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List of Abbreviations

AUD	Australian Dollar
CIT	Corporate Income Tax
EDI	Exploration Development Incentive
EITI	Extractive Industries Transparency Initiative
EU	European Union
EY	Ernst and Young
FATF	Financial Action Task Force
GDP	Gross Domestic Product
GoM	Government of Mongolia
JMEI	Junior Minerals Exploration Incentive
LBM	London Bullion Market
LME	London Metal Exchange
MMHI	Ministry of Mining and Heavy Industry
MMR	Modified Mining Royalty
MNT	Mongolian Togrog
NRGI	Natural Resource Governance Institute
PoM	Parliament of Mongolia
PWC	PricewaterhouseCoopers
SMB	Special Mining Burden
SMT	Special Mining Tax
USD	United States Dollar
VAT	Value Added Tax

I. BACKGROUND

The objective of this report is to compare Mongolia's fiscal regime in the mining sector to other countries and identify its challenges and opportunities. In particular, at the request of the Ministry of Mining and Heavy Industry (MMHI) we will be exploring whether there is a need to use taxation to incentivize the sector, what measures or instruments can be utilized to promote the mining sector and in this regard, what can we learn from the experiences of other countries.

We will be exploring the multitude of different measures and instruments available for the government to promote the mining sector. In particular, tax incentives are not the only instrument available and it should not be seen as the only instrument that is capable of incentivizing the sector. In fact, we will see that depending on the quality of institutions, tax incentives may reduce the benefits to the government. In this case, it is more efficient for the government to implement policies that improve the business environment instead of lowering taxes.

For some countries, their natural resource endowment is a large part of their overall national wealth and a key driver of economic development. However, as natural resources are exhaustible and nonrenewable, maximizing the benefit from natural resources is a crucial concern for stakeholders in the mining sector. In particular, natural resources have several important features that make mining sector taxation a critical issue for many countries. For instance, mining projects can last for decades or longer and require significant sunk costs during the initial period of the project in the form of exploration and construction. Additionally, the mining sector requires expansive technologies and machineries as well as highly skilled technical and managerial human capacity. Due to the immobile aspect of natural resources and the scarcity of the necessary technology and workers, most natural resources are explored and extracted by the private sector through domestic and foreign direct investment. Governments are usually responsible for maximizing the economic benefits of mining projects to the state and local governments as well as to broader communities through its fiscal regimes.

In this report we will discuss two major issues related to the taxation of the mining sector. First, we will explore how governments design the fiscal regimes of the mining sector. Second, we will focus on how countries set royalties. As we know, because of the specific nature of the mining sector, including its exhaustibility, non-renewability and its impact on the environment, the fiscal regime design in this sector can differ from other sectors.

Therefore, in chapter 2, we will first discuss what governments try to accomplish in designing fiscal regimes and what instruments they use to achieve those objectives. Then we will be exploring how countries design their fiscal regimes and how successful they are in achieving their objectives. Based on these discussions, we evaluate Mongolia's fiscal regime. In chapter 3, we will discuss the experiences of countries in setting up and implementing tax incentives and based on these discussions we will evaluate Mongolia's position in light of these international experiences. Finally, Chapter 4 concludes and offers recommendations on how and if mining tax incentives should be utilized in Mongolia.

II. Tax Instruments And Incentives

2.1 Objectives of taxation in the mining sector

The mining sector's fiscal regime can differ significantly from those of other sectors. Following the Natural Resource Governance Institute's (NRGI) definition, we define the fiscal regime of the mining sector as a set of interrelated legal, regulatory and contractual instruments through which the state shares revenues generated by mining projects (NRGI, 2018).

It should be noted that all these instruments are used to achieve common goals. Following the abovementioned report, we can identify the following objectives the government wants to achieve when designing a fiscal regime for the mining sector.

1. Maximizing the economic return to the state from its natural resource endowment

Maximizing the revenue to the state budget from the mining sector is one of the fundamental objectives of the government. One could say that the higher tax rate, the higher the government revenue from its natural resource endowment. Moreover, mining projects have non-monetary gains and many positive externalities to the economy of the host countries, such as human capital development and the transfer of high level skill. These also have a great economic spillover.

However, the higher tax burden can also de-incentivize mining companies from extracting natural resources. In other words, a high tax burden will destroy not only tax revenue from the project but also neglect other gains as well. Thus, the fiscal regime should strike a balance between robust revenue to the state budget on one side and maintaining the incentive for mining companies to invest further on the other side.

The fundamental issue of *time consistency* of taxation should also be considered when discussing incentives for mining companies. Using prospective tax bases for different stages of the mining project could stop mining companies from undertaking projects. As mentioned above, mining companies incur a significant sunk cost in the exploration and design stage of the project and start earning in the extraction stage. While governments have an incentive to implement relatively generous and elastic tax treatment in the initial period and change it once the project starts extracting, forward looking mining companies recognize these incentives and may search for other investment options.

2. Sharing risks and expected returns between the state and investors

Mining projects contain a considerable amount of uncertainties at all phases, starting from exploration through development to extraction and closure. Indeed, the uncertainty begins with the question of how much natural resources are endowed in the country. Though geological exploration helps to determine the resources, geological exploration poses an uncertainty as it is unclear whether it explored the resources successfully or whether the explored resources are enough to cover exploration costs.

Moreover, price uncertainty always persists, causing significant difficulties in the mining sector. Price volatility in mining is much greater than in other sectors. For example, the following figure shows the movement of the price of copper in the last decade. From being USD 2811 per ton in the beginning of 2009, the copper price reached its peak at USD 10,147 per ton in 2011. Since then, the price of copper started to fall again to below USD 4500 per ton in two years. The large and rapid movements in prices create significant uncertainties in the decision-making processes of both mining companies and governments.

FIGURE 1. COPPER PRICE MOVEMENT 2008-2019, USD PER METRIC TON /THOUSANDS/

Source: London Metal Exchange

Another crucial uncertainty in the mining sector is political risk. Political instability and poor policy succession are major factors that can diminish investment incentives. For instance, the evolving policies towards climate change are translated into uncertainty and vulnerability in expected rents reflecting the time consistency problem. The recent environmentally friendly policy in China and the China-US trade war has impacted the demand for commodities and hence led to a drop in prices. Unfortunately, countries with a few types of natural resources are impacted more by the uncertainties in comparison to multinational corporations or countries endowed with many types of natural resources.

Private mining companies or investors involved with the mining sector take significant risks in search of profits. For instance, investors could fail to identify natural resources and incur significant sunk costs. Even when the exploration is completed successfully, mines could collapse after beginning production due factors such as unfavorable climate conditions. In addition, there are severe risks related to fluctuating commodity prices and policy changes. Investors in the mining sector need to make a profit after covering costs and taking losses related to these risks.

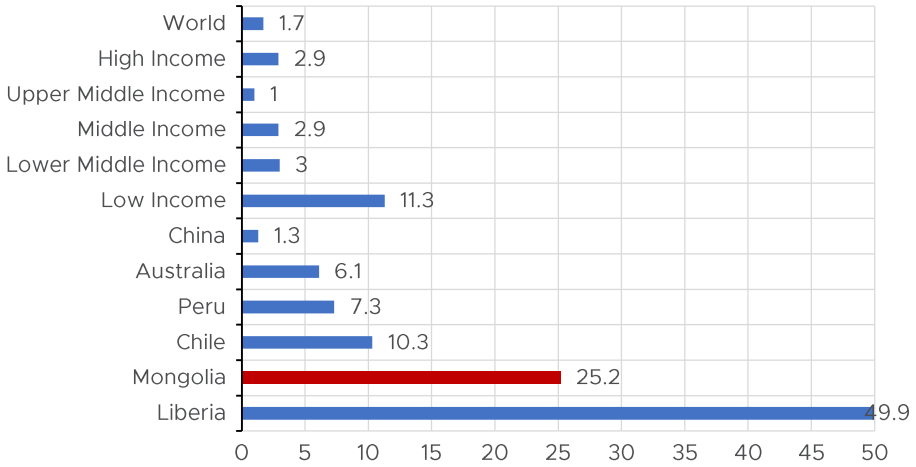
In order to implement mining projects efficiently, the fiscal regime also has to provide risk-sharing between the government and investors, with the government

having the opportunity to share in the upside of a profitable investment while investors have some downside protection from losses or low returns.

3. Consistency with the national development context and strategy

As mentioned above, natural resource endowments play a significant role in the economic development of some countries. The figure below shows the GDP share of natural resources rents. As of 2016, 1.9% of total world GDP came from the mining sector. It can also be seen that for lower income countries the contribution of the mining sector is high, implying that low income countries are influenced greatest by mining sector market volatility. The country with the highest GDP share of resource rent was Liberia with 49.9%. Conversely, while China is one of the main players in the global commodities, resource rents constituted only 1.3% of its GDP in 2016. Likewise, while Chile and Peru supply more than half of global copper consumption, the contribution of their mining sectors to their GDP is less than 10%. Whereas, for Mongolia, the mining sector has a significant impact on the economy as it constituted 25.2% of total GDP in 2016. Moreover, the mining sector made up more than 80 % of total export and more than 20% of total budget revenue per annum.

FIGURE 2. TOTAL NATURAL RESOURCE RENTS (% OF GDP), 2016



Source: World Bank, World Development Indicators

As the role of the mining sector in the economy and the structure of the economies differ, fiscal regimes also vary across countries depending on their development policy. In particular, a country with declining natural resource reserves implement incentives to enhance rehabilitation while a country with significant natural resource reserves could use incentives for economic spillovers, such as local economic development. Governments have to consider their national development strategies and may have to decide between implementing tax incentives that promote domestic production or the direct import of commodities. The consistency of taxation the mining sector with the national strategy is more vital in a developing and resource rich country like Mongolia.

4. Ease of administration and compliance

Administrative efficiency plays a significant role in the successful implementation of mining fiscal regimes. Information asymmetry in the mining sector is one of the innate features of the sector. Policy makers are less informed with mining prospects such as the geological aspects of natural resources or commercial circumstances than the mining companies who undertake the exploration, development and extraction. Due to the asymmetry of information, the government cannot impose taxes on all extracted natural resources, possibly leading to tax avoidance. Thus, governments should focus on the assessment of the tax authority's capacity as well as explore what policies and activities can be maintained to address tax avoidance. Additionally, governments have to reflect efficient incentives of transparency for mining companies when designing fiscal regimes. Transparency requires fully informing taxpayers and other stakeholder groups about the tax liabilities that may arise from any proposed activity, and opening taxation arrangements and related collections to examination.

Governments should consider thier institutional and administrative capacity in designing mining fiscal regimes. If a government designs and tries to implement sophisticated fiscal tools without taking into consideration its weak institutional capacity, the fiscal regime may not work and result in less revenue from its natural resource endowment. Once the mining project is completed, the mining company will go out the country and the host country will be left with no resources and not much revenue, with the majority of the natural resource rent going to the mining company. Thus, tax instruments should be reflective of the objectives they are trying to achieve as well as the institutional capacity of the country.

The tax regimes in resource-rich countries should be reflective of the above-mentioned main objectives given its limited administrative capacity. Depending on the country's nature and features, additional objectives could be reflected as well.

2.2Tax instruments in the mining sector

A wide range of tax instruments are implemented in the mining sector. The principle classification could be a tax and royalty system with the licensing of areas and contractual systems such as production sharing or service agreements. In both of the systems, state participation is included.

In general, tax instruments in the mining sector can be divided into the following three categories:

- Fixed fees (license fees, signature bonuses) – not dependent on factors such as project scale, profitability, quantity or value of production.
- Per-unit charges (Royalties, import tariffs, VAT, land rents, property taxes) – based on the flow of a good or service.
- Shares of measured profits (Profit taxes, dividends, profit shares, production sharing arrangements, resource rent taxes, windfall taxes) – based on a proportion of revenues minus cost.

The fiscal tools calculate the payment obligation as a rate multiplied by a base. In designing taxation rules, both the tax rate and base should be considered.

Governments usually use a variety of different tax instruments simultaneously. Thus, the interaction of tax bases of multiple taxes and fees should be formulated clearly.

We considered the following major tax instruments used in the mining sector.

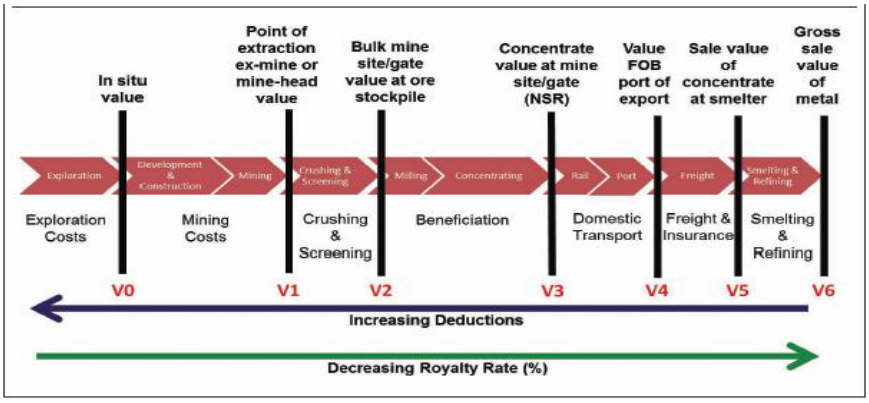
1. Royalty

According to the World Bank, "a mineral royalty is a payment to the owner of the mineral resource in return for the removal of the minerals from the land". In other words, royalties, as an instrument for compensation, is payment in return for the permission that, first, gives the mining company access to the minerals and second, gives the company the right to develop the resource for its own benefit. Due to that aspect of royalties, they are commonly recorded as non-tax revenues.

