Market and Nickel

In contrast to the hesitancy of Filipinos in the Philippines to switch from conventional fossil fuel vehicles to EV's, the production of global electric cars has had a dramatic increase in the span of

³⁶¹ One ounce=32.15 kilos. From "Gold Weight Converter," *US Gold Bureau* at <https://www.usgoldbureau.com>, accessed 28 June 2021.

³⁶² *Ibid.*

One metric ton=1,000 kilos.

³⁶³ *Op. cit.* (31)

a decade³⁶⁴. In 2020, it surpassed the 10 million mark which was a stunning 43 percent increase the year before. What was much more remarkable was their sales that had a YOY rise of 70 percent. Majority of consumers were from Europe with 1.4 million new electric car registrations, followed by China with 1.2 million, and then the US with 295,000. South Korea and Canada were not far behind. All in all, sales of this type of vehicle were a record 4.6 percent of total car purchases.

There were many factors that contributed to these heightened sales of EV³⁶⁵. One was stronger activity during the second half of 2020 when much of the world was starting to adjust to the pandemic by buying battery-powered two- and three-wheeled vehicles. Another is that electric cars have been gradually becoming more affordable relative to conventional ones specifically given several governments providing producers with fiscal incentives if not extending them. Others are the private sector demanding zero-emission commercial vehicles, original equipment manufacturers embracing electric mobility more widely, and governments introducing new or additional legislation to promote EV use.

With greater demand for EV's comes greater demand for batteries to power them. Lithium-ion (Li-ion) powers much of these said vehicles, and nickel is making a remarkable contribution to this type of battery³⁶⁶. Two of the most commonly-used kinds of li-ion are nickel cobalt aluminum (NCA) and nickel manganese cobalt (NMC) which are made up of 80 and 33 percent of nickel, respectively. Newer formulations of the latter are being developed which are approaching 80 percent utilization of this mineral. Both NCA and NMC are rechargeable energy sources that offer greater power density and storage at a lower cost so they deliver a longer range of distance for electric cars.

The global EV market is expected to be valued at 803 billion USD, annually growing at a compounded rate of a little more than 19 percent³⁶⁷. It was in 2012 when the Philippines started to export nickel with an FOB value of only 1,485 USD³⁶⁸. With PSA as the source of information, exports of this commodity continued intermittently in 2013, 2017, and 2019³⁶⁹; and with these data gaps, available metrics on exporting nickel mattes, nickel oxide sinters, and

³⁶⁴ "Trends and Developments in Electric Vehicle Markets," *International Energy Agency (IEA)* at <https://www.iea.org/reports/global-ev-outlook-2021/trends-and-developments-in-electric-vehicle-markets>, posted 29 April 2021.

³⁶⁵ Ibid.

³⁶⁶ "Nickel in Batteries," *Nickel Institute* at <https://nickelinstitute.org/about-nickel/nickel-in-batteries/>, accessed 29 June 2021.

³⁶⁷ "Electric Vehicle Market," *Allied Market Research* at <https://www.alliedmarketresearch.com/electric-vehicle-market>, accessed 29 June 2021.

