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The Role of the State in Mongolia's Mining Sector

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Key Messages

- While the Mongolian government has undertaken several rounds of privatizations since the end of socialism, the state remains a **major commercial participant** in the mining sector.
- **Majority or controlling state interest** in mines is common globally, often to strengthen state control over the sector, generate additional revenues, or address market failures. On the other hand, state mines can represent a liability for the government, can overinvest, and be used as a source of patronage and corruption. To enhance national benefits from mining, the government of Mongolia could:
 - Enact a state-owned enterprise (SOE) law to improve state-owned mine performance;
 - Require the Ministry of Mining and Heavy Industry or the Government Agency for Policy Coordination on State Property to approve major investments by mining SOEs;
 - Require the Ministry of Finance and the State Great Hural (the parliament) to approve all debt issuances by mining SOEs;
 - Enact a dividend policy for state-owned mines;
 - Appoint and dismiss board and mine managers based on objective criteria and independent assessments of manager performance; and
 - Commission independent external audits of all state-owned mines.
- Erdenes Mongol LLC owns **minority shares** in at least seven entities, which it could consider selling under the right conditions. Global experience—for instance, from the Democratic Republic of Congo (DRC), Ghana, the Kyrgyz Republic, and Zambia—has shown that dividends on minority state shareholding in mines rarely meet expectations or are as large as initial projections because operators often do not declare significant dividends or only do so after many years.
- The government may wish to consider negotiating an exchange of state equity in **Oyu Tolgoi** in favor of higher royalties or imposition of a sliding-scale royalty.
- Sale of **Tavan Tolgoi** shares at the right price would generate immediate revenues for the state. However, privatization implies exchanging one set of risks for another; the choice is far from clear.
- The government could reform **Erdenes Mongol** and **state-owned mines** to ensure that they are operating efficiently, managers are technically proficient, dividends are paid, and mines are publishing audited financials using international accounting standards. However, if timely reform is not possible, the government may wish to consider partial or full privatizations of some mines.

1. Introduction

Mining dominates the Mongolian economy, already accounting for some 80 percent of exports and contributing a quarter of gross domestic product (GDP). In July 2020, the newly elected government reaffirmed its commitment to bring into production more of Mongolia's mineral deposits and to process minerals locally instead of exporting them. Its objectives are to boost government revenues, retain more value in-country, and create conditions for more diversified economic growth in the future.

Further commercial development of Mongolia's mineral resources, for which substantial financing will be required, faces several challenges. The first issue is the feasibility of developing Mongolia's mineral deposits. To be profitable, mining projects must overcome the costs of building and operating mines in remote areas that often lack transport infrastructure connecting the mines with China's mineral consuming centers and major seaborne mineral markets. Such projects must also address limited access to reliable and sustainable energy and water supplies and skilled labor. Second, Mongolia's substantial coal resources pose a stranded asset risk as the economics of coal power and heat generation deteriorates. For the moment, that risk is limited to thermal coal, but eventually metallurgical coal resources will be impacted as well, as zero carbon steel making grows. Third, exploration to discover new mineral deposits has been subdued for some time, and it will take many years and higher levels of exploration investment for new high-quality/low-cost deposits to be discovered. Fourth, some stakeholders experience, and many allege, that the environmental and social impacts of the mining sector outweigh tangible benefits and that the benefits are in any case distributed inequitably inside Mongolia. This calls for improvements in environmental and social performance of the mining sector, which may contribute to higher costs. Failure to address this issue would lead to low levels of public trust in, and antipathy toward, the mining sector.

The challenges and opportunities identified above confront the government as it seeks to advance mining sector "megaprojects." Careful consideration of the role that the government plays as owner of mineral resources is central to more optimal development of the mining sector and the government's approach to mobilizing finance. As recommended in the World Bank's *Policy Notes* (July 2020), the government may need to develop a more effective strategy to allocate scarce public funds and mobilize fresh private capital to support development of the mining sector.¹ The purpose of this analysis is to prompt an open debate based on policy evidence derived from robust analysis of options and trade-offs that can lead to an actionable reform agenda.

¹ World Bank (2020) *A Path to Sustainable Development in Mongolia: Policy Notes for the New Government*. Brief, 31 July 2020.

2. State involvement in the mining sector in Mongolia

The presence of high-value minerals in a territory requires the government to establish a framework for managing these resources in the public interest. At a minimum, this requires collecting taxes, royalties, and fees on behalf of the state and administering records such as the cadastre and licenses, as well as setting and enforcing sector legislation and regulation. Such legislation or regulation generally covers, for instance, licensing of exploration and production, environmental standards, engineering standards, social and health obligations, fiscal terms, and closure requirements. However, many governments view the state not only as a regulator and administrator but also as a commercial participant, mine operator, or developer of the mining sector, as when it, for example, encourages downstream value added or professional experience in the sector.

In its commercial role, the state may sell the government's share of raw minerals and/or manage the state's equity participation stake. Most governments of mining-intensive countries own significant interests in domestic mining operations, from Chile's and Zambia's majority shareholdings in copper mines to the Kyrgyz Republic's and the Russian Federation's minority holdings in gold and other strategic mines.² Free equity in mining projects (usually 10–20 percent) has now become almost a standard in most African countries, usually with the possibility of purchasing an additional participation at fair market value.

In its operational role, the state may participate directly in mining sector operations; for example, by drilling, managing a mine, or supplying extractive projects.³ For example, Saudi Arabia's state-owned mining enterprise, Ma'aden, produces phosphates, processes them into fertilizers, then markets and distributes the products globally. The company has similar operations in the aluminum sector, while operating gold, copper, zinc, and magnesite mines.⁴ In its sector development role, the state may be mandated to train nationals in mining sector skills, build infrastructure, or contribute to economic development in producing areas.

² World Bank (2011) [Overview of State Ownership in the Global Minerals Industry](#). Extractive Industries for Development Series No. 20.