However, royalties are most commonly used as a tax instrument by many governments of resource rich countries. The main issues related to royalties for policy makers are (i) determining the valuation point or tax base, (ii) the method to be used to estimate the value of minerals, and (iii) the percentage rate of the royalty to be applied.

As the valuation point gets closer to the mine, production is more economically efficient and equitable for both stakeholders of the mining project. Meanwhile, as the valuation point gets further along the value added chain, administration of the royalty becomes easier, costs less and revenue from the mining project is more stable. Additionally, the closer the valuation point is to final consumption, the tax base includes additional costs related to the downstream processing of the natural resources, which is not part of the extracted value of the natural resources. Thus, the royalty rate should progressively decrease. On the other hand, if government wanted to levy royalties based on a point closer to the extraction points, downstream processing costs should be deducted when calculating the tax base, requiring high skilled human resources, more transparency and less information asymmetry. In other words, the choice of a valuation point is followed by a tradeoff. The following figure illustrates the value-added chain of mining production and possible valuation points of sale.

FIGURE 3. VALUATION POINTS AND ROYALTY RATE



Source: World bank, 2013

The following forms of royalties are commonly used in the mining sector:

- *Unit based (specific royalty):* A fixed monetary value is levied on a physical measure of volume or weight of the commodity produced and sold rather than the financial base. Provisions may be incorporated in the regulation for progressive adjustments of the fixed royalty rate to inflation or to changes in commodity prices. This type of royalty generates stable revenue and is administratively efficient and easy to audit. However, it can also be highly economically inefficient and distortionary. For these reasons, specific royalties are generally applied to bulk, low-value commodities.

- *Value based (ad valorem) royalty:* In this type of royalty, a uniform percentage of the royalty is charged on a value of commodities sold by the mining company. As a value-based royalty is implemented, valuation point or the royalty base should as close as possible to the point of extraction or prior to the any processing. However, the sales of commodities don't usually occur at the mine gate. Sales often occur after some value adding downstream process such as packaging, and transporting. Thus, the royalties are charged on sales value rather than the value at the mine gates.

- *Profit-based royalty:* The royalty is applied based on the accounting concept of net income or profits of mining projects. This differs from the standard income tax in that it is levied on a given project rather than the companies. The royalty rate is often set as a result of negotiation between government and the mining company. When the base profit is accounted properly, profit-based royalty is appropriate tool for sharing the risks between government and the mining company. This type of royalty is economically more efficient than the previous two types royalties both for governments and the mining. However, it is also more complicated to administer and is usually followed by many disputes related to the accounting of the profits. Furthermore, clear and transparent legislation is necessary in order to implement the royalty regime successfully.

The sales value could be determined alternatively when using ad valorem royalty as well. First, royalty can be imposed on *realized value of sales*, which is the value shown on the invoice. Using this type of base has an advantage of ease of administration and audit, leading to fewer disputes. Yet, the disadvantage of the realized value base is that it may include realized hedging gains and losses rather than relating to value at extraction. The alternative possible approach of royalty base is a *gross value of mineral contained in the mineral product sold*. In particular, sales value is determined as assessing the contained metal with quoted market prices. This type of base requires high auditing and administration costs related to the verification of the metal content of the minerals. Gross value-based royalties levied on the costs incurred beyond the mine gate that are not part of the mineral value. This argument is often allowed by most countries and thus some deductions from gross sales value is implemented.

In some countries, government use an international benchmark price as a base of ad valorem royalties. Ad valorem royalties are the most frequently used and accepted

by both the mining sector and most communities due to the administrative easiness. Government revenue from minerals is not constant as it reflects price vulnerabilities. Moreover, ad valorem tax is often seen as predictable for the investors. Thus, the ad valorem royalty is more efficient for both the government and mining companies than the specific royalty.

However, royalties based on production quantity and not profits have disadvantages for the company as a high level of production doesn't mean a high level of profit. In other words, the unit-based and ad valorem royalties have the drawback of lacking sensitivity to profits. A project with high costs could pay the same royalty as low-cost projects when their production quantities are same. As a result, some countries introduced more sensitive royalties such as a sliding scale or profit-based royalties.

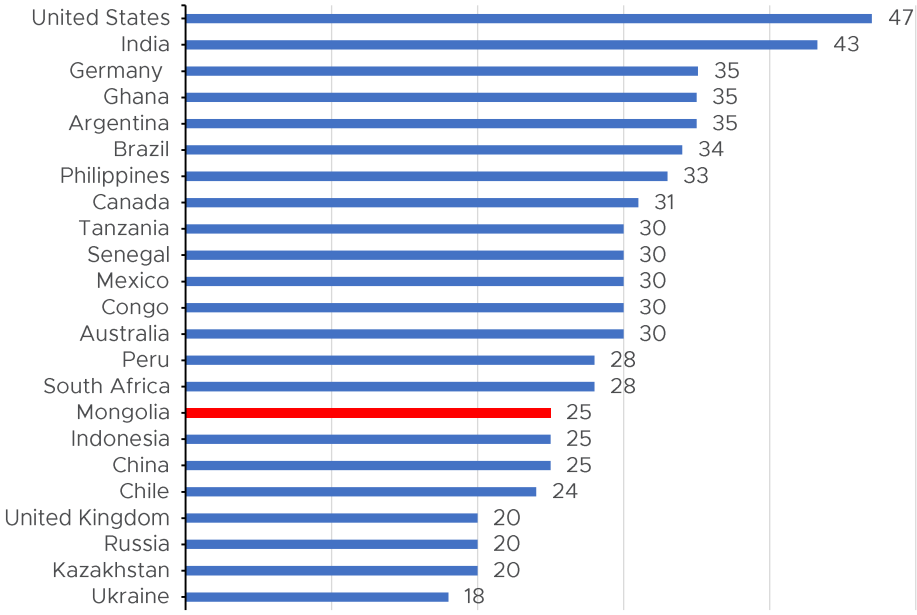
Overall, in terms of advantages to the government, royalties have several key advantages over other types of tax instruments. First, royalties yield revenue from the start of production. Earlier revenues for the governments entail higher net present value of the aggregate benefits from the natural resource's endowment, especially when the government discounts the future more heavily. Second, royalties can provide greater stability and predictability of future than the other charges. Royalties allow the government get payments even when mineral commodity prices are low. Thirdly, royalties are relatively easy to administer and implement. Lastly, sliding scale royalties are adaptable to market changes.

2. Corporate income tax

One of the most widely used tax instruments in the mining sector is Corporate Income Tax (CIT). CIT is annually levied by the government on the profits of a company. The CIT applied to the businesses in general is also commonly applied to mining companies, though with particular provisions relating to the tax base (Mullins *et al*, 2010).

CIT is a widely applied instrument in recourse-rich countries and the following figure shows the top CIT rates of resource rich countries. As shown in the figure below, the top rate of CIT ranges between 18%- 47%. Relative to the other countries, Mongolia's CIT rate is quite low.

FIGURE 4. INTERNATIONAL RATES OF CIT, 2017



Source: PwC Global

There are some provisions applied along with CIT in the mining sector such as ring-fencing and resource amortization. Ring-fencing of operations is a possible provision to implement that can be used to boost CIT. In other words, restrictions on grouping the operations of projects, ring-fencing, is likely to appeal to governments that lack cash, even though they may also be vulnerable to transfer pricing and other profit shifting devices. Another possible provision is related to resource amortization reflecting the reduction in the value of resource stocks implied by their extraction-analogous to depreciation allowances for produced assets. Canada, for instance, the top rate of amortization for ore assets could be 30% and it could include grassroots exploration and pre-production expenses. A taxpayer is allowed to deduct the amount of the amortization from the tax base-income.

Additionally, the interactions between taxes need to be considered when a country charges a variety of taxes simultaneously. In Chile, for instance, the CIT rate is 25% according to the Attributed Regime and 27% under the Partially Integrated Regime. The CIT is paid against the Global Complementary Tax (levied on residents) with a rate ranging between 0%-35% or withholding tax (levied on non-residents) with a rate of 35%.

3. Profit based taxes

Resource rent taxes

These kinds of taxes are based on cash flows rather than accounted profits. Economically, resource rent tax is seen as a good tool for levying tax on mining

companies without eroding their incentives. However, resource rent taxes require more sophisticated control and determining the resource rents require high capacity and skilled human resources for both the company and the government. In other words, the complying cost is higher. In addition, government revenue from the mining sector becomes less predictable. Thus, this type of tax instrument is not common in the mining sector.

Withholding taxes

Given the significant financing requirements of mining projects, in addition to their requirements for special expertise and services not customarily available in the host country, dividend and interest payments and sub-contractor payments to non-residents or private agents are common and usually significant. Withholding taxes on these payments are amounts which the company is required to withhold from the above payments and hand over to the state on account of actual or projected tax liabilities of the payees. This allows the host country to effectively tax this income as there is no practical way to force non-residents to file returns and account for their incomes. Beyond revenue generation, withholding taxes have the additional advantage of discouraging excessive payments to non-residents as a means of shifting profits to lower tax jurisdictions.

Windfall profit tax

As mineral commodity prices surged in the late 2000's, some governments tried to receive benefits from the unexpected large profits and introduced a windfall tax on the excess profits of mining companies. However, this type of tax is a major obstacle to investment attractiveness. In particular, it prevents the mining company from recovering the capital spent on the early stages of mining development. Furthermore, implementing a windfall tax requires sophisticated administration and leads to greater compliance costs for both the government and the mining companies. As such, this type of tax is not frequently used with countries that have introduced this type of tax abolishing them after.

State participation

State participation is one of the ways governments benefit from its natural resources endowment. As natural resources have significant strategic impacts on the host country's economic development, many governments make effort to control the resource sector through state participation. State participation is fueled by both non-financial rationales, such as knowledge transfer or resource nationalism, and financial rationales as well.

State participation in mining projects is a common occurrence in the mining sector. However, its appeal is diminishing globally. In the late 1960s, state participation was prominent in many countries, fueled by nationalistic sentiments and a jump in commodity prices. Countries started to nationalize foreign-owned companies or their assets. However, in the 1980s and 1990s, commodity prices experienced a dramatic decline and state participation shares in the mining sector declined in tandem. Greater emphasis was placed on creating investment frameworks attractive to the private sector either investing alone or in joint ventures with national mining companies under a variety of new partnership arrangements (Charles McPherson,

2013). It can be seen that there is a certain relationship between mineral commodity price changes and state participation in mining projects.

The government can participate in the mining sector through the following different forms: (i) Full equity participation- the government implements the mining projects independently or without private sector participation or the government and the private sector can invest in and participate as a joint enterprise from the beginning of the project or by acquiring a participant share in an unincorporated joint venture. (ii) Carried equity participation- In this case, the private sector oil, gas or mining partner finances the operation upfront and the government pays for its equity via foregone dividends, which absolves the state of the responsibility to pay cash out of pocket, but delays financial returns to equity. (iii) Free equity participation- the government pays nothing for its equity, but it does not come without costs to the state. Free equity can deter investment and where instituted, typically obligates states to make trade-offs elsewhere in the fiscal package, in the form of lower taxes or royalties. (iv) Production sharing- The idea behind this form of state participation is similar to free equity participation. In contrast to free equity, however, production sharing involves the state, represented by its national mining companies, actively in operations as a commercial party, a regulator, and a fiscal agent.

State participation is driven by the non-economic objectives of capacity building and improving monitoring in the mining sector, as well as the commercial and fiscal objectives of maximizing the rents from resources. In a production sharing arrangement, for instance of financial benefits, state participation entitles the state to a share of the resources extracted. The state can sell the resources by itself or can benefit from cash payments from the private companies to the state. However, the very first rationale for state ownership is resource nationalism. For instance, in Mongolia, the symbolic ownership of resources by citizens is important. The next appealing rationale is the transfer of technical and managerial skill from the private sector to national human resources. Over time, human capital development will promote broader industrial development and reduce the dependence on foreign partners. The information asymmetry between the government and private sector is expected to be lower under state participation. The information gains from state participation provide a possibility for the host government to improve its monitoring of the mining sector.

However, state participation requires greater transparency, efficient regulation and greater regulatory and administrative capacity from the host country. In some cases, state participation in mining projects erodes investors' incentive as it sets too much constraints both inside and outside the mining sector through increased influence over economic activity. Therefore, it could result in insignificant revenue from the natural resource endowment to the government. This is due to the low transmission of technologies and know-how as a resulted of too much state participation. Additionally, state-owned mining companies tend to be less efficient as they are usually shielded from the competition.

Box 1. Case Study: State participation in Zimbabwe

Zimbabwe is an example of unsuccessful state participation in the mining sector. The government of Zimbabwe has been increasing its state share in diamond operations since late 2000s and as of 2016, the government holds a 50% share in diamond operations through its Zimbabwe Mining Development Corporation. The president announced that the government will take over all diamond operations in Zimbabwe and private companies were ordered to cease their operation and leave their equipment. However, it is estimated that the government revenue from the diamond sector decreased despite the increase in government ownership. In particular, royalty payments fell to USD 23 million in 2016 from USD 84 million in 2014. The decrease in payments can be attributed to reduced production as the government did have the technologies and equipment needed. Additionally, mining companies have refused to invest in Zimbabwe's diamond sector due to its instable investment environment and increased government control in the mining sector.