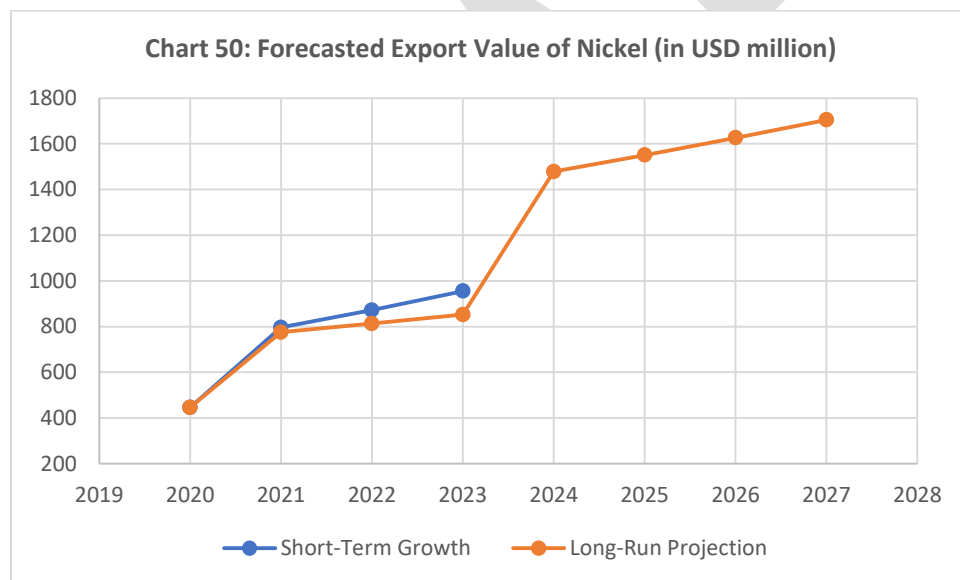
³⁶⁸ Op. cit. (102), "Philippine Exports by Commodity Group (GRT), 2011-2017"

³⁶⁹ Ibid.

other intermediate products of nickel metallurgy during a seven-year period have been utilized in the computations for this section³⁷⁰.

The country exported 14 million USD worth of these goods in 2013 which considerably increased by 306 million or by 22 percent the year after, due to a quarter-fold rise in the production volume of nickel in 2014³⁷¹. From then until 2020, mean nickel³⁷² exports only increased by 21 million USD every year. With the foregoing, both the average and compounded annual growth rates from 2014 to 2020 have been used in the forecasts.

In these seven years, the AAGR and CAGR of nickel exports are 9.5 and 4.9 percent, respectively. Using these figures³⁷³, the short-term forecast for 2023 is for these commodities from the Philippines to reach an amount of 586 million USD. In the long-term, this metric is conservatively expected to rise to 622 million USD in 2027. The preceding is based on the first assumption that, as per MGB statistics that 29 out of the 50 metallic mines produced nickel in 2020³⁷⁴, each nickel mine exported an output that amounted to 15 million USD. The second and third assumptions are that, as per EO 130's impact, 21 nickel mines are soon to get approval and start operating in 2021 while the remaining 37 will begin their operations in 2024. Chart 50 is a visual representation of these forecasts.



³⁷⁰ "Annual International Trade Statistics by Country: Philippines," *Trend Economy* at <https://trendeconomy.com/data/h2/Philippines/7501>, accessed 29 June 2021.

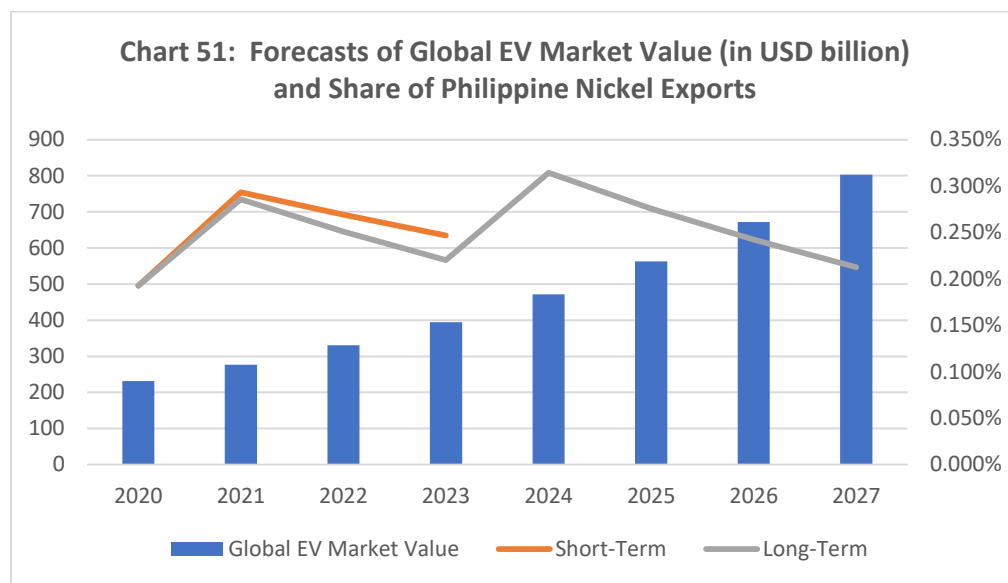
³⁷¹ 328,285 MT in 2013 vis-à-vis 409,131 in 2014. From "Philippines Nickel Ore Production, 1998-2020," MGB at https://mgb.gov.ph/images/Philippine_Metallic_Mineral_Production/PHILIPPINES_NICKEL_ORE_PRODUCTION_1998-2020.pdf, accessed 29 June 2021.