³ An "operational" state may not necessarily be the mine "operator," meaning the lead partner on a particular project. The state may participate directly without being an operator, yet still be "operational."

⁴ Ma'aden (2021) [Our Business: Industrial Minerals](#). Riyadh.

Mongolia's State Minerals Policy explicitly recognizes the state as a commercial entity, operator, and developer of the sector. Sections 3.3 and 3.4 explicitly call for import substitution in the mining sector, industrializing using the mining sector as a base, domestic processing and downstream development, and maximization of state control. That said, section 3.7 calls for an initial public offering of shares of state-owned mining companies, although it stops short of calling for full privatization. It also calls for professionalization of state-owned mining companies, in line with private sector standards.

In practice, the Mongolian government engages in all types of state involvement in the sector. The Ministry of Mining and Heavy Industry (MMHI) is the entity responsible for setting minerals policy and approving regulations. The Mineral Resources and Petroleum Authority of Mongolia (MRPAM) grants exploration and development licenses and monitors operations. MRPAM also maintains the cadastre. The Ministry of Nature, Environment and Tourism approves environmental plans for mining projects, a precondition for production to start or continue. A large number of institutions collect fiscal revenues from the sector, including the General Department of Taxation, MRPAM, the Social Insurance General Office, Customs General Administration, Ministry of Finance, Ministry of Labor and Social Protection, and aimags (provinces) and soums (districts).⁵

The Mongolian government's commercial, operational, and developmental activities in the mining sector are driven largely by its state-owned mining enterprises. The largest of these is Erdenes Mongol, which is principally a holding company for a large number of state-owned mining and nonmining assets (see box 1). Other significant SOEs operating in the mining sector outside Erdenes Mongol's corporate structure include Erdenet Mining Corporation (copper mine and processing plant), Mongolrostsvetmet (fluorspar mine), and Darkhan (iron ore and metallurgical plant). Local governments are majority owners of several mining SOEs, including Bayan Teeg (coal), Mogoin Gol (coal), and Tavan Tolgoi JSC (coal, not to be confused with Erdenes Tavan Tolgoi).

Much of the state's commercial and operational involvement in the sector is a product of the nation's socialist history. For instance, Bayan Teeg was established in 1961, Mogoin Gol in 1970, Erdenet Mining in 1978, and Erdenes Mongol subsidiary Baganuur coal mine in 1978.⁶

In line with the fall of communism in most of Eastern Europe in the late 1980s to early 1990s, Mongolia embarked on a path of transition in 1990, moving from a centrally planned economy and a single-party authoritarian regime to a free-market economy and a multiparty parliamentary democracy. The new Constitution of Mongolia was adopted in 1992 to formally enshrine a representative democracy in Mongolia and declared human rights, justice, freedom, equality, and national unity as the key values of the new society. It also recognized all forms of property ownership, providing legal protection for ownership rights for the first time.

⁵ Mongolia EITI (2020) [Mongolia Fourteenth EITI Reconciliation Report 2019](#). Ulaanbaatar City.

⁶ Ibid.

Similar to Soviet economies, the state sector in Mongolia was responsible for more than 90 percent of GDP in the early 1990s. In the initial phase of the privatization, completed in mid-1994, over 4,500 formerly state-owned entities in various sectors were transferred to private companies and citizens. Each citizen was given vouchers to be exchanged for shares in enterprises, cooperatives, and state-owned farms. Although a large number of companies were privatized in a short time period this way, the government still retained its ownership in key sectors such as infrastructure, utilities, and mining.

Following the 1996 parliamentary election, a coalition government formed by newly established democratic parties announced plans to privatize virtually all of the remaining SOEs. The Mongolian government adopted an “Accelerated Program for Privatization,” defined the list of enterprises to be privatized, and focused on the sale of small and medium-sized state-owned enterprises from 1997 to 2000.⁷ During this period, some 942 enterprises and assets were privatized through various methods, raising marginal revenue (over \$US 65 million) for the state.⁸

The privatization trend of the 1990s affected the mining sector as well, although in a more limited way. Key coal producers Baganuur and Shivee-Ovoo, which supplied their products to power plants providing electricity and heating to the population, were partially privatized. Erdenet Mining Corporation was meant to be privatized at the same time; however, the plan was not fully realized due to low mineral prices (hence company valuation) at the time and political reasons. The government had no resources to invest in exploration, so the new entrants to the sector were largely private and foreign investors. In fact, the mining sector boomed following attractive new investment policies in the late 1990s and the start of a “super-cycle” of commodity prices.

Valuable deposits were found in Mongolia around this time, and many multinational mining companies held interests in Mongolia. However, shortly afterward, with public expectations and scrutiny of the sector increasing, the government began encouraging increase in state ownership and closer control of extractives. The change in government approach can be linked in part to negative public sentiment with regard to the benefits accruing from the Oyu Tolgoi copper and gold mine, which was discovered in 2001 by a Canadian mining company, Ivanhoe Mines.⁹

Located in the Southern Gobi Region of Mongolia, 80 kilometers north of the border with China, Oyu Tolgoi is a large copper and gold deposit with reserves of silver and molybdenum as well. One of the world’s largest copper-gold deposits, it is estimated to hold over 8.8 million tons of copper and 262 tons of gold.¹⁰

⁷ Władysław Jermakowicz and Piotr Kozarzewski (1997) *Privatization in Mongolia*. Center for Social and Economic Research, Warsaw.

⁸ Frederick Nixon and Bernard Walters (2004) *Privatisation, Income Distribution and Poverty: the Mongolian Experience*. UNDP Mongolia.

⁹ Charles Krusekopf (2014) *State Ownership and the Development of Natural Resources in Mongolia*. Royal Roads University, American Center for Mongolian Studies.

¹⁰ AMC Consultants (2020) *Oyu Tolgoi 2020 Technical Report for Turquoise Hill Resources Ltd.* 43-101 Securities Report.