2.3Mining tax incentives

The mining sector is exposed to unique risks such as uncertain future revenues, large amounts of development capital that can't be recovered, exploration costs, volatile mineral commodity prices, long periods of production needed to reach a break-even point, political and policy uncertainty, as well as environmental and local impacts that need to be taken into account (Hogan & Goldsworthy, 2010). As a result, the mining sector needs a different kind of fiscal regime to support and regulate the sector compared to other economic sectors.

Considering the unique risks mentioned above, many governments are preoccupied with the question of supporting and encouraging mining activity while also collecting a suitable amount of revenue from mining companies. This delicate balance is difficult to achieve as basic fiscal regimes will likely result in a loss on either side while more sophisticated methods require numerous taxation, legal and administrative requirements that are usually lacking in developing countries. For sophisticated mining fiscal regimes to be feasible, they must be based on unambiguous methodologies with clearly identified taxation terms and definitions in order to reduce compliance costs, uncertainty and potential litigation issues which can be costly for both governments and mining companies (Guj, 2012).

In general, the fiscal instruments used by governments in order to secure profits from mining companies can be broadly divided into 3 categories. The first category consists of taxes on incomes such as CIT, resource rent tax and withholding tax. The second category includes taxes on production such as mineral royalties. The final category consists of tariffs on imports and exports that are paid to the government such as tariffs on the import of capital inputs (IGF, 2018).

Of the three categories mentioned above, this section will give an overview of income tax incentives and tariffs on imports and exports. It will also touch upon the issue of tax stabilization in the mining sector. Taxes on production and royalties were covered extensively in the previous section.

1. Income tax incentives

According to Hogan and Goldsworthy, while governments' traditionally made the bulk of their revenue from mineral commodities through royalties, this trend changed after World War II (Hogan & Goldsworthy, 2010). Since then, income taxes levied on mining companies have started to play a major role in the mining revenue collected by governments. As such, one way governments can incentivize mining companies and spur the development of the mining sector in their respective country is through reducing income tax burdens faced by mining companies. Additionally, investment incentives, utilizing instruments such as accelerated depreciation and loss-carry forward provisions have also been applied to mining companies alongside income tax deductions (Guj, Bocoum, Limerick, Meaton, & Maybee, 2013).

Before detailing the way through which governments can offer income tax incentives, it is essential to define the tax incentive. According to a consultation draft written under a program of cooperation between the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF) and the OECD, a tax incentive can be defined as "any special tax provisions granted to mining investors that provide favorable deviation from the general tax treatment that applies to all corporate entities" (IGF, 2018). Here, general tax treatment refers to the taxes applied to all corporate entities according to the general income tax law of the country in question. In addition to the general income tax law, mining investors are levied taxes that take into account the mining law of the country as well as the mining contract.

As income taxes from mining companies continue to grow in scale and make up a significant portion of the government's revenue from mining, governments have numerous income tax incentives tools at their disposal. While lowering tax incentives can induce capital investment and generate revenue and social benefits, tax incentives also reduce government revenue and impose indirect costs on the economy (James, 2013). Therefore, a successful tax incentive must bring in investments and revenue that compensates the expected lost revenue. In order to calculate the losses correctly, when offering tax incentives, in addition to the expected loss in revenue of that particular incentive, governments must also take into account how incentives work together if multiple tax incentives are offered. Most importantly, rather than just the direct loss in revenue, a more suitable estimation of the effects of offering tax incentives needs to take into account the likely response of mining companies as well. As poorly made fiscal regimes will give mining companies the opportunity to deflect or avoid paying taxes, governments need to anticipate how mining companies will response to any offered tax incentives.

The following details the main income tax incentives offered by governments as well as the behavioral response likely to expect from mining companies.

a. Income tax holidays

A tax holiday refers to a period in which taxes are reduced or completely exempt. Tax holidays are usually offered with a clear duration and can be helpful in mitigating the high cost of mining exploration and production. However, tax holidays

give mining companies the incentive to engage in tax dodging activities. For instance, when a tax holiday is offered, mining companies are motivated to increase production during the tax free period and are usually focused on mining the highest grade minerals they can in this period. This results in reduced revenues for the government and can also promote reckless over-mining within a short period. On the other hand, it should also be noted that due to cash flow limitations, mining companies are usually likely to mine high grade mineral ore first in order to increase its revenues after investing heavily and incurring costs. Thus, it is vital for the government to discern whether the actions of mining companies are an opportunistic response to fiscal regimes or just a way to ensure the profitability of the mine (IGF, 2018). Additionally, if a mining company has multiple projects in one country that have different tax holiday durations, the company might shift production from the older project to the newer project to avoid taxes and take advantage of the tax free status of the newer project.

Additionally, empirical evidence suggests that income tax holidays are usually ineffective in promoting investment in that fiscal incentives do no counterbalance unattractive investment climate conditions in developing countries (James, 2013). Additionally, offering income tax holidays are likely to be redundant as mining in general is location and resource specific, meaning that the chance of mining companies moving to a different country due to fiscal terms are unlikely. Tax income incentives only apply after a mine has begun production and is profitable, meaning that in actuality, tax income incentives do not reduce the high cost of mining projects (IGF, 2018). For these reasons, investment incentives should be used minimally, linked to investment growth and tax holidays avoided (James, 2013).

b. Withholding tax relief

A withholding tax refers to a tax in which the payer of the income, rather than the receiver, pays the tax. In the mining sector, this type of tax is usually applies to payments made to foreign entities such as payments of interest, management or administrative charges and shareholder dividends (IGF, 2018). In response to offering withholding tax relief, mining companies that work with affiliated firms may overvalue management and administrative charge such that are essentially staring profits from the original production country to another country that has lower taxes overall. By offering withholding tax relief, mining companies have the opportunity to engage in profit shifting activities.

One way to keep these incentives in check is to adopt the OECD BEPS Action Items. The OECD's BEPS Action Items were made in cooperation with the OECD and G20 countries in order to address base erosion and profit shifting. The action plan consists of 15 points and were adopted in 2013. According to the action plan, governments should limit the valuation of management and administrative charges by adopting a cost-plus method in which routine services are charged the cost of providing the service and a 5% mark up (OECD, 2015). It should also be mentioned that long term fixed service charges are considered a violation of the arm's length principle. According to the principle, both sides of a transaction should be acting in their best interests, however, as routine services are expected to become more efficient with time, a mining company would not agree to long term fixed service charges unless other factors came into play (IGF, 2018).

c. Cost-based incentives for income tax

In addition to offering direct incentives on income tax, countries may also have legislation that reduce the amount of taxable income for mining companies. Cost-based incentives differ from the income based incentives mentioned above as they are aimed towards lowering the high cost of mining projects. These provisions take into consideration the high cost of mining investments and are considered more effective in attracting foreign direct investment in comparison to incentives such as income tax holidays that only become effective once a mining project is profitable. Cost-based incentives are mainly targeted towards expensive capital investments such as machinery and equipment. In general, they can be divided into 4 broad categories: accelerated depreciation, investment allowances, investment tax credits and longer loss carry forward (IGF, 2018).

i. Accelerated deprecation

Accelerated deprecation allows mining companies to speed up the depreciation period of capital investments such that the cost of the investment can be deducted from its taxable income faster and companies will have a lower tax burden.

ii. Investment allowances

Investment allowances give mining companies the chance to deduct a certain percentage of a capital investment from its taxable income the year the investment is made. As these deductions are usually a sizable portion of the investment and done the year the investment is made, investment allowances allow mining companies to recoup losses faster than through accelerated depreciation.

iii. Investment credits

Investment credits allow mining companies to reduce its payable tax by a portion of its capital investments in the first year. This difference from the 2 cost-based incentives mention above in that it applies to payable tax rather than to taxable income. In many cases credits can roll-over to the next fiscal year and negative balances can be paid to the investor from the taxation authority of the country. As such, in terms of cost-based incentives, investment credits are the more generous from the mining company's perspective. Tax credits are also used by many countries to incentivize mining explorations. The incentive programs employed by natural resource rich countries will be discussed in detail further in the report.

iv. Loss carry forward

Governments can offer longer loss carry forward periods when taking into consideration the significant capital investments mining companies must make before mining projects can begin production. In light of this, many tax regimes allow mining companies to carry forward operating losses for longer periods than traditional corporate entities. The tax burden on mining companies are therefore reduced as losses don't expire and continue to reduce taxable income.

While cost-based incentives are generally considered effective in reducing the investment burdens of mining companies, if not implemented carefully, they create the risk of incentivizing tax avoidance. When cost-based incentives are not

coordinated well together, it creates a situation in which capital investments can be deducted twice from the taxable income. Additionally, generous tax credits that do not have expiration dates or have long active periods can be used by mining companies to avoid paying income taxes altogether for considerable periods of time. In light of this, governments need to ensure that eligible investments and their respective time durations are clearly defined and checked to ensure companies aren't taking advantage of investment allowances and credits. Keeping and publicizing a consistently updated list of investments that apply for accelerated depreciation and investment allowances are effective in ensuring clarity.

2. Tax Stabilization

Another interesting issue when offering tax incentives in the mining sector is the notion of tax stabilization. Tax stabilization refers to provisions in long-term agreements that are included to protect against tax legislative change. While these provisions can vary considerably, ranging from clauses that "freeze" tax legislations as it was at the time of the creation of the stabilization agreement to clauses that allow for change subject to compensation for the investing party, they all serve to mitigate against the risk of unfavorable tax legislative change (Luttrell, Murphy, & Chance, 2019). By doing so, mining companies can safely invest into costly mining projects without worrying that the host country will change its laws such that the project is economically unviable. While tax stabilization provisions do not necessarily provide direct preferential treatment to the mining sector, as it just ensures legislative consistency, it is an important concession that takes into consideration the longevity of most mining projects. It is a form of protection for the investing party and in light of the aforementioned reasons, can be considered a tax incentive for the mining sector as countries that offer tax stabilization provisions are seen as more attractive investment options by mining companies.

3. Import and export taxes

Many countries, in addition to the widespread tax incentives mentioned above, also offer tax incentives limited to special economic zones such as Export Processing Zones (EPZs). EPZs usually have special provisions that are aimed at attracting investment, with a particular focus on export production (IGF, 2018). In general, special economic zones are used across all regions and refer to any area in which trading laws are different from other parts of the country. Special economic zones contain tax incentives to certain regions, limiting their revenue minimizing impact and also allow governments to circumvent limitations imposed by the World Trade Organization which prohibits tax incentives for exporters (James, 2013).

However, while EPZ status is usually only allotted to parts of the mining process, usually to companies focused on mineral processing, the tax relief offered can incentivize larger mining companies overlooking different mining processes to shift profits from other mining processes towards the actions that have EPZ status. For instance, if a subsidiary of a mining company has EPZ status for mineral processing, the parent company may shift profits from an extracting or refining company under it to the mineral processing company in order to reduce its tax burdens (IGF, 2018). As special economic zones operate under different tax laws that the overall country, it also stimulates preferential treatment and may harm the tax base of other countries. Its deviation from general tax laws make it more difficult to oversee and

can hinder transparency. As a result, if utilized, policymakers are urged to offer tax incentives in EPZs only for processes that can be easily supervised, such as customs and indirect tax exemptions (IGF, 2018). Transfer price and profit transferring precautions must also be strong and mining companies need to follow the arm's length principle in order to ensure that the government is collecting its fair share of tax revenue.

III. Country Cases

In order to estimate the effectiveness of tax incentives and highlight the international practices used to promote mining investment, the following section contains country specific examples from several natural resource rich nations. In particular, we reviewed cases of Australia, Chile, Peru and Kazakhstan.

3.1 Australia

Australia is one of the most competitive players in global minerals market. In particular, Australia is the leading iron ore producer in the world as it produced 900 million tons of iron ore which is 36% of global iron ore demand as of 2018. Australia is also the lead producer of coking coal and it is estimated that by 2021, Australia constitute 56% of total world exports.

Tax instruments

Australia is also one of the countries with highest effective tax rate among resource-rich countries. In 2016, for instance, the total effective tax rate was 51% and marginal effective tax rate was 28.4%. In 2019, Australia was ranked as second highest tax burden country among OECD countries (Mintz D. J., 2019). In this subsection, we will consider taxation instruments and incentives implemented in Australia.

- **Royalty**

The four states (Western Australia, Queensland, New South Wales, and Northern territory) of Australia implements independent royalty regimes. According to the royalty rules of states of Australia, the royalty obligated to:

- the holder of a mining claim, mining lease or other authority (authority) who mines or allows to be mined minerals from the area of that authority or
- a person who mines minerals from land other than under an authority

Depending on the type of minerals and processing level, each state use different types of royalties and rates simultaneously as shown in the table below.