³⁷² Hereinafter referring to nickel mattes, nickel oxide sinters, and other intermediate products of nickel metallurgy.

³⁷³ The computation here is relatively straightforward as, unlike with gold, there are no annual prices of each of these nickel commodities available.

³⁷⁴ Op. cit. (31)

As Chart 51 indicates, Philippine nickel exports only comprised 0.19 percent of the global EV market value in 2020. Given the latter’s higher projected CAGR, the former’s short- and long-term shares of 0.27 and 0.31 percent in the worldwide sales of these rechargeable vehicles are expected to peak in 2021 and 2024, respectively. However, with the world’s No. 1 nickel producer Indonesia³⁷⁵ banning its exports of nickel toward developing a full supply chain of this particular commodity³⁷⁶, the Philippines has the opportunity to extract more nickel than forecasted for further export to the countries that have a growing demand for it.



B. SUMMARY AND RECOMMENDATIONS

This chapter is an outlook report that has started off with a description of the extractive industry as the sum of its parts which are the oil and gas, coal, metallic, non-metallic, and SSM sectors; and has eventually taken into account both intrinsic and extrinsic factors that determine possible trajectories of these enterprises in the context of local, regional, and global economies. But the preceding quantitative and qualitative analyses also beg to have a prescription. Thus, this section gives a summary of these findings on MAQ and provides suggestions moving forward.

1. On the Past, Present, and Future

Before COVID-19, the extractive industry was on a path of expansion and growth. Every year from 2000 until 2019, its GVA was growing at an average rate of 12 percent per annum. Its

³⁷⁵ Indonesia’s mines produced approximately 760,000 MT of nickel in 2020, much more than twice of the Philippines’ 334,000. From M. Garside, “Nickel Production in Major Countries 2010-2020,” *Statista* at <https://www.statista.com/statistics/264642/nickel-mine-production-by-country/>, posted 16 February 2021.

³⁷⁶ This is starting with nickel extraction, to processing it into metals and chemicals used in batteries, then all the way to building Indonesia’s own electric vehicles. From “Indonesia Nickel Ore Export Ban to Remain - Mining Industry Director,” *Reuters* at <https://www.reuters.com/article/indonesia-mining-idUSL4N2DH17Q>, posted 4 June 2020.

greatest driver was the oil and gas sector with a 20-year CAGR of 26 percent. As a component of Industry and GDP, MAQ comprised, on average, 3.3 and 1.1 percent, respectively, during the same period. Its major export, petroleum, was increasing at 10 percent annually. These and most other metrics were projected to increase steadily in the coming years.

But then 2020 came and along with it was the COVID-19 pandemic. Beginning in Q2 of the said year, President Duterte imposed a nationwide lockdown that limited, if not restricted, economic activity to ensure the health and safety of more than a hundred million Filipinos. Along with it was the contraction of the extractive industry. Its supposedly positive growth trends were, in reality, reversed. The industry's GVA in the said year fell by 16 percent. As a percentage of Industry and GDP, MAQ was down to 2.7 and 0.8 percent, respectively. Exports of major commodities, namely, copper concentrates, petroleum products, chromium ore and gold also dropped by as much as 71 percent YOY.