Public protests and demonstrations against foreign miners increased in Mongolia as of early 2005 when Robert Friedland, chairman of Ivanhoe Mines, made a speech at an investor conference in the United States, noting that foreign miners such as Ivanhoe would be able to make huge profits from their holdings in Mongolia while paying only minimal taxes.¹¹

Although the sharp increase in commodity prices in those years had brought substantial investment to the country, the population became increasingly agitated by inadequate environmental practices and perceived lack of real benefits from the sector. In response, the government increased taxes on mining companies and introduced new laws and regulations aimed at increasing the state ownership in major natural resource projects. For instance, in 2006 the government adopted a windfall profits tax on gold and copper producers. Set at 68 percent (a figure anecdotally deemed astrologically auspicious) and applied to a base that allowed only partial deduction of costs, this tax was viewed as a major impediment to new investments until it was repealed in 2009.

From the early 2000s, a new wave of privatizations began as the government shifted its focus to the country's largest state-owned firms. According to the Privatization Guidelines for 2001–04 approved by the parliament, most of the large state-owned companies were to be privatized. The so-called "most valuable companies" on the list included key players in the banking, cashmere, finance, insurance, and mining sectors. By the completion of the Privatization Program in 2004, the government had successfully privatized leading providers of banking and financial services, as well as the key petroleum importer, for instance.¹²

By 2006, the private sector was responsible for approximately 70 percent of Mongolia's GDP, with almost all of the enterprises in trade, service, and manufacturing sectors being privately held companies. The government retained major SOEs in energy; mining; and transportation sectors including power plants, national airline, railway, and power stations; and large coal, fluorspar, and copper and gold mines.

Many of the remaining state-owned companies may not be commercially viable. The Government Agency for Policy Coordination on State Property, a government agency responsible for providing oversight of most of the SOEs, reported in December 2016 that out of 89 operational SOEs in Mongolia, 59 were not profitable. According to the agency, many of the SOEs carried heavy debts and some were not operating as businesses. This report led to another call for privatizations. A draft document on privatizing state property in 2018–20 lists 23 SOEs for full privatization and four others for a partial one.

The revised Minerals Law of 2006 allowed the government to acquire equity stakes in "strategically important mineral deposits" (SIMDs). The government could own up to 34 percent of shares in companies holding licenses for a given

¹¹ Patrick Barta (2007) "Big Dig: Mongolia Is Roiled by Miner's Huge Plans" Wall Street Journal. January 4.

¹² Seguir Mongolian Privatization Program Report (2004), BearingPoint, USAID and State Property Committee of Mongolia.

SIMD if it was discovered using private funds, and up to 50 percent of the shares when reserves were determined with state-funded exploration, and the project would be operated jointly with a private entity. The exact share and how equity holders finance any investment needs would be set through a mining contract, depending on the investment contribution by the government.

In 2007, Erdenes MGL (later renamed Erdenes Mongol) was formed as a state-owned holding company incorporated as a limited liability company (LLC), to consolidate the management of natural resource deposits, and especially SIMDs owned by the state (see box 1). In 2007, the parliament approved the list of SIMDs, which included 15 deposits, and later added one more deposit to the list.¹³ SIMDs are defined as deposits that can have significant impact on the national security, economy, and social development of the country, or as deposits that do or could contribute to more than 5 percent of GDP.¹⁴

These deposits include Oyu Tolgoi and Tavan Tolgoi, promising Tsagaan Suvarga, and thermal coal deposits of Baganaur and Shivee-Ovoo. The latest addition to the list of the SIMDs was made in January 2015 to add Gatsuurt gold deposit in Selenge Province, with estimated reserves of 40 to 50 tons of gold.¹⁵ See **Table 1** for a full list of SIMDs.

Table 1. List of Strategically Important Mineral Deposits

NO	DEPOSIT NAME	TYPE OF MINERAL	LOCATION (PROVINCE)	RESERVES
1	Tavan Tolgoi	Coal	Umnugobi, Tsogttsetsii	6,420 mln tons of coal, of which 1.4 bln tons are of coking coal quality
2	Nariin Sukhait	Coal	Umnugobi, Gurvantes	125,380 mln tons of coal
3	Baganaur	Brown coal	Ulaanbaatar, Baganaur	600 mln tons of coal
4	Shivee-Ovoo	Brown coal	Gobisumber, Shiveegobi	646.2 mln tons of coal
5	Mardai	Uranium	Dornod, Dashbalbar	1,104 tons at 0.119% U3O8
6	Dornod	Uranium	Dornod, Dashbalbar	28,868 tons at 0.175% U3O8
7	Gurvan Bulag	Uranium	Dornod, Dashbalbar	16,073 tons at 0.152% U3O8
8	Tumurtei	Iron	Selenge, Khuder	229.3 mln tons at 51.15% Fe
9	Oyu Tolgoi	Copper and gold	Umnugobi, Khanbogd	2.2 bln tons ore, 21.2 mln tons Cu, 772.9 tons Au

¹³ State Great Hural Resolution No. 27 of February 2007.

¹⁴ Article 4.1.12 of the Minerals Law of Mongolia.

¹⁵ Mineral Resources Authority (2016) *Annual Bulletin of Mining and Geology: Mongolia 2016*. Government of Mongolia.

NO	DEPOSIT NAME	TYPE OF MINERAL	LOCATION (PROVINCE)	RESERVES
10	Tsagaan Suvarga	Copper and molybdenum	Dornogobi, Mandakh	16 mln tons oxides, 250 mln tons sulphide ore with 1.6 mln tons of Cu and 66,000 tons of Mo
11	Erdenet	Copper and molybdenum	Orkhon, Bayan-Undor	1.2 bln tons at 0.51% Cu and 0.012% Mo
12	Burenkhaan	Phosphor	Khubsgul, Alag-Erdene	192.24 mln tons at 21.1% P3O5
13	Boroo	Gold	Selenge, Bayangol	24.523 thousand tons at 1.6 g/T Au
14	Tomortein Ovoo	Zinc	Sukhbaatar, Sukhbaatar	7,689.4 thousand tons at 11.5% Zn
15	Asgat	Silver	Bayan-Ulgii, Nogoounuur	6,402.6 thousand tons at 351.08 g/T Ag
16	Gatsuurt	Gold	Selenge, Mandal	40.0-50.0 tons of Au

Source: Annual Bulletin of Mining and Geology of Mongolia for 2016, MRPAM.