TABLE 1. ROYALTIES APPLIED IN AUSTRALIAN STATES

State	Royalty type	Rate	Base
Western Australia	Ad volarem	Ores or bulk materials: 7.5% Concentrate: 5.0% Metals: 2.5% Gold: 1.25%-2.5% Export coal: 7.5%	Value that quantity of the mineral in the form in which it is first sold, multiplied by the price in that form, minus any allowable deductions
	Specific rate royalty– quantity-based royalty	Domestically sold coal 73 or 117 cents per ton	Quantity based- number of tonnes produced

Queensland	Ad volarem	Prescribed Minerals[1]: 2.5% - 5% depending on the average market price Specified minerals[2] except iron ore: 2.7%	Value of the Mineral estimated based on the LME and London Bullion Market (LBM) adjusted by exchange rate change and deductible goods and services tax, freight, insurance and any other costs the Minister decided
	Unit based royalty	Iron Ore: □ If average price is less than AUD 100; AUD 1.25 per ton □ If the Price is more than AUD 100, 1.25% or 1.25+((Average Price-100) ÷ Average Price×1.25)	For sold iron ore: Net revenue billed divided by the total invoiced payable tons For disposed or used iron ore: Gross value under gross value royalty decision divided by total tons
		Coal: □ 7% if the average price is less than AUD 100 □ (7 + ((AP –100) ÷ AP × 5.5)) % if the average price is between AUD 100 and AUD 150, □ 7 + ((AP – 100) ÷ AP × 5.5) + ((AP – 150) ÷ AP × 2.5) % if the average price is more than AUD 150	For sold coal: Net revenue billed divided by the total invoiced payable tons For disposed or used coal: Gross value under gross value royalty decision divided by total tons
		Basic metal minerals such as Copper, Gold, Iron, uranium Zinc: 4%	Value of mineral recovered may be deducted by direct costs incurred in upgrading the material and bringing it to market after the first stockpile.
New South Wales	Ad volarem	Coal: □ 8.2% for open cut mining □ 7.2% for underground mining □ 6.2% for deep underground mining	Value of coal recovered including deductions such as: □ Cost of beneficiation □ Coal research levy □ Mine subsidence levy □ Commonwealth levy for long service leave □ Mines rescue levy □ Bad debts
	Unit based royalty	Other industrial materials: AUD 0.35 – AUD 0.70 per ton	Quantity of minerals recovered
Northern Territory	Profit-based	□ 20% of *net value* if the gross production revenue is less than AUD 10,000	Net value derived from the production of a saleable mineral commodity within the boundaries of a production unit

[1] Cobalt, copper, gold, lead, nickel, silver and zinc
[2] Iron ore, manganese, molybdenum, tantalum, and tungsten

Ad volarem	1% of *gross production revenue* payer's first royalty year 2% for the royalty year that follows the first year 2.5% for each royalty year that follows second year	Only for miners that annual gross production revenue of a production unit exceeds AUD 500,000

Source: Government of Western Australia, 2019; Queensland Government, July, 2019; New South Wales Government, 2019; Government of Northwest Territories, 2019;

In Western Australia, a three-tiered ad volarem royalty system is applied that was introduced in 1981. Depending on the processing level (ore, concentrate and final product), three different royalty rates are applied. The base of the ad volarem royalty takes into account price fluctuations and material grades as it is estimated as multiplication of quantity and price of first sold form of minerals. Additionally, "Specific Rate Royalty" are applied mainly applied on low-value construction and industrial minerals.

In Queensland, royalty rates and types differ depending on the nature of commodities and their prices. There is special incentive in royalty system which is a Royalty-free Threshold. The royalty-free threshold is an exemption of royalty on the first AUD 100,000 of the combined value of the threshold minerals mined under a mining project that are sold, disposed of or used in a financial year. However, royalty-free threshold is not valid for iron ore. This could be seen as that the government is sharing a risk of lower production or lower price risks. Additionally, for prescribed and some specified minerals, there is a Processing Discount in which the royalty payment can be exempted by 20% - 35% if the minerals are processed in Queensland with a minimum metal content of 50%.

While, in New South Wales, royalties are set at flat rate depending on the commodities types. For coal, the royalty rate is different depending on the mining methods as shown in the table above. There is also an exemption of royalties for less profitable mining companies. In particular, a mining lease holder can be exempt from coal royalty in the following cases in accordance with the state Royalty Ruling:

- the minerals are 'publicly owned minerals' and
- the value of minerals recovered in a 12-month period is less than AUD 2,000 or, if the period is less than 12 months, the value of minerals recovered is the same proportion of AUD 2,000 that the period is to 365 days (New South Wales Government, 2019).

For Northern Territory, the royalty is estimated using two methods: one is profit based and another is based on gross production output. The net value base is determined as "expenditures essential to produce that commodity are allowable as deductions against the value of the saleable mineral commodity sold or removed without sale from a production unit" (Northern Terrirory Government, 2019). In addition to calculating the net value, a royalty payer shall calculate the minimum royalty by applying a percentage to gross production revenue. After calculating, the royalty payer must pay the greater of the two calculations that is applied under a

new section called Minimum Royalty. This new article has been in effect since July 2019. According to the state ruling, some minerals are exempted from royalty payment. Specified kind minerals include uranium, petroleum and other extractive materials. Ring-fencing principles applied to the royalty payers.

Overall, royalties are a major revenue source for the government as it constitutes 42% of total government revenue from the mining sector. The remaining portion is collected through other tax instruments such as CIT, withholding tax and other taxes and fees.

- **Corporate Income Tax**

CIT is regulated by the federal law same for all states in Australia. The current company tax rate is 30% which is considered a de-incentivizing factor in Australia. Many studies conducted on the Australian taxation system have suggested a lower CIT rate. Additionally, according to the Mintz D. J (2019), "the mining sector is receiving a negligible assistance from Australian government" as the mining doesn't receive fossil fuel subsidies.

- **Other taxes and fees**

In addition to the provincial royalties and CIT, there is a tax specific to the mining sector in South Australia - a payroll tax. According to definition of Government of South Australia, "the payroll tax liability arises in South Australia when an employer (or a group of employers) has an annual wages bill in excess of AUD 600,000 for services rendered by employees anywhere in Australia if any of those services are rendered or performed in South Australia" (Government of South Australia).

The capital gain tax and goods and services tax imposed by the federal government are effective for all states. In particular:

- Capital gain tax - capital assets held by an Australian resident company will generally incur tax payable on any capital gain on their disposal at the corporate tax rate; and
- Goods and services tax – Value Added Tax (VAT) of 10%.

Finally, other taxes and duties not specific to the mining sector may apply on mining companies such as land tax, fringe benefits tax and stamp duty on transfer of assets.

Tax incentives

1) Income tax incentives

Australia has three levels of government (federal, state or territory, and local) and three corresponding levels of legislation. The mining sector, however, is regulated primarily by state and territory legislation. Moreover, state and territory governments also have certain taxation powers, for example, to collect resource royalties and stamp duty (Fraser & Denning, Mining in Australia, 2018). The tax legislation that regulates the mining sector for the different states in Australia are shown below.

New South Wales	Mining Act 1992 (NSW)	Department of Industry (Resources & Energy)
Northern Territory	Mineral Titles Act 2010 (NT) Mining Management Act 2001 (NT)	Department of Primary Industry and Resources
Queensland	Mineral Resources Act 1989 (Qld) Mineral and Energy Resources (Common Provisions) Act 2014 (Qld)	Department of Natural Resources, Mines and Energy
South Australia	Mining Act 1971 (SA)	Department of State Development
Tasmania	Mineral Resources Development Act 1995 (Tas)	Department of State Growth
Victoria	Mineral Resources (Sustainable Development) Act 1990 (Vic)	Department of Economic Development, Jobs, Transport and Resources
Western Australia	Mining Act 1978 (WA)	Department of Mines, Industry Regulation and Safety

Source: Lexology

a. Income tax holidays

Australia does not offer income tax holidays.

b. Withholding tax relief

Interest payments and dividends are subject to withholding tax in Australia. However, there is no special withholding tax relief for the mining sector.

c. Cost-based incentives for income tax

i. Accelerated deprecation

All companies operating in Australia may depreciate their tangible assets over its useful life using either the straight-line or diminishing-value method. They may self-determine the effective life of a unit or choose the effective life contained in a published determination of the Commissioner of Taxation. Moreover, "project pool" rules allow expenditures that do not form part of the cost of a depreciating asset to be deductible over the life of a project that is carried on for a taxable purpose (Fraser & Denning, Mining in Australia, 2018). These include the following:

- Amounts paid to create or upgrade community infrastructure for a community associated with the project.
- Site preparation costs for depreciating assets (except horticultural plants in certain circumstances).
- Amounts incurred for feasibility studies for a project.
- Environmental assessment costs applicable to the project.
- Amounts incurred to obtain information associated with the project.
- Amounts incurred in seeking to obtain a right to IP.

Additionally, the following expenditure attracts an immediate 100% deduction: environmental protection activities, dealing with pollution and waste; land care operations; exploring or prospecting for minerals, including the cost of mining rights and information acquired from an Australian government agency or government entity and mine site rehabilitation (Fraser & Denning, Mining in Australia, 2018). In these ways, mining companies may enjoy the accelerated depreciation provisions that apply to them when calculating income tax.

ii. Investment allowance

Australia does not offer investment credits as a mining tax incentive.

iii. Investment credits

In 2014, the Australian government proposed the Exploration Development Incentive (EDI) aimed at promoting investment into "greenfields[3]" mineral exploration in Australia. Through the program, small exploration companies that choose to take part can create exploration credits by giving up a portion of their tax losses from conducting greenfields mineral explorations. These exploration credits can then be distributed to equity shareholders and Australian resident shareholders can then turn these credits into a refundable tax offset or into franking credits (Australian Taxation Office, 2017). The EDI ran from 2014 to 2017 and with a total exploration credit cap of AUD 100 million. After the program finished, it was replaced by the Junior Minerals Exploration Incentive (JMEI) which operates on similar principles and offers an exploration cap of AUD 100 million over a period of 4 years (Australian Taxation Office, 2018). According to a media release by the Minister of Finance and the Minister of Resources, more than AUD 31 million has been allocated to 46 mining companies under the JMEI for the 2018-2019 period. Through the JMEI, the Australian government hopes to increase mineral exploration, secure future projects and remain competitive with other resource rich nations (Minister for Finance, 2018).

Additionally, based on 2006 legislation, the Australian government was also found to have given mining companies, mainly oil, coal and gas mining companies, tax credits based on the cost of the excise tax paid on fuel. The fuel excise taxes are collected in the general budget revenue and usually used to fund roads. As such, the government saw it as unnecessary to tax mining companies for the use of fuels such as diesel which are used for off road vehicles. Overall, the Australian government is expected to award the mining sector AUD 2.5 billion in tax credits in 2018 (Morton, Miners receive twice as much in tax credits as Australia spends on environment, 2018).

1. Loss carry forward

In Australia, companies may carry forward loses indefinitely, "subject to compliance with tests of continuity of more than 50% of ultimate voting, dividends, and capital rights or compliance with a same business test or similar business test (Fraser & Denning, Mining in Australia, 2018). However, losses may not be carried back.

[3] Greenfields exploration refers to the "exploration of unexplored or incompletely explored areas directed at discovering new resources" (PWC, 2014).

Australia does not have any special loss carry forward provisions for the mining sector.

3.2Chile

Chile is the top copper producing country in the world and has the largest copper reserves in the world with an estimated 170 million tons of copper as of 2017, and constitutes more than one fourth (25%) of global copper mining production each year. Of the top 20 copper mines in the world, 8 mines (including Escondido, the world's largest copper mine) are located in Chile. As of 2017, mining sector accounts more than 10.1% of GDP, 55% of national exports, and 4.6% of total fiscal revenue.

Tax instruments

The fiscal regime that applies in Chilean mining sector consists of a combination of CIT and the Specific Tax (Royalty) on Mining Operations. Taxes are set forth by law at national level. in other words, no provincial exceptions as Australia.

- **Specific Tax - Royalty**

Australian states formulated as the royalty bases on monetary value or quantity bases. While, there is an interesting practice in Chilean royalty scheme. Chilean authorities formulated the royalty base using fine copper as a benchmark unit. In other words, the operational scale of mining companies is determined equating the companies' production amount into fine copper volume and the royalty rate is determined progressively depending on the mine's or company's production scale. In particular, the royalty rate is

- 5% -14% if the companies whose annual sales exceed equivalent of 50,000 tons of fine copper; and
- 0.5% - 4.5% if the companies whose annual sales are between equivalent of 12,000 – 50,000 tons of fine copper.

While, small- scale companies whose sales are less than 12,000 tons are exempted from the royalty payment obligation (Cía, 2019). The specific tax is levied on operational mining income. The copper-benchmark practice of Chile is an example of the same treatment of companies operating in different mineral commodity sectors.

- **Corporate Income Tax**

Due to the tax reform of 2017, a fully-integrated system has replaced two new corporate tax regimes. The corporate tax regimes are:

- Attributed Regime – "income received or accrued by a company will be annually attributed to its shareholders or partners regardless of the effective dividend distributions", and
- Partially Integrated Regime - "shareholders or partners will be taxed only on the actual distribution of dividends or profits by the company" (EY Chile, 2019).

The CIT rate is 25% for attributed regime whereas it is 27% for partially integrated regime. The capital allowance and loss carry forward are applicable to CIT. Under

attributed regime, additionally, CIT is fully creditable against the withholding tax of 35%. In attributed regime, taxpayer is subject to a company tax of 35%. While, for the partially integrated regime, 65% of paid CIT is creditable against the withholding tax. However, a resident shareholder may fully use the paid CIT as credit. Hence, a non-resident shareholder in double-treaty is subject to 35% while shareholder from other countries are subject to 44.45% of company tax in Chile. Additionally, Specific Mining Tax is also deductible for CIT as mentioned above.

- **Other taxes**

There are three more taxes levied on the mining sector of Chile. Under the Chilean fiscal regime, domestic and foreign investors are treated differently and the taxes rates are lower and zero for some taxes under double tax treaty.