Peri-pandemic, SPEX³⁷⁷ is pleased to share its reply in one of the queries emailed to the company that it has managed to continue its operations despite this outbreak. Post-pandemic, it mentioned that it will contemplate on quite a number of learning points which are, for example, health protocols, business continuity planning, strategies on people movement, and logistics. Coupling this with a continued focus on emerging health and safety guidelines by the government and other worldwide agencies, it now has a better footing on dealing with another virus similar to COVID-19.

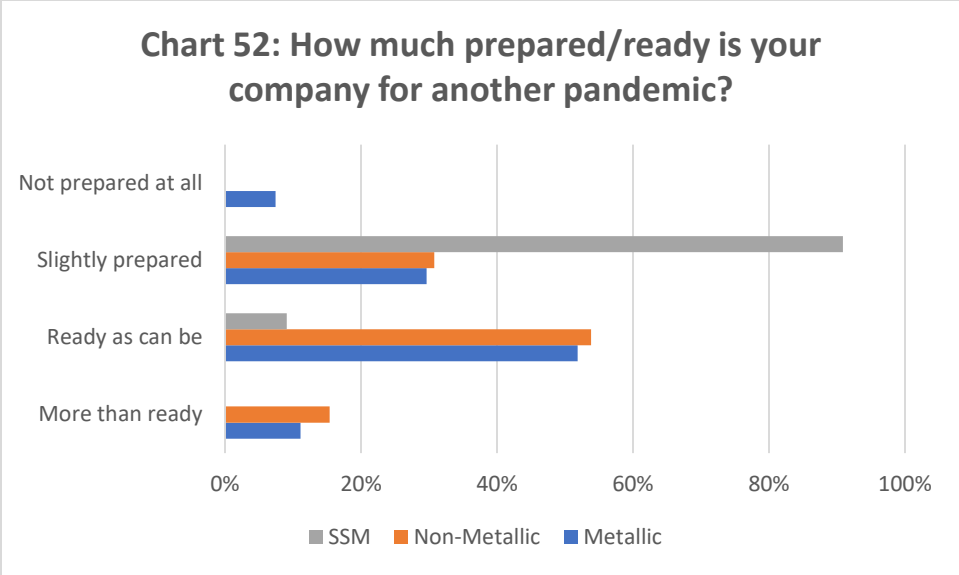
As for PNOEC-EC³⁷⁸, the company has implemented policies to adapt to the New Normal. In case of a future pandemic, it is still evaluating some of the policies and personnel requirements affected by this health crisis. Its lessons learned from the experience in 2020 will be valuable inputs for the continued refinements of such procedures in the present and for the preparation of safeguards for everyone's safety and wellness in the future.

The metallic, non-metallic mining, and SSM sectors are as prepared, if not more, after COVID-19, as provided by Chart 52 from their answers to the qualitative surveys³⁷⁹. More than half of the first two are readier than ever for the next pandemic. Around a third of them are slightly ready, and the same goes for 9 out of 10 small-scale operators. The exception to such preparedness are 7 percent of metals companies who admitted to not being ready at all.

³⁷⁷ Op. cit. (86)

³⁷⁸ Ibid.