The provision of the law that allows the government to take an ownership interest was exercised for Oyu Tolgoi, arguably the most important SIMD for Mongolia. It should be noted that the list of SIMDs includes projects at different stages of the production lifecycle. For instance, Boroo gold deposit has already been fully exploited, whereas mining has yet to start at Gatsuurt and Asgat.

In addition to inheritance from the pretransition period and shares in SIMDs, the government increased its participation through what has been viewed by some as expropriation. For example, the Canadian company Khan Resources was awarded US\$ 80 million in 2015 through international arbitration on the basis of indirect expropriation (invalidation of licenses) of the Dornod uranium deposit, which was licensed to Khan Resources and included on the SIMD list.

Another important factor that contributed to the increase in the state participation in the mid-2000s was the rise in commodity prices and the increased interest in Mongolia's mineral assets. Under these circumstances, the number of politicians and supporters of increased state intervention in mining grew tremendously.

This rise in the state involvement and equity participation in mining projects, while supported by many, drew criticism, especially from the private sector, in recent years as the economy and commodity prices took a downturn, SOEs underperformed, and the government struggled to finance its equity participation in some major projects, especially Oyu Tolgoi. With that, the government's policies may have shifted. For example, the government amended the Minerals Law in 2009 allowing it to swap a state equity in SIMDs with additional royalty payments. Another example is the State Minerals Policy 2014-2025, which

states that the government’s primary objective is “to develop transparent and responsible mining sector that is based on the private sector.” The document also says that the state will transform SOEs into public, shareholding entities and that it will apply good governance practices when selecting the management and leadership of the SOEs in the mining sector.¹⁶

Despite this general trend to reduce state involvement in business, the role of the state in the mining sector remains significant, and in fact the Mongolian government has made several decisions in the recent past to solidify the state participation in the sector. The creation and expansion of Erdenes Mongol exemplifies the government’s intention to be a key player in the sector, but this decision may be based on widespread dissatisfaction with the benefits from mining rather than a clear strategy to use SOEs to achieve better economic and social outcomes.¹⁷

BOX 1:

ERDENES MONGOL’S ACTIVITIES AND FINANCES

Erdenes Mongol is a multifaceted state-owned enterprise. Established in 2007 as a holding company, it has evolved into a complex company with interests in mining, mineral processing, unconventional oil and gas, roads, border crossing facilities, hotels, restaurants, power generation, engine repair, steel, trade promotion, and asset management.

As of end of 2017, Erdenes Mongol valued its assets at approximately Tug 9.4 trillion (US\$ 3.9 billion). More than 82 percent of this was attributable to the Tavan Tolgoi coal mine. However, it also includes the 34 percent share in Oyu Tolgoi, the Shivee-Ovoo coal mine, the Baganuur coal mine, and a number of gold, uranium, and silver prospects.

The company only started generating profits in 2016, and even then, only small amounts (e.g., US\$ 16.3 million over the three years from 2016–18). It is highly illiquid, requiring regular bailouts from public entities such as the Development Bank of Mongolia. Profitability is expected to increase once the company begins to collect dividends from Oyu Tolgoi around 2035, provided all of its nonmining assets do not end up losing significant amounts of money.

Erdenes Mongol’s mandate has never been clearly defined. Oversight is also weak, even

though public disclosures of company activities and finances have improved over the last few years. As a result, it has been used by various governments as an instrument of political patronage, both in terms of board and managerial appointments and investments.

Wild Growth: An Assessment of Erdenes Mongol, a report by New York-based think tank the Natural Resource Governance Institute, suggests several reforms to improve the company’s performance and promote consistency between the State Minerals Policy and Erdenes Mongol’s activities. These include:

- Government enactment of a specific Erdenes Mongol law or one that covers all state-owned enterprises;
- Ministry identification of clear goals and performance targets for Erdenes Mongol;
- Subsidiary-by-subsidiary and project-by-project commercial viability assessments;
- Clear policy for establishing new subsidiaries;
- Clear criteria for appointment of board members and managers, along with an open appointment process; and
- Publication of audited financial statements on a subsidiary-by-subsidiary basis.

¹⁶ State Policy on Minerals 2014–2025 (2014). www.legalinfo.mn, ratified by the State Great Hural of Mongolia.

¹⁷ Interview with Dorjdari Namkhajantsan, National Resource Governance Institute (NRGI).

BOX 1 (CONT):

ERDENES MONGOL GROUP STRUCTURE

Majority-owned or controlled entities



ERDENES MONGOL ASSET CLASSIFICATION



Source: Andrew Bauer and Dorjdari Namkhajantsan (2019) *Wild Growth: An Assessment of Erdenes Mongol*. New York: Natural Resource Governance Institute.

3. Direct state participation

As ultimate owner of subsoil mineral resources and steward of natural assets for the people, the state has a duty to maximize value generated from mines. This implies maximizing benefits—fiscal revenue and nonfiscal benefits such as employment, skills, and technologies—while minimizing the environmental and social damage caused by mining.

There is no one way to achieve these goals. Governments have at their disposal a plethora of tools to maximize benefits while minimizing costs, from outright ownership and operation of mines to regulatory measures to moral suasion on mining companies. In this section, we will focus specifically on the use of state equity as a fiscal mechanism relative to other fiscal tools.