- Withholding tax – levied on dividends (35% and paid CIT is creditable against the withholding tax), interest (generally 35%), royalties (10% -30%), technical and professional services (15% or 20%), and other services (35%);
- VAT - levied at a 19% rate on recurrent sales of tangible goods located in Chile and certain services rendered or utilized in Chile and a number of special taxable events;
- Stamp tax – applied on documents with a rate ranging from 0.066% to 0.332%;
- Municipal tax – levied on the practice of any profession and the development of industrial, business or artistic activities, or any other profitable secondary or tertiary activities, regardless of their nature or name, carried out within the jurisdiction of a given municipality. The rate ranges from 0.25% to 0.5% as a ceiling;
- Property tax – real estate tax with rate range from 0.933% to 1.088% (EY Chile, 2019).

Tax incentives

1) Income tax incentives

As for the tax regime that applies to the mining sector, mining companies must pay the CIT under their chosen tax regime in addition to a Specific Tax on Mining Operations. As such, mining activity in Chile operates under the general tax regime applicable to all large companies and there are no special tax incentives for mining other than those available for all other activities. However, mining companies, in their capacity as both exporters and fixed-asset investors, can apply for special VAT exemptions and can take advantage of general accelerated depreciation provisions (EY Chile, 2019).

a. Income tax holidays

Chile does not offer income tax holidays.

b. Withholding tax relief

A general withholding tax rate of 35% applies to the distribution of dividends abroad. According to the type of tax regime chosen the CIT paid by the mining

company may be totally or partially creditable against the withholding tax. There is no special withholding tax relief for the mining sector (EY Chile, 2019).

c. Cost-based incentives for income tax

i. Accelerated deprecation

Under Chilean taxation legislation, a depreciation quota for fixed assets may be calculated and deducted for CIT purposes. The depreciation percentage is determined by applying a straight-line method on the useful life of the assets. In turn, the useful life or depreciation periods for tax depreciation purposes is fixed by the Chilean Revenue Service for different categories of assets. An "accelerated depreciation" method is also available using the straight-line method, but the useful life of the asset is reduced to one-third of the life set by the Chilean Revenue Service for normal depreciation, without considering fractions of one year. The taxpayer has the option to apply accelerated depreciation only to assets acquired locally without prior use or imported goods if their normal useful life exceeds three years. Fixed assets that become unusable before the end of their expected useful life may be depreciated twice as fast as originally contemplated under their applicable regime (EY Chile, 2019).

Additionally, mining companies that have a tax stability regime under Article 11 of the Foreign Investment Statute may still consider accelerated depreciation for dividend withholding tax purposes until their stability regimes expire (EY Chile, 2019). Other than the aforementioned provision, there is no special accelerated depreciation calculation for the mining sector.

ii. Investment allowances

In terms of investment, according to the Chilean Internal Revenue Service rulings, exploration and appraisal costs are considered as organization and start-up expenses, which may be amortized up to six years starting from the date expenses were incurred or when the company earns income from its main activity, if later.

However, mine infrastructure disbursements should be treated as an investment in fixed assets subject to depreciation according to the rules contained in the Income Tax Law, even if they are expended before the operation (EY Chile, 2019).

iii. Investment credits

Chile does not offer investment credits as a mining tax incentive.

iv. Loss carry forward

Under Chilean legislation, companies that experienced a tax loss can carry forward the loss indefinitely. However, they cannot carry losses back (EY Chile, 2019). While this provision does incentivize investment, it is not a mining sector specific incentive.

2) Tax Stabilization

While there aren't separate tax stabilization provisions for the mining sector, under the Foreign Investment Statute: Decree Law No. 600, foreign investors have the opportunity to make Foreign Investment Contracts with the Chilean government. This provisions in this contract cannot be modified unilaterally by the state or by

subsequent changes in the law though investors may, at any time, request the contract to be amended to increase the amount of the investment, change its purpose or assign its rights to another foreign investor. The contracts can be up to 8 years long for mining investments and up to 3 years for other investments. This time limit can be extended to 12 years for mining and 8 for industrial and non-mining projects with an investment of at least USD 50 million by unanimous decision by the Foreign Investment Committee (EY Chile, 2019).

With this contract, foreign investors are subject to the Foreign Investment State and can therefore include a clause in their contracts such that for a 10-year period from the commencement of their operations, they shall be subject to an effective overall tax burden of 42% on taxable income instead of the regular tax rates. Should foreign investors find this clause unbeneficial, they can choose to be taxed under general tax laws. This time period may be extended for up to 20 years to the industrial or extraction projects that involve sums over USD 50 million. Such large investments also entitle foreign investors with benefits such as tax invariability for specific tax on mining operational income, no new taxes imposed on mining activities or mining investment and not subject to any changes to the mining license (EY Chile, 2019). These provisions are not direct tax benefits but protect investors against tax legislation changes and mitigate their risk.

3.3 Peru

In terms of natural resources, Peru is one of the richest countries in the world. According to the US Geological Survey, Peru holds 10.3% of the world's copper reserve, 4.3% of its gold, 17.6% of its silver, 12.2% of its zinc, 6.8% of its lead and 2.2% of tin reserves. In 2017, the country recovered its position as the second-largest producer of the copper when the national output increased by 2.7%, reaching 2.39 million tons, accounting for 12% of total global copper output. Of the top 20 mines, 4 mines are located in Peru. It is a leading producer of not only copper but also of other metals such as silver, zinc, lead, molybdenum, tin and gold.

The mining sector a vital contributor of the Peruvian economy as it contributes 10% of total annual GDP per annum and is a major source of foreign exchange inflow in Peru. As of 2017, the mining sector contributed 60.5% of total exports and 21.9% foreign direct investment. Moreover, Peru is trying to attract more investment into its mining sector by offering significant advantages, creating very attractive and competitive climate for investors and eliminating transportation bottlenecks. According to the Peruvian Ministry of Energy and Mines, there are 48 awaiting main projects of estimated USD 59 billion in total value in different stages of development.

Tax instruments

Peru has a progressive fiscal scheme in the mining sector. The "Peruvian fiscal system in the mining sector enables fair and reasonable allocation of economic benefits and risks between mining investor and host government" (EY Peru, 2019).

- **Modified Mining Royalty - Royalty**

Peru implements the Modified Mining Royalty (MMR) and two other taxes which are parallel to the MMR: Special Mining Tax (SMT) and Special Mining Burden (SMB). The MMR is levied on operating income which is defined as revenues generated from sale of minerals minus sales cost and operating expenditures. MMR rate ranges between 1% and 12% depending on operating margins. Companies must pay at least 1% MMR regardless its profitability. Due to the tax stabilization agreement, the Peruvian government introduced SMT and SMB to increase its rent from metallic mineral resources. The SMT rate ranges from 2% to 8.4% progressively on operating mining income. However, this tax is not valid for companies with stabilization agreements made before 2011. In this regard, SMB is imposed as a voluntary payment for companies with stabilization agreement. The SMB is paid towards public spending. The base of the SMB is operating income with marginal rates ranging between 4% and 13.1%. Generally, the SMT and SMB are used to indirectly increase the royalty rate in the presence of stabilization agreements.

- **Corporate Income Tax**

Mining companies operating in Peru are levies with a 29% CIT. For companies with stabilization agreements, they are obligated to pay an additional 2% premium as they are treated generously under the stabilization agreement. In other words, companies with stabilization agreements must pay a 31.5% CIT. The taxable income is estimated as gross revenue deducted by costs of sale and expenses necessary to produce the income. There is no ring fencing between projects or concessions, only between companies even when they are members of the same group.

- **Other taxes**

Mining companies are obligated to pay indirect VAT tax of 18%. Additionally, withholding taxes on dividends to nonresidents (5%), interests to non-residence (30%), payments for technical assistance services (15%) and royalties paid for the use of intangible property (30%). However, the withholding taxes on interest to non-residence could be reduced to 10% or 15% under tax treaty and to 4.99% for unaffiliated foreign lenders if specific conditions are satisfied.

Tax incentives

1) Income Tax Incentives

Mining companies in Peru are obliged to pay a worker's participation of 8% on net profits. The total sum, equal to 18 times the worker's monthly salary, must be collected in a special educational, social and recreational fund. Disbursements from the fund are decided by a board composed of not only representatives of the mining companies, but the government and workers as well. This amount can then be deducted for CIT purposes (Garcia, 2017).

a. Income tax holidays

Peru does not offer income tax holidays.

b. Withholding tax relief

In Peru, a general 5% dividend tax is applied to profits distributed to nonresidents and individuals from 1 January 2017. There is no special withholding tax relief for the mining sector (EY Peru, 2019).

c. Cost-based incentives for income tax

i. Accelerated deprecation

Mining companies operating in Peru may depreciate the acquisition cost of fixed assets for CIT purposes. A depreciation rate of 20% for mining and processing equipment and 5% for real estate is granted to mining investors who have stability agreements in place with the Peruvian government. Where there is no stability agreement, the general tax rule for accelerated depreciation applies (EY Peru, 2019).

ii. Investment allowances

As for investment in Peru, mining companies can choose to either expense exploration costs in the year they are incurred or amortize the costs evenly over the useful life of the mine from the year minimum production is achieved. Costs incurred in acquiring mining concessions and investments in prospecting and/or exploration work up to the date the legally required minimum production is achieved, should be capitalized and subsequently amortized by an annual percentage based on the life of the deposit. As for feasibility studies, they may either be classified as development costs or as pre-operative expenses. Development costs are costs that relate to the access to before a company starts generating income from mines and can be expensed the year they are incurred or amortized over a period of three years from the year they were incurred. Pre-operative expenses are other general costs relating to the period before a company starts generating income and can be expensed the year they are incurred or amortized over a period of 10 years from the beginning of production.

iii. Investment credits

Peru does not offer investment credits as a mining tax incentive.

iv. Loss carry forward

Taxpayers may choose to carry forward their Peruvian tax losses in accordance with the 2 systems below. If a particular system is not chosen by the taxpayer, the Tax Administration applies the first system.

1. Losses incurred in a year may be carried forward and set off against profits arising in the following 4 years; or
2. Losses incurred in a year may be carried forward and set off against 50% of future profits of the following years indefinitely. Generally, losses from Peruvian source income may be offset against any Peruvian source income and foreign source losses may only be offset against foreign source income, and may not be carried forward. There is no loss carry back system in Peru.

2) Tax Stabilization

In Peru, based on the size of the investment, a mining company may sign a 10, 12 or 15-year stabilization agreement with the government. These agreements are

detailed in the General Mining Law. In the Foreign Investment law, the mining company may also make a 10-year stabilization agreement with a government agency called Proinversion provided that the company invests a minimum of 10 million USD within a two-year period. Mining companies may also take part in the "Obras por Impuestos" regime in which companies can finance or execute local or regional public investment projects in exchange for tax certificates. These certificates can then be used to pay CIT and can be considered a 100% effective investment from a tax perspective. Peru had also adopted transfer price rules based on the OECD guidelines in order to ensure tax payments and ensure the use of the arm's length principle.

However, not all mining tax incentives benefit the host country as the following box on Tanzania shows.

Box 2. Case study: Tanzania's fiscal regime

A number of policies and programs have been implemented by the government of Tanzania in order to promote foreign direct investment into the country. Most of these incentives take the form of tax incentives with the government offering a deduction, exclusion or exemption of taxes in order to attract investment, particularly in the mining sector.

As of 2012, the following tax incentives were offered to mining companies in Tanzania: zero import duties on fuel and on imports of mining related equipment during prospecting and until the end of the first year of production (afterwards the tax rate is 5%), no capital gains tax, special VAT (including no VAT on imports an local supplies of goods and services to mining companies and their subcontractors), the cost of mining equipment could be offset against taxable income, a 0.5% stamp duty as compared to the legal rate of 4%, a maximum payment of local government taxes of $200,000 as compared to the 0.3% of turnover required by the law, depreciation allowance for depreciable assets in the year of expenditure which can be carried forward as well as 0% import and excise duties for mining equipment during exploration and mine development until the end of the first year of commercial operation (afterwards, the tax payable is capped at 5%) (Policy Forum, 2012).

In addition to the tax incentives mentioned above, several other fiscal incentives were offered to companies willing to invest in Tanzania, with mining companies easily eligible for most. For instance, companies investing more than 20 million USD in Tanzania were eligible for strategic investor status and could therefore apply for special incentives from the government. These special incentives are not made public. Additionally, any company newly listed on the Tanzanian stock exchange, Dar es Salaam Stock Exchange, with at least 30% of their shares issued to the public were subject to a 25% CIT for the first 3 years and completely exempt from paying capital gains tax. For reference, the CIT and capital gains tax rate defined in the law is 30%. Items such as insurance, education, financial services and tourist services were also exempt from value added taxes (Policy Forum, 2012).

However, the overall effect of these generous tax and non-tax incentives are mixed. While they no doubt reduced the investment burdens of mining companies, there is also no question that the incentives greatly reduced expected government revenue. There is also the thought that incentives for the mining sector should be avoided as mineral resources are finite, location bound and therefore its investments not susceptible to incentives, making government policies and incentives costly and redundant. According a report by the International Monetary Fund made in 2011, Tanzania has been experiencing below potential tax revenues. The report notes while Tanzania's mining sector has been growing, the sector has had little net fiscal impact and its limited contribution to overall tax revenues is unlikely to increase due to large imbedded tax holidays (IMF, 2011). For instance, Tanzania is a major producer of gold and while gold exports grew from 500 million USD to 1.5 billion USD from 2005 to 2010, the tax revenue generated from major gold mining companies remained consistent around 100 million USD. These tax revenues are generated from taxes on wages and royalties as the 1998 Mining Act and

agreements with mining companies have resulted in significant tax holidays with none of the existing gold projects having paid any material income taxes (IMF, 2011).