³⁷⁹ Op. cit. (156)



Ex-pandemic, future prospects for the extractive industry remain bright. Internally, its various sectors have adopted and plan to invest in advanced technologies that will not only make their operations run smoother but also promote the physical well-being of their workers. They have also started practicing, or at least thinking about, decarbonization; as well as the implementation of Zero Waste in their day-to-day processes. For the oil, gas, and coal sectors, there is the potential for more output with the exploration and drilling of new fields; and for metallic mining, there is the possibility of greater value addition with the extraction of REE from its present production which will be much more profitable. Externally, greater state regulation like the imposition of higher excise taxes might curtail the upward trajectory of the industry in general as well as the oil and gas, coal, metallic mining, non-metallic mining, and SSM sectors in particular. On the surface, this can be seen as detrimental to these companies by narrowing their profit margins; but the bigger picture is that such taxation considers the underlying pursuit of equitable shares in revenues derived from resource utilization.

Recent changes followed suit after 2019 notably with the implementation of laws that were meant to foster development in the extractive industry. First was EO 130 that essentially lifted the mining moratorium that hindered growth in the mining sector for almost a decade. The entrance of new producers can contribute a lot to employment and state revenues for the country. Second is the CREATE law that basically lowers CIT, thereby, allowing these companies to reinvest their profits to expand their production, ergo, hire more workers and spend more on capital expenditures. As the Philippines revives from the pandemic, so do other countries that MAQ depends on in reference to exports. The increasing worldwide demand for gold both as a liquid resource as well as a profitable investment and for nickel in the production of EV's are encouraging for the future earnings distinctively of the mining sector.

But there should never be room for complacency. The invisible hand needs to be guided accordingly and continuously with state regulation that is enabling rather than incapacitating.

The extractive industry in the Philippines is an insignificant contributor to GDP compared with countries such as Indonesia where the share of MAQ in 2016 alone was about 7 percent³⁸⁰. Hence, the government must promote an environment for the oil and gas, coal, metallic mining, non-metallic mining, and SSM sectors to thrive. Public-private partnerships should be enhanced in which both parties can, for instance, share expertise in the exploration and extraction of reserves for greater production. This will have a multiplier effect in terms of higher employment and additional payments to the state.

With respect to taxation, higher taxes may mean greater revenues but this may not be sustainable as they restrict the expansion of the private sector. In the long run, a wider tax base in which there are more companies with increased sales is a steadier source of income for the government. The lower CIT rate in CREATE is a step in the right direction and another one can be made by reverting, if not reducing, TRAIN's excise tax to 2 percent. There is also much potential from the exports of commodities by the extractive industry. It will not be an added burden on the part of the government if diplomatic efforts also included finding more export markets and even promoting the overseas recruitment of Filipino professionals and skilled workers for them to be employed in MAQ's various sectors around the world.

Regarding the pandemic, it has exposed certain weaknesses in the extractive industry itself and in the present system of public governance. During the lockdown, the physical submission and processing of paperwork was a big problem causing unnecessary delays in the companies' usual operations. Thereby, digitalization is key to making these processes resilient and efficient, pre- and post-pandemic. Funds also had to be either reallocated, produced, or both to address the expenses brought about by COVID-19. Learning from experience, these companies and the government themselves should specifically not only set up an interest-earning pandemic fund but also come up with a comprehensive recovery plan for future emergencies and crises. Moreover, it would help if each employee would have their own mandatory health insurance coverage co-paid by the individual, employee, and state.

Finally, all entities, be it the various sectors of the extractive industry, the different agencies as well as departments of the Philippine government, and even the LGU's, should work hand-in-hand in anticipating trends for MAQ to maximize the benefits of having this first-mover advantage. For example, the global push toward decarbonization has to entail finding alternatives to utilize petroleum and process coal. Existing gasoline refueling stations and coal power plants need to be reconfigured as respective battery charging stations and REE extraction centers. In addition, the forecasted pick-up in the demand for gold and nickel necessitates those involved to look for ways to further production and start further exploration of these commodities. Contracts with importers from different countries must also already be secured as early as possible.

³⁸⁰ "GDP From Mining and Quarrying Indonesia 2014-2020," *Statista* at <https://www.statista.com/statistics/1018534/indonesia-gdp-mining-and-quarrying/>, posted 19 July 2021.