In general, ownership of any corporate entity can generate two types of profit—capital gains and dividends (there are other ways to leverage ownership; for instance, through collateralization, but that is beyond the scope of this paper). However, for specific mining projects, only the dividends are important because mining projects are not “going-concern companies.” This means that, contrary to projects in other sectors such as telecommunications, manufacturing, or services, mining projects have a limited life span. When a mining contract or license expires or when the resource is exhausted, mining operations end and the intrinsic value of the asset should decrease to almost zero.

Often, specific mines are legally owned by a local corporate entity set up specifically for that mine, which is itself owned by a company or set of companies with multiple mining assets. For instance, Oyu Tolgoi LLC is jointly owned by Erdenes Oyu Tolgoi LLC (34 percent) (which is owned by Erdenes Mongol, which is owned by the government of Mongolia) and Turquoise Hill Resources Ltd. (66 percent) (owned 50.8 percent by Rio Tinto). Shares of such local entities behave as short- to medium-term speculative stocks rather than long-term investments that can serve institutional investors, as they would need to increase production or discover new mines not to become penny stocks at the end of the life of the mine. The larger companies that own them, however, can generate capital gains over time if they acquire licenses to high-potential discoveries and continue to develop new mines.

The implications of state *majority or controlling* participation in mines versus state *minority or noncontrolling* participation on dividends and returns are vastly different.¹⁸ While significant research has been carried out on the governance

¹⁸ A shareholder may have a minority share in a mine but still be the controlling entity, which usually implies acting as mine operator. For example, the Antamina copper/zinc mine in Peru is owned jointly by BHP Billiton (33.75 percent),

and performance of state-controlled mines, minority shareholdings by the state have received less attention, although they are also relatively common. Minority state ownership has generally emerged as a result of a privatization process in which the state retained some shares. In other cases, especially in the mining sector, laws require that the state be offered a minority equity share in designated projects. Still in others, the state has decided to purchase a minority equity share either as an investor or to support existing shareholders.

3.1 CONTROLLING STATE OWNERSHIP OF MINES

Majority state ownership or government controlling interest in mines is common globally, especially in Asia. As of 2009, governments controlled more than 50 percent of all coal and tin production; a third of iron ore and manganese production; a quarter of copper production; and about a fifth of gold, zinc, and nickel production.¹⁹ State-owned mines are generally operated by the more than 43 state-owned mining companies or their subsidiaries, not including the numerous Chinese state-owned mining companies owned by both the national and subnational governments. Among the largest and most profitable are Botswana's Debswana, Chile's Codelco, China's Shenhua Energy, Indonesia's Antam, Morocco's OCP, the Russian Federation's Rostec (a conglomerate), Saudi Arabia's Ma'aden, and Sweden's LKAB. In each case, the company controls domestic mines outright.²⁰

Majority or controlling state interest provides governments with undeniable influence over the operations and activities of a mine. This can help governments manage depletion rates so as to maximize net benefits now and for future generations. Private mining companies often seek to maximize the speed of production, given uncertainty of commodity prices and political instability in certain contexts, especially when provided time-bound tax holidays. For instance, the Philippines' five-to-eight-year tax holiday on new mines has caused overexploitation of copper mines on the island of Mindanao and consequently serious environmental deterioration. It has also undercut an effort to maximize both fiscal and nonfiscal benefits, as most of the resource is exploited during the tax holiday period, on-the-ground monitoring is scant, and mining jobs will only last a few years given the speed of extraction. In contrast, state-owned mines can slow production to last through several commodity cycles and generate steady employment for longer periods. Mongolia's own Baganuur and Shivee-Ovoo coal mines are examples of this principle.

Glencore (33.75 percent), Teck Resources (22.5 percent), and Mitsubishi Corporation (10 percent). The mine is jointly controlled by BHP and Glencore.

¹⁹ World Bank (2011) *Overview of State Ownership in the Global Minerals Industry*. Extractive Industries for Development Series No. 20.

²⁰ Andrew Bauer (2018) *Upstream Oil, Gas and Mining State-Owned Enterprises*. Extractive Industries Transparency Initiative.

State control of mines can also speed technological improvements and develop expertise not just in the mining sector but also in skills that are transferable to other sectors. Whereas private companies may be more efficient operators in the initial stages of mine development, state-owned mines can be used to build domestic knowledge and experience. A number of governments have each used their state-owned mines to become incubators of sector expertise and have contributed to small and medium-sized business development through local procurement. After years of participating directly in mining activities, SOEs like Botswana's Debswana (co-owned with DeBeers), Chile's Codelco, China's Energy Company, Indonesia's Antam, Saudi Arabia's Ma'aden, and Sweden's LKAB now demonstrate a degree of technical capacity on par with some of the world's top private operators.

State ownership can also help address market failures. For instance, private companies are sometimes hesitant to invest in a country due to political risk or uncertainty about the commercial viability of a project. In these circumstances, SOEs such as Madagascar's Kraoma SA and Papua New Guinea's Ok Tedi Mining Ltd. have stepped in to fill gaps left by the private sector. In Madagascar's case, political risk and past nationalizations left the country unattractive to foreign investors, especially in the mining sector. Developing chromite deposits therefore required government intervention.

Finally, some scholars have highlighted more amorphous national security and honor rationales for state control of mines. State-owned mining companies in particular have been viewed as "easier to tame" than foreign companies. Perhaps more importantly, they can become conduits of national pride and a tool for marshaling popular support.²¹

As we have seen, state controlling interest can generate revenue for the state, enable a government to exercise greater control over the sector, help improve local technologies and skills, and address market failures. However, just as majority state participation can improve the lives of a country's citizens, it can also "crowd out" private investment and become a drain on public resources and a source of patronage and corruption.