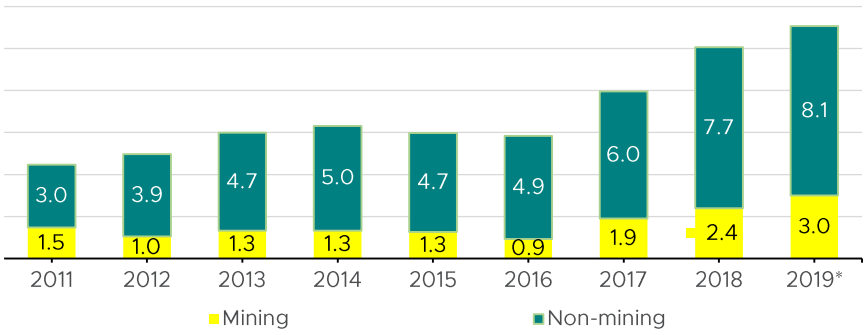
Since July 2010 however, the Tanzanian government has practiced “ring-fencing” such that losses incurred by one mine cannot be reduced from the profits of another mine even if the two mines are one legal identity. This ensures that payable tax isn’t reduced for the second mine and that the government isn’t losing out on tax revenues (PWC, 2012). Tanzania also has a carried interest equity regime in which the government’s contribution to the development of a mining project is financed by the mining company or contributor. This amount is then repaid with interest from the government’s future revenue (IMF, 2014). In 2017, the government also amended mining and tax laws such that it was mandatory for the government to own at least 16% of mining projects. Further legal amendments made is possible for the government to also renegotiate contracts for natural resources and remove the right to international arbitration. In addition to owning 16%, according to the new law, the government also has the right to acquire up to 50% of the shares of the mining company commensurate with the total tax expenditures incurred by the government in favor of the mining company. This suggests that the government might take further shares in mining companies that owe the state taxes instead of the money owed (Ng'wanakilala, 2017).

IV. Taxation In Mongolian Mining Sector

The Mongolian economy is highly reliant on the mining sector as it has constituted 21.9% of GDP and around 87% of exports in 2018. The mining sector is a vital source of the budget revenue as it contributed 24% of the total budget revenue as of 2018 (FIGURE 5). Moreover, 43% of total investment was directed to the mining sector as of 2017. In line with that, the mining sector constitutes a significant portion of exports and foreign direct investment. Moreover, the mining sector is a major source foreign exchange stock in Mongolia.

As shown in the following figure, the mining sector's contribution to the government revenue has been increasing over the last decade. As of 2018, the mining sector contributed a revenue of MNT 3 trillion to the state budget, 24% of total budget revenue.

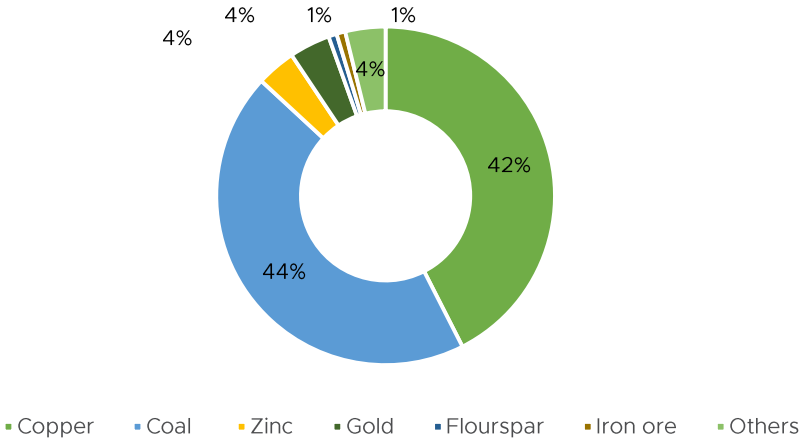
FIGURE 5. BUDGET REVENUE DECOMPOSITION, TRILLION MNT



**- Forecast; Source: Ministry of Finance*

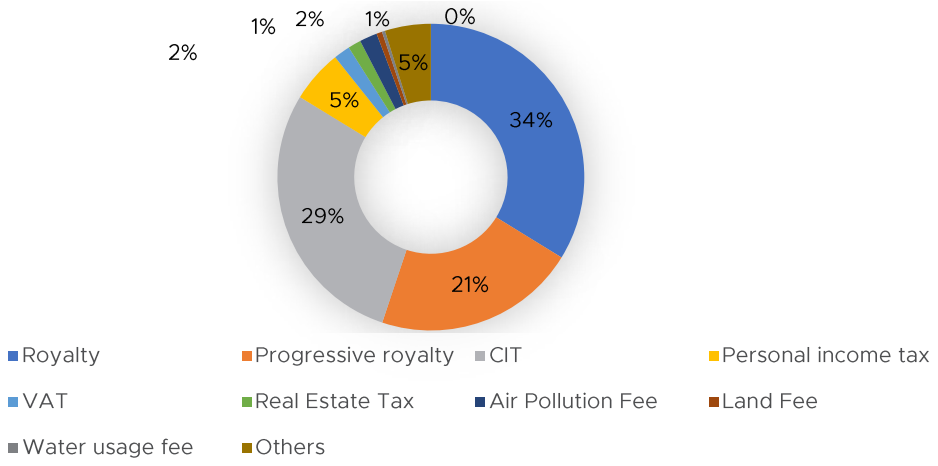
The following two figures show the decomposition of taxes and fees paid to the state budget by the mining sector. As shown in FIGURE 6, the coal and copper sectors generate a majority of the total tax income from the mining sector. In particular, 44% of the total budget income from the mining sector comes from the coal sector while 42% comes from the copper sector.

FIGURE 6. DECOMPOSITION OF TAXES AND FEES PAID TO STATE BUDGET BY COMMODITIES AS OF THE END OF 2018



Source: Ministry of Mining and Heavy Industry

FIGURE 7. DECOMPOSITION OF TAXES AND FEES PAID TO STATE BUDGET BY TAX INSTRUMENTS IN THE FIRST HALF OF 2018



Source: Ministry of Mining and Heavy Industry

4.1 Fiscal regime of the Mongolian mining sector

For Mongolia, the fiscal regime in the mining sector is based on "tax-and-royalty" system and is regulated by several legislations such as "Minerals Law", "General Tax Law" and its follow up laws on CIT, VAT, and other taxes and fees. There are no provincial or regional regulations.

The Minerals Law was first adapted in 2006. The purpose of this law is to regulate actions related to the exploration, exploration and use of minerals in the territory of Mongolia and the protection of the exploration area and mine environment. Since the adoption, the law was amended several times. Most recently, GoM amended the General Tax Law and Minerals Law in November 2019 and its implementation started from January 1, 2020. According to the Ministry of Finance, "the aim of the amendment was to upgrade entire taxation system in line with the rapid globalization". The upgrade will contribute to Mongolia's objective to leave FATF's grey list and the EU's black list, make tax information and data more transparent and lower compliance costs.

According to the Minerals Law, minerals on the land and subsurface in territory of Mongolia is a state property. A legal entity can request mining exploration and exploitation licenses. Once an entity receives a mining license, it must pay royalties, taxes and fees to the state or local budget. As of now, state budget receives revenue through more than 20 types of income sources including major taxes and fees instruments such as CIT, VAT, customs duties, excise taxes on fuel, license fees, air pollution fees. Meanwhile, there 13 types of fiscal instruments currently in effect at local budget level. The research team analyzed some of the major tax instruments in the Mongolian mining sector in the sub-sections below.

- **Royalty**

Mongolia implements a sliding scale royalty system. According to the amendment of Minerals Law, mineral taxes and royalties are obligated to be paid by any legal entity who:

- Sold or shipped a mineral to sell;
- Exported mineral; and
- Used mineral for personal use.

The royalty must be paid to the state budget. Previously, only mining lease holders who sold or shipped, exported and used minerals for personal use were obligated to pay royalties. A tax payer shall pay royalty on the basis of the sales value of all products extracted, sold or shipped for sale.

The sales value for the exported mineral commodities is estimated using the international benchmark price price. The sales value of domestically sold product estimated based on the domestic benchmark and if the benchmark prices cannot be determined, the sales value estimation can utilize the sales revenue reported by the license holder.

According to the Minerals Law, the base royalty rate is 5% and the royalty rate increases via a sliding scale depending an increase in mineral commodity prices. Conversely, the additional progressive royalty rate is lower when the mineral processing level (ore, concentrate, or final product) increases. The aim of the additional progressive royalty rate is to increase the government's benefits from the mining sector along with the project's windfall revenue and to promote mineral processing.

The royalties for main exporting commodities are described in the TABLE 2 below.

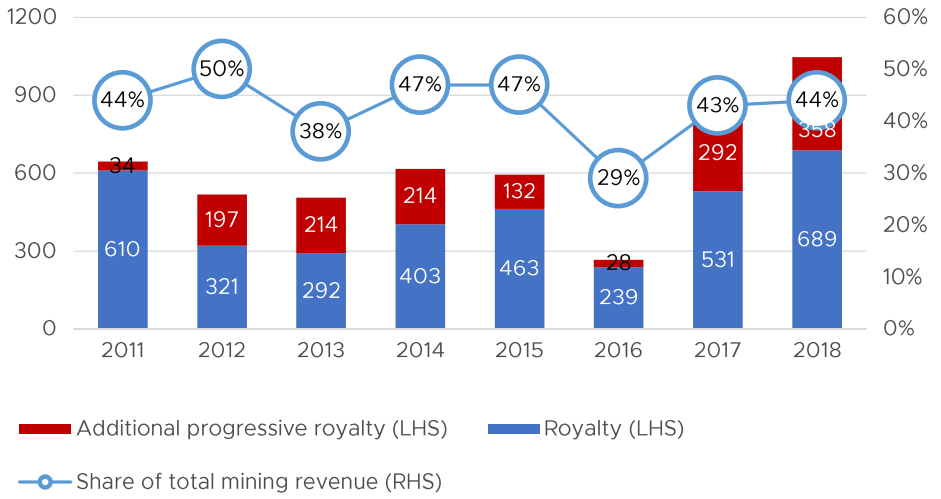
TABLE 2. MINERALS ROYALTY IN MONGOLIA

Minerals	Base Royalty Rate	Additional rate
Coal	□ If the coal is extracted and sold or shipped for sale in domestic market, royalty of 2.5% is levied based on its sales value. □ If the coal is extracted and sold or shipped for export, royalty rate is 5%.	□ *Raw coal:* As the benchmark price exceeds USD 25 per ton, 1% marginal rate is applied on every marginal increase USD 25 of price. The top rate of progressive royalty is 5%. □ *Washed coal:* As the benchmark price exceeds 100 USD per ton, 0.5% additional rate is applied on every marginal increase of USD 30 of price. The top rate of progressive royalty is 3%. □ *Cokes:* As the benchmark price exceeds USD 100 per ton, 0.5% additional rate is applied on every marginal increase of USD 30 of price. The highest progressive royalty rate is 2.5%.
Copper	□ 5% of sales value estimated using Benchmark price: Copper price announced by LME	If the benchmark market price exceeds USD 5000 per ton, □ 22-30% (a 2% marginal rate for each additional 1000SD per ton) of additional royalty is levied on per ton of copper ore, □ 11-15% of additional royalty on per ton of copper concentrate □ 1-5% of additional royalty on per ton of final copper product
Gold	□ 5% of sales value estimated using Benchmark price - gold price announced by BoM	□ Only if the gold is sold as final product, if the benchmark price exceeds 900 USD per ton, an additional 0-5% royalty is levied on per ounce of golden product depending on benchmark market price. If the gold is sold to BoM, the additional progressive rate is 0%.
Other Minerals	□ 5% of sales value	If the benchmark price exceeds certain level of price, additional royalty rates of ranging from 0.5% to 5% are levied on the per ton or minerals depending on the market price.

Source: Minerals Law

The following figure shows the royalty income by basic and progressive royalties and royalty revenue as a share of total fiscal revenue from the mining sector. As shown in the following figure, the mineral royalty constituted MNT 1.05 trillion, a 44% of total budget revenue generated by the mining sector. Out of which, 65.8% is collected through base royalty and the remaining 34.2% through the additional progressive royalty.

FIGURE 8. BUDGET REVENUE COLLECTED THROUGH ROYALTY, 2011-2018 (BILLION MNT)



Source: General Tax Authority

In accordance with Article 47 of the Minerals Law, the government can give up its ownership share of "strategic" deposits with a special royalty of up to 5%. The special royalty rate shall be determined by the GoM. However, the law does not stipulate how the special royalty will be determined. It just generally states that the government will adopt a regulation to address this issue.

- **Corporate Income Tax**

CIT is the second major source of government revenue from the mining sector. As shown in FIGURE 7, 29% of total government revenue from the mining sector is collected through CIT as of first half year of 2018. CIT is regulated by the CIT Law which was amended in March 2019 and implemented starting from January 1, 2020.

According to the CIT Law, CIT is levied on taxable income generated from sources within or outside the Mongolian territory during the fiscal year. Taxable income includes followings:

- Operational income;
- Assets income;
- Income from assets' sale or transfer; and
- Other incomes such as income from lottery win, income from arbitrage and insurance compensation.