Little things also matter such as having all enterprises in the extractive industry become a part of PH-EITI. If the participation of only a minority of the oil, gas, and coal; as well as around half of metallic and non-metallic mining companies, in this chapter's qualitative surveys is an indication, then there is still room for inclusion for those who chose not to participate. Rewarding members with incentives, as opposed to penalizing them, should be the way forward to ensure everyone's cooperation. Moreover, a system for harmonizing information has to be put in place to avoid divergences in and the redundant collection of government data between agencies and departments. EITI is, therefore, both integral and central to synergizing these aforementioned actions so that no endeavors are wasted. This is where such an international initiative can come in to coordinate, guide, and even benchmark with other country members these collective efforts to promote the open, accountable, and inclusive management of natural resources.

B. On SDMP

In relation to the pandemic that is still ongoing beyond this chapter's fiscal year, there have been major realignments of the mining sectors of the extractive industry's Social Development and Management Program (SDMP) toward addressing the consequences of COVID-19. It was on 21 December 2000 when DENR issued an administrative order that indicated the IRR of SDMP for mining projects³⁸¹. The program refers to the comprehensive five-year plan of operators to sustainably improve the living standards of their host and neighboring communities by making them responsible, self-reliant, and resource-based³⁸².

On 27 March 2020, MGB issued a memorandum authorizing all its regional offices to allow mining companies to realign their unutilized funds of SDMP from 2019 to assist the said communities as well as the non-impact barangays in their respective localities during this COVID-19 pandemic³⁸³. More than four months later, a total of 408 million PHP was realigned toward such efforts with 93 percent of it utilized to benefit a total of 297,491 individuals and 1.1 million households³⁸⁴.

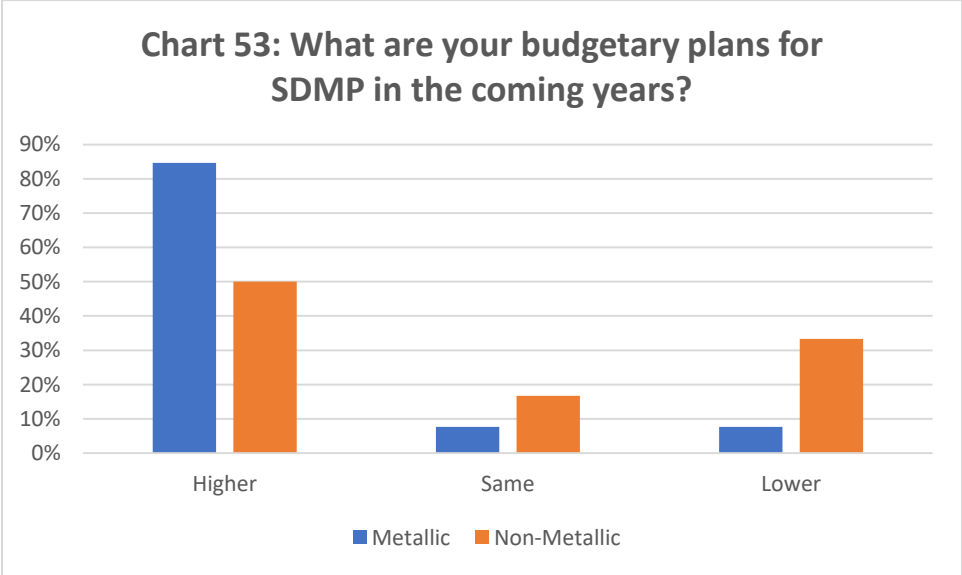
³⁸¹ "DENR Administrative Order No. 2000-99: Amendments to Sections 134-136 of DAO No. 96-40, the Revised Implementing Rules and Regulations of Republic Act No. 7492, Otherwise Known as the 'Philippine Mining Act of 1995'," *DENR* at <https://www.denr.gov.ph/section-policies/laws.php?page=21&sort=&order=&filter=type&filterID=1&searchword=&fromyear=&frommonth=&fromdate=&toyear=&tomonth=&today=&dateval=>, accessed 24 June 2021.