Private investors may be wary of investing in a country where state-owned mining companies are perceived to benefit from special privileges. China is a prime example, as state-owned companies and authorities have made it increasingly difficult for foreign companies to operate in the country, even restricting investment in specific mineral assets and harassing foreign investors. For example, state-owned Xinjiang Non-Ferrous Industrial Group is alleged to have expropriated a gold mine from a Canadian company in 2016 with the help of judicial authorities.²² Where state-owned mining companies and the private sector compete for geological information and licenses, as in China

²¹ David G. Victor et al. (2012) "Introduction and Overview" in *Oil and Governance: State-owned Enterprises and the World Energy Supply* (eds. David G. Victor, David R. Hults, and Mark Thurber). Cambridge University Press.

²² Accesswire (2021) "[Dynasty in Legal Action Over 536,000 oz of Gold in Xinjiang](#)" Yahoo News. January 25.

and Mongolia, private sector exploration companies may be wary of entering the market for fear of competitive disadvantage. In 2004, there were nearly 300 foreign-owned mining projects in China; today, there are less than 50.²³ If the government wishes to attract private investment to the mining sector, state-owned enterprises must not be granted special rights, such as advance access to geodata or permits.

As large sources of revenue, state-owned mines are also attractive targets for corrupt officials and opportunistic businesspeople. Because they are also often governed by politicians, government officials, or political appointees, state-owned mines are accessible to public officials and often less transparent than publicly traded private sector entities or government ministries, as they are often not subject to securities or budgetary disclosures.

Hiring or procurement based on loyalty, patronage, or connections rather than professional competence can slow or block projects. Managers at Erdenes Mongol, for example, are generally required by policy to procure supplies from those companies linked to the current government. Moreover, managers and even technical staff are usually replaced after a change in government. This turnover in contractors and managers hinders the development of networks and supply chains and impedes institutional learning.²⁴

State-owned mines also generally suffer from unjustified high costs, over-reinvestment, or unjustified low revenues. For instance, state-owned mines may be required or pressured to employ unnecessary workers. While some overemployment may be justified on the basis of training workers in the mining sector or protecting jobs and incomes from short-term commodity price volatility, overemployment represents an implicit policy choice to engage people in the mining sector rather than other sectors, such as health care or education. Furthermore, whereas private sector company shareholders suffer in the case of their inefficiency, it is citizens who suffer the most as a result of state-owned mine inefficiency, as scarce resources could be diverted elsewhere.

That said, capital costs are generally much larger than labor costs. Finding indicators to measure the efficiency of capital spending is complicated; it can be difficult to differentiate between legitimate and illegitimate costs and between expenditure items that represent value-for-money versus those that do not. Still, we can point to some well-documented cases of spending that were not needed to fulfill state-owned mine mandates, or cases of state-owned mines paying too much for a given good or service or receiving too little compensation for sale of assets. For instance, managers at Poland's state-owned copper giant KGHM have been charged with overbilling suppliers and receiving kickbacks.²⁵ In another case, the Democratic Republic of Congo's Gécamines systematically

²³ Elena Caprioni (2013) "Why Are Foreign Mining Companies Retreating from China?" Asia Pacific Memo. The University of British Columbia; Deloitte (2013) *Greater China Mining M&A and Greenfield FDI Investment Spotlight*.

²⁴ Interview with former Erdenes Mongol executive and Mongolian politician.

²⁵ Post Online Media (2019) *Central Anti-Corruption Bureau in Poland Investigates Corruption in KGHM*. February 6.

undervalued assets. The Africa Progress Panel examined five sales of mining assets to offshore companies. It found that these assets were sold on average at one-sixth their commercial market value, costing the state at least US\$ 1.36 billion from 2010 to 2012. Offshore companies were able to secure large profits from the onward sale of these concessions.²⁶ Peru privatized a number of mines in the 1990s; 10 years later the mines previously owned by state-owned Mineroperu were operating more efficiently than they were under state ownership, although returns were comparable to when the mines were publicly owned.²⁷

State-owned mines have also been known to underreport production, with the revenue from the difference between declared and actual production being captured by mine managers. Coal India, for example, lost a fortune to underreporting both at the production and processing stages.²⁸ Similarly, state-owned Myanmar Gems Enterprise (MGE) has been tasked with collecting gemstone royalties, license fees, production shares, and special goods taxes, although not corporate income taxes. Unofficial sources estimate that MGE captures less than a quarter of total transactions as most of the country's high-value gems, such as jade, are smuggled to the Chinese border from mine sites. The gems that are valued by MGE are generally undervalued; the average assessed value of jade is between US\$ 1 and US\$ 2 per kilogram, even though the lowest-grade rough jades sell between US\$ 3 and US\$ 10 per kilogram. As a result, the government loses hundreds of millions if not billions of dollars in revenue annually.²⁹

Financial losses are not the only types of costs associated with majority state ownership. Environmental and social costs are often equally or even more important. One striking example can be found in Papua New Guinea. In 1984, the tailings dam failed at the Ok Tedi copper-gold-silver mine. Instead of rebuilding the dam, the government regulator allowed the mine to dispose of waste in the rivers. Consequently, fish stocks declined by 50–90 percent, depending on the affected river, and gardens and plantations along 200 kilometers of river have been damaged or destroyed.³⁰ In 1999, the operator estimated that up to 3,000 square kilometers of forest may ultimately die due to rise in the riverbed, flooding, and toxic sediment deposition.³¹

²⁶ Africa Progress Panel (2013) *Equity in Extractives: Stewarding Africa's Natural Resources for All*.

²⁷ Maximo Torero (2003) *Peruvian Privatization: Impacts on Firm Performance*. IDB Working Paper No. 186.

²⁸ M. Rajshekar (2012) "How Corruption in Coal Is Closely Linked to Political Funding" *The Economic Times*. August 7.

²⁹ Andrew Bauer et al. (2018) *State-Owned Enterprise Reform in Myanmar: The Case of Natural Resource Enterprises*. Renaissance Institute-Natural Resource Governance Institute.

³⁰ Glenn Banks (2001) *Papua New Guinea Baseline Study*. IIED/World Business Council for Sustainable Development.

³¹ Ok Tedi Mining Ltd. (2006) *Key Statistics*.