The CIT rate is formulated in a sliding scale based on the annual taxable income scale. According to the CIT Law and Minerals Law, the CIT rate is:

- 10% for annual taxable income of MNT 0- 6 billion
- MNT 600 million plus 25% for annual taxable income of exceeding MNT 6 billion

- 20% on income from transfer of exploration and mining licenses

The following expenditures are deductible from the taxable income:

- Fund for environmental rehabilitation
- Expenditure related to the transfer of mining licenses
- Depreciation of infrastructure, which is constructed by the license holder

CIT is only exemptible for a sales income which is allocated to the entity who produces crude oil under the production sharing agreement.

The amendment of CIT Law and General Tax Laws include more generous provisions which decreases tax compliance time and costs. In particular, the amendment decreased the number of tax reports, allowed expenditure deductions and correction of tax reporting within a year, extended tax debt repayment due from 2 months to 2 years and decreased the number tax inspections.

- **Other taxes and fees**

The mining lease holders are obligated to pay other general taxes and fees to state and local budgets in the operating area. The following table shows some major taxes and fees in the mining sector in Mongolia.

TABLE 3. TAXES AND FEES LEVIED ON MINING COMPANIES OPERATING IN MONGOLIA

Taxes and fees	Rate
1. *Taxes paid to state budget*	
Withholding Tax on dividends and interests	- 10% on payments to residences - 20% on payments to non-residences - *Exemption:* A sales income of produced crude oil, which is allocated to the entity who produces crude oil in the territory of Mongolia under the production sharing agreement
Value Added Tax (VAT)	- 10% on sales value of all minerals produced or sold *Exemption:* - Crude oil and its articles - Final Mineral Products - Sales of gold

Taxes on imports of auto-gasoline and diesel fuel	- 5% of custom duty
	- Excise taxes
	  - MNT 80 - 210 thousand per ton of auto gasoline above 95 octanes
	  - MNT 150 – 280 thousand per ton of diesel fuels

2. *Fees paid to state budget*	
License Fees	*Exploration License Fees*: progressive depending on the year of exploration: - MNT 145 per hectare for the first year of exploration, - MNT 290 per hectare for second year,

	□ MNT 435 per hectare for third year, □ MNT 1450 for from forth to sixth years, □ MNT 2175 per hectare for 7th- 9th year □ MNT 7250 per hectare for the 10th -12th year of exploration. *Extraction License Fees:* □ MNT 21750 per hectare of the licensed area □ MNT 7250 per hectare for limestone, coal and minerals for domestic production intermediate use.
Social security premium and Health insurance premium	Up to 20% of salaries received by workers
Crude Oil License Fees	*Exploration License Fees:* □ USD 3 per hectare of exploration area for the first exploration license □ USD 8 per hectare of exploration area for the licenses, which extended its deadline *Extraction License Fees:* □ USD 100 per quadrat meter of licensed area □ USD 200 per quadrat meter of licensed area if the license period is extended *Note*: 10% of the fee have to be paid to the local budget, 20% is to Province budget and rest 70% should be paid to the state budget
Air Pollution Fees	• MNT1-2 per ton of extracted raw coal • GoM is in charge of the approval of rate of air pollution fees *Exemption:* New type of fuel which is produced by deeper processing of raw coal, and meets the standards, which is determined by the Professional Inspection Agency
Customs Service Fee	MNT 1500 per ton of coal and other types of minerals' export.
3. *Fees and taxes paid to local state budget*	
Real Estate tax	0.6% -1% on assessment of taxable value of the property
Tax on motor vehicles and self-moving vehicles	Tax rate is ranging from MNT 25,000 to MNT 720,000 depending on the carrying capacity or types of the vehicles
Transfer of 50% of the environmental protection expenditure to special fund account	50% of annual planned cost environmental protection should be transferred to the special fund of local state as a proof of environmental rehabilitation

Source: General Tax Law, Minerals Law

In addition to these royalties, taxes and fees, other fees such as the national stamp duty and water pollution charges are paid by the mining companies to the government. According to the Article 43.1 of Minerals Law, the mining license holders and their subcontractors are required to provide employment for Mongolian citizens and less than 10% of the employees of the legal entity can be foreign citizens. In conjunction with this article, another fee is levied on mining license holder. If the Article 43.1 is violated, the mining license holder will pay a fee as much as 10 times of minimum wage for additional each employment of foreign citizen.

- **State Participation in the Mongolian mining sector**

According to the Minerals Law, mineral resource deposits that are naturally present on the land surface or in the subsoil are all owned by Mongolia. Also, the state has the right to grant exploration and mining rights to other stakeholders in accordance with the conditions, requirements and procedures set forth in this law.

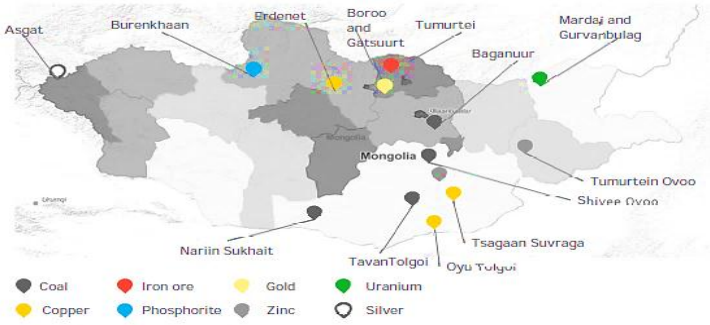
As the contribution of the mining sector is high, the state participation is likely to be dominant in Mongolia. The GoM carries out "State budget funded geological survey" which is geological mapping, thematic research and geological prospecting and exploration works financed by the state budget.

According to the Minerals Law, mineral deposits found in Mongolian territory can be divided into the following three categories:

- deposits of strategic importance (strategic deposits);
- deposits of common minerals; and
- deposits of conventional minerals

Here, a deposit of strategic importance refers to either a mineral deposit has an impact on the national security and the economic and social development of the country or deposits that produce or have the potential to produce 5% or more of the total annual GDP (Minerals Law, 2006). The state may hold up to 50% equity interest in an entity that holds a mining license for a strategic deposit if the reserves of the deposit were determined from explorations done using state funds. For strategic deposits explored with private funds, the state has the right to have up to a 34% equity interest in the entity that holds a strategic mining license. The Parliament of Mongolia (PoM) has the exclusive right through either a proposal to the GoM or through its own initiative to determine if a mineral deposit should be defined as a deposit of strategic importance. The state ownership share is determined by the PoM on the basis of agreement between GoM and investor party and explored quantity of the deposit. Additionally, at least 10% of the shares of the entity with a strategic deposit mining license must be traded on the Mongolian Stock Exchange.

FIGURE 9. STRATEGIC IMPORTANT DEPOSITS OF MONGOLIA



Source: Ernst & Young Mongolia, 2015

As for now, strategic important deposits in Mongolia are as follow:

TABLE 4. OWNERSHIP AND RESOURCES OF STRATEGIC IMPORTANT DEPOSITS

	Mines	Minerals type	Resources	License holding companies	Ownership share, %	
					GoM	Private
1	Tavan Tolgoi	Coal	6.5 billion tons of coal; 1.4 billion tons of coking coal	Erdenes Tavan Tolgoi LLC and	100	0
				Tavantolgoi JSC	51	49
				Energy Resource LLC	0	100
2	Nariin Sukhait	Coal	295.3 billion tons of coal	Mongolyn Alt Corporation LLC; Mongolian-Chinese Qinhua-MAK-Nariin Sukhait LLC; South Gobi Energy	0	100
3	Baganuur	Brown coal	645 million tons	Baganuur JSC	75	25
4	Shivee-Ovoo	Brown coal	645 million tons	Shivee-Ovoo JSC; Erdenes Mongol LLC; Aq Sora;	90	10
5	Erdenet	Copper, Molybdenum	6 million tons of copper, 170 thousand tons of molybdenum	Mongolian Copper Corporation; Erdenet Mining Corporation	51	49
6	Oyu Tolgoi	Copper, Molybdenum	45 million tons of copper; 157 thousand tons of molybdenum; 12 tons of silver; 1.8 thousand tons of gold	Erdenes Oyu Tolgoi; Turquoise Hill- indirectly owned by Rio Tinto	34	66
7	Tsagaan Suvarga	Copper, Molybdenum	1.6 million tons of copper; 66.2 thousand tons of molybdenum; 10.7 thousand tons of gold	Mongolyn Alt LLC	0	100
8	Asgat	Silver	24.9 million tons of ore; 6.7 thousand tons of silver; 210.9 thousand tons of copper	Mongolrostsvetmet LLC; Erdenes Mongol LLC	51	49
9	Mardai	Uranium	924.6 thousand tons of ore; 16.1 thousand tons of metal	-		
10	Dornod	Uranium	49.8 million tons of ore; 56.9 thousand tons of metal	-		

11	Gurvan Bulag	Uranium	10.56 million tons of ore; 16.1 thousand tons of metal	-		
12	Tumurtei	Iron Ore	7.5 million tons of ore	Tsairt Minerals LLC	0	100
13	Bvrenkhan	Phosphorite	162.6 million tons of phosphorite of ore	Sutaikhen Tso LLC; Toproun Khentso LLC; Talst Margad LLC	0	100
14	Boroo	Gold	13.4 million tons of ore; 38.4 tons of gold; 5 tons of silver	Boroo Gold LLC	0	100
15	Tumurtein Ovoo	Zinc, Lead	7.5 million tons of ore	Darkhan Metallurgical Plant LLC	100	0
16	Gatsuurt	Gold	50 tons of gold	Centerra Gold Mongolia LLC		

** Ownership is not determined yet*

Source: Resolution of Parliament of Mongolia – Number 27, 2007; Resolution of Parliament of Mongolia – Number 11, 2015; Ernst & Young Mongolia, 2015

The GoM has established a state-owned enterprise, "Erdenes Mongol" LLC in 2016 with the purpose of implementing state representation on strategic mineral deposits and manage mineral licenses and promote the mining sector. The company's core activities are in holding shares and operating several of Mongolia's largest mines including the Oyu Tolgoi gold-copper mine, the Tavan Tolgoi coal mine, the Shivee-Ovoo coal mine and the Baganuur coal mine. The company also operates or has stakes in gold, silver and uranium exploration companies.

Unfortunately, according to the NRGI, Erdenes Mongol's administrative and institutional performance is not good based on the following rationales:

- Erdenes Mongol's mandate—and more broadly the government's role in the mining sector—have never been clearly defined;
- Political influence on decision making process is significant;
- Poor governance and control of subsidiaries and joint ventures companies;
- Lack of transparency and oversight;
- Low profitability and higher costs; and
- Future debt burden. (NRGI, 2019)

According to the Article 5.2 and 5.3 of the Minerals Law, state participation rate of strategic significant deposits is allowed to be replaced by the royalty payment. The special royalty rate shall be determined depending on the deposit's specific nature and shall not exceed 5%. Although, it is allowed to replace the state participation with the royalty payment, there is no rule or regulation about the replacement.

Another major revenue source is crude oil revenue from oil sector under production sharing agreement. According to the EITI Annual Report 2017, two mining companies with three crude oil exploitation licenses are operating under production sharing agreements. The revenue from crude oil which allocated to the government

under production sharing agreement constituted 9.2% of total government revenue from the mining sector as of 2017 (EITI, 2018).

- **Mining contribution**

Governments could also benefit through contributions from the mining company. In other words, governments can require mining companies build hospitals, schools or contribute to the local infrastructure. For instance, in Peru, mining companies under stabilization clauses are required to contribute to local development in voluntary or non-voluntary ways as discussed above.

For Mongolia, mining companies contribute to local infrastructure and make other social contributions. However, in Mongolia's case, these contributions are not creditable against any taxes or fees. As of 2017, the value of mining contributions to state was equal to 0.4% of total government revenue from the mining sector.

4.2Mining incentives in Mongolia

1) Income Tax Incentives

The majority of the profits from mining activities are collected through either royalties or income taxes. As such, offering tax incentives are a popular method of reducing the high costs of investing in mining. In Mongolia, all corporate entities are either subject to a 10% income tax for profits below MNT 6 billion and or a payment of MNT 600 million in addition to a 25% income tax on any income above MNT 6 billion according to the CIT Law. There are no special income taxes or incentives for companies operating in the mining sector.

With the exception of the income from the sales of immovable property, there is no specific capital gains tax in Mongolia. However, in November 10 2017, the PoM amended the Income Tax Law such that any transfer transactions of shares that change the ultimate control of a mineral license holding entity are subject to paying capital gains tax. In all other cases, there are no capital gains taxes and capital transactions are only taxed through general CIT (PWC, 2018).

In terms of foreign investment, there only a few restrictions on foreign investment into the mining sector. Surveillance, exploration and mining activities can be conducted by both foreign and national companies with the only stipulation being that the legal entity be registered as a Mongolian taxpayer. Thus, a foreign investor cannot directly apply or hold mineral licenses without either establishing a foreign-owned company in Mongolia or by investing in a joint venture with a Mongolian company (ICLG, 2018). It is also worth mentioning that licenses were previously awarded to individuals whereas now all mining and exploration licenses are granted only to legal entities. As such, no licenses are needed for artisanal mining.

Though there are no major differences between Mongolian owned and foreign owned legal entities under the Minerals Law, foreign entities (with a capital composition of 25% or higher foreign investment) are not eligible for land possession rights. They are only eligible to land use rights and thus are barred from subleasing or pledging the land they are using.