³⁸² Odinah L. Cuartero and Dulcemina O. Leva, "Mining Companies' Social Development and Management Program (SDMP) and Its Impact to (sic) the Multi-Sector of Carcanmadcarlan" in *International Journal of Asian Social Science (Vol. 4, No. 10)* (East Setauket, New York: Asian Economic and Social Society, 29 October 2014), page 1078.

³⁸³ "Guidelines on the Realignment of Social Development and Management Program Unutilized Funds to Support Affected Impact and Non-Impact Communities due to COVID-19," *MGB* at https://mgb.gov.ph/images/COVID_Advisories/Guidelines_on_SDMP_Realignment_MGB_RO_final.pdf, posted 1 April 2020.

³⁸⁴ "Summary of Accomplishments on the Realignment of Social Development and Management Program Unutilized Funds to Support Affected Impact and Non-Impact Communities due to COVID-19," *MGB* at https://mgb.gov.ph/images/COVID_Advisories/Final_Report_on_SDMP_Realignment.pdf, accessed 24 June 2021.

Proceeding along as Chart 53 features, majority of metallic and half of non-metallic mining companies that responded to this chapter’s said surveys³⁸⁵ see their budget for SDMP growing in the years to come. One out of 10 of these metal enterprises are either planning to cut down on this fund or retain the same amount. This contrasts with 30 and 20 percent of non-metal ones which, respectively, have similar former and latter plans.



With more budget and experience in handling COVID-19 particularly with realigning their SDMP funds toward addressing its dire consequences, most metallic and non-metallic companies are, indeed, either more than or already equipped to handle another viral outbreak. The succeeding and final chapter of this Seventh Report focuses on SDMP not just in response to this pandemic but in this program’s overall impact on its target beneficiaries as well.

³⁸⁵ Op. cit. (69 and 76)

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ACRONYMS

FY – fiscal year

CAGR – compounded annual growth rate

USD – United States dollar

FOB – free on board

QOQ – quarter-on-quarter

EO – Executive Order

PHP – Philippine peso

CREATE – Corporate Recovery and Tax Incentives for Enterprises

EV – electric vehicles

BSP – Bangko Sentral ng Pilipinas

EITI – Extractive Industries Transparency Initiative

PH-EITI – Philippine Extractive Industries Transparency Initiative

SSM – small-scale mining

MAQ – Mining and Quarrying

GDP – Gross Domestic Product

PSA – Philippine Statistics Authority

AAGR – average annual growth rate

YOY – year-on-year

COVID-19 – coronavirus disease 2019

Q2 – second quarter

PSIC – Philippine Standard Industrial Classification

GVA – Gross Value Added

LFS – Labor Force Survey

MGB – Mines and Geosciences Bureau

DOE – Department of Energy

Q1 – first quarter

PNOC – Philippine National Oil Company

PNOC-EC – PNOC Exploration Corporation

SPEX – Shell Philippines Exploration B.V.

USA – United States of America

LGU – local government unit

TRAIN – Tax Reform for Acceleration and Inclusion

SMPC – Semirara Mining and Power Corporation

MMT – million metric tons

RA – Republic Act

IMF – International Monetary Fund

M12 – December

SiO₂ – silicon oxide

M1 – January

OPEC – Organization of Petroleum Exporting Countries

WB – World Bank

US – United States

FRS – Federal Reserve System

SC – service contract

COC – coal operating contract

Q4 – fourth quarter

BIR – Bureau of Internal Revenue

BOC – Bureau of Customs

PPA – Philippine Ports Authority

VAT – value-added tax

MW – megawatts

WHO – World Health Organization

ECQ – enhanced community quarantine

MECQ – modified enhanced community quarantine

GCQ – general community quarantine

MGCQ – modified general enhanced community quarantine

IATF – Inter-Agency Task Force for the Management of Emerging Infectious Diseases