One reason the regulator allowed for mine waste to be disposed of in such a harmful manner was that state-owned Ok Tedi Mining Ltd. (OTML) held a 30 percent share in the project. According to one insider, the regulator was ordered to set aside environmental standards due to the government's need for cash to service its debts. In 2002, the foreign partner's shares were transferred to OTML. Since then, the mine has been fully owned and operated by OTML.

Still, the evidence comparing state-owned and private mining company environmental and social performance remains ambiguous. Since 1985, privately operated mining projects have been more than twice as likely to suffer from serious environmental accidents than state-owned projects.³² Since 2011, of the 38 recorded serious tailings dam failures, only five were operated by state-owned enterprises.³³ Mines in China dominate the list of accidents caused by state-owned enterprises. These statistics might reflect the dominance of the private sector in the mining sector generally; however, they paint a mixed picture of the relative environmental competence of publicly and privately owned companies.

Environmental performance appears to be more a function of the existence and enforcement of technical, environmental, and social standards in a country rather than state ownership. Statist and private market-oriented economies have experienced mining catastrophes at similar rates, led by China, Canada, Chile, Brazil, Myanmar, the US, and the Philippines. In each of these countries, mine owners and managers, whether from the private or public sector, significantly influence government mining policy, and powerful government officials often have direct stakes in mining companies. The Plurinational State of Bolivia, Ghana, and Tanzania have largely avoided this type of capture of mining regulation and regulators; they have also experienced few or no large-scale mining disasters over the last two decades.³⁴

Finally, as public sector entities, state-owned mines can represent liabilities on the government and, ultimately, the taxpayer. For example, in 2016, China's Guangxi Nonferrous Metals Group, owned by the Guangxi provincial government, declared bankruptcy. Having only started operating in 2008, losses started accumulating in 2012. By 2015, it had stopped publishing financial information. As of 2016, the company owed approximately US\$ 2.2 billion to creditors—US\$ 200 million of which was owed to state-owned China Development Bank—and could not make its interest payments.³⁵ Guangxi Nonferrous Metals Group assets are being liquidated; however, a large portion of the debt will be written off by state-owned banks or covered by other government agencies.

³² Charles Roche et al. (2017) *Mine Tailings Storage: Safety Is No Accident*. UN Environment and GRID-Arendal.

³³ WISE Uranium Project (2021) *Chronology of Major Tailings Dam Failures*.

³⁴ Charles Roche et al. (2017) *Mine Tailings Storage: Safety Is No Accident*. UN Environment and GRID-Arendal.

³⁵ Cathy Zhang (2016) "[Guangxi Nonferrous Metals Is China's First Interbank Bankruptcy](#)" South China Morning Post.

New Zealand's state-owned coal company is undertaking a similar exercise. Previously called State Coal Mines, then Coal Corporation, Solid Energy had a near monopoly on New Zealand's coal industry. The company was profitable as recently as 2011. The chairman at the time even called on the government to allow the company to float shares to raise additional capital. Starting in 2012 when coal prices were slumping, and with the company formulating ambitious plans, Solid Energy began borrowing heavily, accumulating losses, and receiving government bailouts. The company is now being liquidated, having cost taxpayers approximately US\$ 130 million in bailouts and a portion of its approximately US\$ 300 million in accumulated debt.³⁶

In short, the global experience around state control of mines is mixed. While a few governments have managed to extract significant benefits from state control—whether in the form of revenues, jobs, or development of downstream industries—lack of market discipline has enabled many national mining companies to overinvest, invest outside their core mandates, overindebt themselves, sell state assets below market rates, and bloat costs to the benefit of mine managers.

Barring privatization, governments have several options for increasing profitability of state-owned mines, controlling off-budget borrowing, and reigning in overinvestment. For instance, the government may require:

- Clarifying the state-owned mining company's mandate in law or regulation to ensure that investments are consistent with the company's core competencies and are based on empirical assessments of financial profitability, at a minimum;
- Ministry of Finance approval of all debt issuances;
- Ministry of Mining and Heavy Industry approval of all major investment projects, based on independent assessments of commercial viability and nonfiscal benefits;
- Independent external cost audits of all mining projects;
- Implementation of international accounting standards for all mining projects;
- Equal participation of state-owned companies in the Extractive Industries Transparency Initiative (EITI); and
- Hiring and firing corporate and mine managers based on objective criteria and independent assessments of manager performance.

However, the most important policy a government can enact may be a dividend policy. Dividend policy for a state-owned enterprise is a reflection of the government's willingness to collect benefits today relative to its desire to grow the

³⁶ Hamish Rutherford (2015) "[Solid Energy Brought Down by Debt and Ambition](#)" Stuff.co.nz. August 13.

company's capital valuation or permit speculative investments by the company. In general, there are four generally accepted categories of dividend policies, notwithstanding share buybacks, special dividends, or not having a dividend policy at all:

- **Residual dividend.** Dividends are calculated as the residual once expenditures, working capital, and reinvestment costs have been deducted from revenues. The advantage of this option is that the company does not have to pay a dividend when it books a loss; it provides management with the flexibility of reinvesting rather than paying a dividend if there are investment opportunities. The downsides are that growth needs are placed above distributions to shareholders, dividends will be volatile, and company management will have full discretion to place manager interests to reinvest above the shareholder's interest to collect a return on investment, if they are not aligned.
- **Stable dividend.** The company makes a consistent payout regardless of how the business has performed. Dividends are a function of the company's long-term rather than annual profits. When the company has a bad year, it must dip into cash reserves or borrow to pay the dividend. On the other hand, it must not increase the payout during good years. The advantage for shareholders is that they receive a stable dividend; the company absorbs the cost of revenue volatility. To plan for the future, a company with a stable dividend policy must have cash reserves or be able to borrow easily on financial markets. A common form this policy takes is setting the dividend as a price per share. A variation of the stable dividend policy is a progressive dividend whereby the price per share increases year-on-year, guaranteeing higher dividend annually regardless of business performance. A progressive dividend works best when the value of the company rises over time. Norway's national oil company, Equinor, has adopted a progressive dividend policy.
- **Constant dividend.** Dividend payouts are linked to company performance, usually measured in terms of net earnings. A common form of this policy is to set a payout ratio, a percentage of net earnings to be paid in dividends annually. Dividends are generally more volatile than under a stable dividend policy; however, payouts are more sustainable because they are linked to profits. This policy also creates an incentive for shareholders to push the company to increase its profitability. Most Chinese SOEs have adopted a constant dividend policy.
- **Full dividend.** Many governments require that SOEs return 100 percent of their earnings to the state and then allocate a certain amount to the company through budgetary allocations. Chile's Codelco, the Ghana National Petroleum Company, and the Myanmar Gems Enterprise function in this manner. The efficacy of this policy is a function of the government's ability to knowledgeably assess the company's investment needs and allocate