The main difference between foreign and domestic entities is included in the Investment Law. According to the law, foreign state-owned enterprises that invest in

entities operating in the mining sector in Mongolia need governmental approval if they plan to acquire 33% or more of the shares of the mining entity (PWC, 2018).

a. Income tax holidays

Mongolia does not currently offer income tax holidays for the mining sector.

b. Withholding tax relief

In terms of withholding taxes paid on dividends, interest, royalties paid and payments made for goods sold and services provided, the rate is 10% for domestic residents and 20% for non-residents. However, Mongolia does have Double Taxation Treaties with numerous countries, mitigating the risk of being unfairly double taxed (PWC, 2018).

c. Cost-based incentives for income tax

i. Accelerated deprecation

According to Article 13 of the CIT Law, machinery and equipment are defined as having a useful life of 10 years and are thus depreciated and deducted from taxable income accordingly. However, this definition is broad and makes no special exemptions for mining equipment.

i. Investment allowances and Investment credits

Investment allowances and credits are not offered in Mongolia.

ii. Loss carry forward

According to the CIT Law, in the instance of tax losses incurred by companies operating in either the infrastructure or mining sector, the losses can be deducted from taxable income for 4 to 8 consecutive years after the year the loss is incurred. The number of years depends on the size of the investment and it is 2 years for businesses operating in other sectors.

2) Tax Stabilization

According to the Investment Law of Mongolia, investors that are eligible for a "Stabilization Certificate" can stabilize the rates for the following taxes

- CIT
- Customs duties
- VAT
- Mineral Royalties

The rates can be stabilized from 5 to 18 years depending on the size of the investment. In order to be eligible, the investment must create new permanent new jobs and introduce innovative technology in addition to reaching a certain level of investment within a certain number of years. The following table shows the conditions that need to be met for companies operating in the mining, heavy industry, and infrastructure sectors (PWC, 2018).

TABLE 5. STABILIZATION CERTIFICATE TERMS

Investment amount (billion MNT)	Stabilization certificate terms (years)					Investment Period (Years)
	Ulaanbaatar Region	Central Region[4]	Khangai Region[5]	Eastern Region[6]	Western Region[7]	
30 to 100	5	6	6	7	8	2
100 to 300	8	9	9	10	11	3
300 to 500	10	11	11	12	13	4
more than 500	15	16	16	17	18	

Source: PWC

In addition to stabilization certificates, according to the Investment Law of Mongolia, investors who plan to invest more than MNT 500 billion into Mongolia can request to create an Investment Agreement with the government. This agreement can be effective for longer than the legally specified time frames for stabilization certificates and according to Article 20.4 of the law, unless otherwise specified, Investment Agreements can include provisions to ensure legal stability, tax stabilization and as well as management and financial support. Investment Agreements must be created in accordance to Government resolution #52 ratified in 2014 on crafting investment agreements. According to the resolution, any investor with or without a stabilization certificate planning to invest at least MNT 500 billion can request to sign an agreement with the GoM. However, if the GoM finds the investment to be unprofitable for Mongolia or have a severe negative impact on the environment, the GoM holds the right to refuse signing an investment agreement. The regulation details the process of creating investment agreements as well as its content, including provisions on environmental protection and local development.

Previously, foreign investment was regulating according to the Foreign Investment Law of Mongolia, with the GoM publishing a model stabilization agreement through Government resolution #24 ratified in 2005. The model contract was general, with no specific provisions regarding the domestic labor force or local development. Since the repeal of the Foreign Investment Law of Mongolia in 2013, with the subsequent ratification of the Investment Law of Mongolia in October 3 2013, the government has not published a model Investment Agreement. However, the scope of its contents and its provisions have been regulated according to Government resolution #52 as previously mentioned.

[4] The Central Region consists of the following provinces: Govisumber, Dornogovi, Dundgovi, Darkhan-Uul, Umnugovi, Selenge and Tuv

[5] The Khangai Region consists of the following provinces: Arkhangai, Bayankhongor, Bulgan, Orkhon, Uvurkhangai and Khuvsgul

[6] The Eastern Region consists of the following provinces: Dornod, Sukhbaatar and Khentii

[7] The Western Region consists of the following provinces: Bayan-Ulgii, Govi-Altai, Zavkhan, Uvs and Khovd

In 2012, the International Institute for Sustainable Development published a model mining development agreement transparency template. Prepared by the Sustainable Development Strategies Group, the agreement template is divided into 38 subsections that provide detailed provisions related to mining development (Mann, Danielson, Disney, Phillips, & Zubkova, 2012).

In contrast, Government resolution #52 which includes the legally required contents of investment agreements, only include parts of about 14 of the subsections mentioned above. There are also no detailed requirements. However, it must be mentioned that as mentioned by the resolution, investment agreements are mainly concerned with financial and taxation regulations, are not specific to the mining sector, and focus on investment regulations and the rights and obligations of the government and the investing company. Therefore, a direct comparison would be inaccurate. However, it is important to note the differences in the level of details as well as amount of regulations. Offering greater contractual freedom, the legal content requirements of the investment agreement is very general, and include a blanket provision that includes any other issue the investing company and the government have agreed on. While this lack of specifics allows ample room for negotiation to meet the needs of both the government and the investing company, it also can lead to agreements that don't offer detailed resolutions. With a general investment agreement, there is room for confusion as well as the chance for unregulated conflicts.

While tax stabilization is a key form of investor protection that most resource rich countries offer, it must be implemented intelligently lest it negatively affect the host country. The following box details such an instance that occurred in Mongolia.

Box 3. Boroo Gold

Located in Selenge province, the Boroo Gold mine was the largest foreign investment into Mongolia at the time it began production in 2004. Prior to beginning production, the GoM and Boroo Gold LLC entered into a Stability Agreement as cited in the current Minerals Law in 1998. This agreement was then amended in 2000 and the key tax stabilization agreements are detailed below.

<table>
<tr><td>1998 Stability Agreement</td><td>2000 Amended Stability Agreement</td><td>2007 Amended Stability Agreement</td></tr>
<tr><td>For 10 years until July 2008</td><td colspan="2">Extended to 15 years until July 2013</td></tr>
<tr><td>Initial investment of 15 million USD within the first 5 years (total of 20 million USD)</td><td colspan="2">Initial investment of 20 million USD within the first 5 years (total of 30 million USD)</td></tr>
<tr><td>3 years after production – no CIT
3 years after – 50% discount off CIT
15% thereafter (if taxable income is below 100 million MNT)
40% thereafter (if taxable income is above 100 million MNT)</td><td>Effective March 2007</td><td>Generally applicable 25% CIT effective January 2007</td></tr>
</table>

0% import duties		
0% export duties		
10% VAT	VAT can be deducted from payable tax according to Article 11 of the VAT law	
Royalties calculated according to current Minerals Law	Royalty rate specified as 2.5%	Royalty rate of 5% effective August 2007
	Amendments made to how the contract can be cancelled	

Boroo Gold officially completed its mining activities in September 2012, with its Stability Agreement ending in July 2013. The mine's gold production, as reported in Centerra Gold's annual reports, are shown in the table below.

Thousands of ounces	2004	2005	2006	2007	2008	2009	2010	2011	2012
Gold produced	246	286	283	255	193	151	111	59	72

As the table shows, the majority of the gold produced by the Boroo Gold mine was mined from 2004 to 2006, during which according to the Stability Agreement, Boroo Gold enjoyed a 3-year tax holiday.

Can incentives work for Mongolia?

As mentioned in the section above, with the exception of strategically important deposits, Mongolia does not have programs incentivizing the mining sector in particular. This brings up the question of if incentives might be helpful in incentivizing the sector.

In particular, Mongolia experienced a sharp drop in foreign direct investment for the period between 2012 and 2016 (ERI, 2018). In order combat this kind of drop in the future, we want to study firstly whether tax incentives can boost mining sector investment and secondly, what other types of instruments might be available for Mongolia to increase investment.

While it may initially seem easier to change Mongolia's tax regime and expect foreign investment to be sensitive to these changes, it should be noted that not all tax incentives are efficient and not all tax incentives achieve the ultimate objective of maximizing benefits to the state. In particular, the literature on mining tax incentives highlight the careful design of tax regimes in order for it to be efficient and effective.

There is extensive literature that assess whether tax incentives boost foreign direct investment. For example, Klemm et.al. (2012) argue that foreign direct investment is largely dependent on the level of institutional quality of the country in question. The authors specifically argue that there is no linear relationship between taxes and foreign direct investment. In particular, for developing countries, when institutional

quality erode tax incentives do not work and governments are advised to promote investment through other instruments directed at improving the business environment.

Developing countries have also implemented other types of tax incentives such as tax holidays. These types of incentives were not found to be effective in developing countries in terms of the accumulation of capital formation (Mintz J. , 1995). This may be related to the fact that natural resources are geographic specific and in some cases, the mining activities are season specific and as such, do not respond to these incentives.

In terms of institutional quality and business environment, Mongolia does not score well. In terms of the "Ease of Doing Business" report published by the World Bank, Mongolia ranked 74th out of 194 countries. Moreover, Mongolia ranked 126th according to the "Economic Freedom Index" by the Heritage Foundation. In terms of investment attractiveness, Mongolia was ranked 81st out 104 countries in 2016 by the Frazier Institute. These rankings show that the country's business environment is weak overall. This suggests that tax incentives might be an ineffective instrument to spur foreign direct investment into Mongolia. It should be noted however, that for strategically important deposits the government and the investor will have to come into negotiation to agree on taxes and royalties.

On the other hand, if tax incentives are likely to be a weak instrument to boost investment for Mongolia, we should analyze if there is a real need for the mining sector to have tax incentives to attract direct investment in the first place.

According to Manley, Mongolia's tax challenges are not as pronounced as those in the Kyrgyz Republic or other similar countries (Manley, 2018). In particular, Mongolia's tax regime's effective tax rate is between 50 to 60 %. Although it is lower than the highest effective tax rates in countries like Indonesia and Chile, it is much better than Kazakhstan's, which is lower than 50 %, and the Kyrgyz Republic's, which is lower than 40 %. In other words, in comparison to similar Central Asian countries, Mongolia's effective tax rate is higher, meaning there is a room for tax incentives. However, these Central Asian countries fare poorly in terms of resource governance whereas Mongolia ranks higher.

This presumably means that on one hand the country has a room to incentivize through taxation and governance is better in comparison to other Central Asian countries. Thus, it might be possible for the country to implement tax incentives.

However, on the other hand, the county's tax burden is not as high as other more developed countries and according to the Frazier Institute's policy perception index, Mongolia ranks 101st out of 104 countries. This suggests that the tax burden on mining companies is not the highest concern for mining companies. On the contrary, political and policy stability is a major concern for investors. Moreover, in the same survey, Mongolia's mineral potential was ranked at 50th out of 104 countries and investors indicated that the mineral potential is not a deterrent to investment. Thus, it is of paramount importance that in order to boost investment, the GoM should focus on policy stability first and foremost.

Based on these findings we can argue that in order of importance, the GoM should focus more on the stability of policies and the improvement of Mongolia's business environment in order to promote foreign direct investment. We also argue that although there is a room for tax incentives, given the quality of institutions in the country, reflected in a weak business environment and policy instability, tax incentives might not be effective as was argued in (Klemm & Parys, 2012).

V. CONCLUSIONS AND RECOMMENDATIONS

As the most important economic sector of Mongolia, the mining sector not only makes up a significant portion of Mongolia's GDP but is also a key driver of economic growth. In light of this importance, one of the most important tasks of the GoM lies in the continued and sustainable development of the mining sector. However, in order for the mining sector to thrive, continued foreign investment and exploration is vital. Mining incentives therefore play an important role in boosting activity in the mining sector.

One of the main avenues through which governments can support mining investment is through offering tax incentives. As mentioned earlier, tax incentives can be broadly defined as any measure that provides more favorable tax conditions for mining companies. While tax holidays have proven detrimental, most governments offer some type of CIT relief, usually through reducing the amount of taxable income.

In Mongolia, there are not many regulations specifically targeted towards companies operating in the mining sector. For instance, mining companies pay the same CIT rates incurred by all companies operating in Mongolia. While the cost of machinery and equipment are depreciated according to its useful and deducted from taxable income, the list of eligible fixed assets are very general and not specific to mining equipment. Likewise, though mining companies that invest heavily into Mongolia are eligible to sign stabilization agreements, these agreements are offered to other investment-heavy sectors such as the infrastructure sector as well. Exploration costs as well as the cost of their equipment are also not deducted from taxable income nor are any tax credits offered. Likewise, the cost of the environmental rehabilitation of mines are also not tax deductible, increasing the cost of abiding to environmental regulations. As such, looking at legal documents that apply to the entire mining sector, it is difficult to say that Mongolia offers substantial incentives to mining companies looking to invest.

Instead, in practice, most of the incentives offered by the GoM seem to be related to strategically important mineral deposits that require negotiating a contract with the GoM. However, as these conditions are settled on an individual basis with only a few documents such as the Oyu Tolgoi Agreement as examples, it is difficult to assess the effectiveness of mining incentives in Mongolia.

As such, there remains room for Mongolia to implement tax incentives in the mining sector. However, in light of Mongolia's weak institutional quality and business environment, offering tax incentives may not be an effective instrument for boosting foreign direct investment. As we mentioned earlier, when making investment decisions, mining companies focus more on political and policy stability as well as the general business environment of the country. Thus, while mining tax incentives may boost positively affect investment somewhat, it does not seem to currently be a key concern for Mongolia.

Therefore, based on the extensive literature on the effectiveness of tax incentives and various business environment and investment perception surveys, we argue that although the country's tax burden is not low, the stability of policies and

improvement of business environment in the country will be rather detrimental in incentivizing the investment in the mining sector.

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