DTI – Department of Trade and Industry

WFH – Work From Home

Q3 – third quarter

IPA – Innovations for Poverty Action

M4 – April

4Ps – Pantawid Pamilya Pilipino Program

NCIP – National Commission on Indigenous Peoples

ICC/IP – Indigenous Cultural Community/Indigenous People

NCR – National Capital Region

LGBTQ+ – lesbian, gay, bisexual, transgender, queer, and others

SEC – Securities and Exchange Commission

ORE – Online Reporting in the Extractives

AI – Artificial Intelligence

IoT – Internet of Things

MTOE – metric tons of oil equivalent

MMB – million barrels of oil

TCF – trillion cubic feet

REE – rare-earth elements

CFA – coal fly ash

HB – House Bill

SB – Senate Bill

SWOT – strengths, weaknesses, opportunities, and threats

EO – Executive Order

IRR – implementing rules and regulations

CIT – corporate income tax

MT – metric tons

Li-ion – lithium-ion

NCA – nickel cobalt aluminum

NMC – nickel manganese cobalt

SDMP – Social Development and Management Program

EIA – Energy Information Administration

PNA – Philippine News Agency

BBC – British Broadcasting Company

USGS – United States Geological Survey

CDC – Centers for Disease Control and Prevention

NMIC – National Minerals Information Center

GAO – General Accounting Office

GIR – Gross International Reserves

FRED – Federal Reserve System Economic Data

PwC – PricewaterhouseCoopers

OECD – Organisation for Economic Co-operation and Development

SCMP – South China Morning Post

CY – calendar year

GRT – Gross Registered Tonnage

DOH – Department of Health

RITM – Research Institute for Tropical Medicine

PE2 – Philippine Energy Efficiency Alliance

SWS – Social Weather Stations

DILG – Department of the Interior and Local Government

CPDG – Council for People's Development and Governance

CSO – Civil Society Organization

DBM – Department of Budget and Management

ICNL – International Center for Not-for-Profit Law

CNN – Cable News Network

DENR – Department of Environment and Natural Resources

DAO – DENR Administrative Order

ILO – International Labour Organization

WEF – World Economic Forum

ECA – Economic Commission for Africa

UNEP – United Nations Environment Programme

UP – University of the Philippines

DOST – Department of Science and Technology

PCIEERD – Philippine Council for Industry, Energy, and Emerging Technology Research and Development

ODI – Overseas Development Institute

UNCTAD – United Nations Conference on Trade and Development

UN – United Nations

DOF – Department of Finance

IEA – International Energy Agency

MPSA – Mineral Production Sharing Agreement

DRAFT

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Chart 50 – Forecasted Export Value of Nickel (in USD million)

Chart 51 – Forecasts of Global EV Market Value (in USD billion) and Share of Philippine Nickel Exports

Chart 52 – How much prepared/ready is your company for another pandemic?

Chart 53 – What are your budgetary plans for SDMP in the coming years?

Table A – Summary Statistics of Select Metallic Commodities

Table B – Summary Statistics of Select Non-Metallic Commodities

Table C – Summary Statistics of Select Commodities

Table D – 2020 Community Quarantine Classifications from March 17

Table E – Allowed Operating Capacities of Select Establishments

Table F – Approved Means of Transportation

Table G – Coal Exports (FOB, in USD)

Table H – Number of Employed MAQ Workers (in '000)

TABLE I – Changes in Gross Revenues

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ANNEX

(Qualitative Surveys – please refer to accompanying file: QUALITATIVE SURVEYS WITH LIST OF TARGETED RESPONDENTS.docx)

(Raw Data and Computations – please refer to accompanying file: RAW DATA, COMPUTATIONS, AND CHARTS.xlsx)

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