money efficiently between the company and other government priorities. It increases the company's accountability to the government and parliament but substantially reduces its independence.

Few SOEs around the world employ a residual dividend policy due to the moral hazard it causes. In brief, a residual dividend policy encourages SOE managers to invest in risky projects, although the government, and hence taxpayers, would bear the cost should the project fail. It is therefore particularly important that SOE dividend policy balance the needs of the government against the tendency for management to prefer reinvestment over dividend payouts.

The optimal choice of dividend policy should reflect an SOE's mandate, the government's preference for cash versus asset growth, and the sector of the economy in which the SOE operates. For instance, telecommunications and utilities companies generate a steady flow of revenues and their earnings are relatively stable, making them more conducive to adopting a stable dividend policy, usually representing about 50 percent of earnings or more. The revenues of commodity producers, on the other hand, are more volatile, suggesting that a constant dividend may be more appropriate. Coal India's payout ratio has been above 100 percent in certain recent years due to a cyclical downturn. Coal India and other similar commodity producers can do this because cash flows typically exceed net income over the long term. Cash flows (basically predepreciation earnings) tend to be higher for companies with high capital investment and high depreciation charges. Especially in setting dividends for companies in cyclical industries, it makes sense to consider projected cash flows over the entire business cycle.

Table 2. Dividends for selected commodity-based SOEs

PRIMARY SECTOR	COUNTRY	COMPANY (YEAR)	YEAR	DIVIDENDS PER SHARE	PAYOUT RATIO
Mining	Chile	Codelco	2018	-	100%
	China	Zijin Mining	2018	¥ 0.1	56%
	India	Coal India	2019	Rs 13.1 ³⁷	46%
	Indonesia	Antam	2018	-	35%
	Myanmar	Mining Enterprise No. 1	2018	-	100%
	Poland	KGHM	2018	-	0% ³⁸
	Saudi Arabia	Ma'aden	2018	-	0%
Oil and gas	China	PetroChina	2018	¥ 0.09	62.2%
		Sinopec	2018	¥ 0.42	82.5%
	Indonesia	Pertamina	2017	Rp 50,049	25%
	Norway	Equinor	2018	US\$ 0.91	40%
	Russian Federation	Rosneft	2018	Rub 25.91	50%

³⁷ The government set an artificial share price of 10 Rs per share for government shares.

³⁸ Due to exceptional losses in 2015-16.

SOE dividend policies around the world vary. Many set payout targets. For example, Poland's KGHM has targeted one-third of the company's net profits as an annual dividend, with anticipated increases and decreases depending on cyclical conditions. China's Zijin Mining has stated that its annual dividend shall not be less than 75 percent of average profits over the last three years and no less than 25 percent of profits in any given year.

Chinese national oil company Sinopec's policy is that it will distribute no less than 30 percent of net profits in cash to shareholders every year. "Consistency and steadiness" are key principles driving dividend policy. Similarly, PetroChina writes in its dividend policy that "the amount of cash dividend to be distributed shall not be less than 30 percent of the net profit attributable to owners of the Company realised in the relevant year." However, since 2016, oil prices have been low by historical standards, justifying a special dividend policy targeting 45 percent of profits.

SOE boards in Denmark, Finland, Norway, and Sweden set multiyear payout targets. For example, Norway's national oil company, Equinor, has stated that it intends to grow the annual cash dividend, measured in US dollars per share, in line with long-term underlying earning.

Other SOEs are vaguer in their dividend policies. In New Zealand, SOE boards set dividend policies, in consultation with the shareholding ministries, based on such factors as the SOE's capital structure, proposed capital investments, and profitability. Saudi Arabia's national mining company, Ma'aden, bases its dividend on a proposal by the board. However, the company's goal is to distribute "as steady dividends as possible to the shareholders."

Finally, there is a set of SOEs that are obliged to distribute all their net income as presented in the financial statements as a dividend. These include Chile's Codelco, the Ghana National Petroleum Company, and Myanmar's Mining Enterprises No. 1 and No. 2.

The Natural Resource Governance Institute's report on Erdenes Mongol, *Wild Growth*, suggests that the company does not have a history of being able to transform its retained earnings into productive assets that generate a significant return. Thus, any policy that encourages revenue retention at the expense of dividends would in effect be an inefficient allocation of scarce resources.

As such, the government's interests would be best served by a "bird-in-hand" dividend policy that maximizes dividends while permitting the company to retain sufficient earnings to maintain and expand existing operations. This policy has the added advantage of encouraging the company to increase profits, as these would be the sole source of additional investment in the company. Increasing dividend payouts should also lead to greater scrutiny of the allocation of capital. Empirical findings lend support to these theoretical suggestions. Several studies show that limiting potential overinvestment through cash distributions (e.g., dividends), especially for firms with limited investment opportunities, tends to enhance shareholder wealth.

We recommend that Erdenes Mongol's dividend policy be anchored in generally accepted principles and practices related to dividend policy. As such, the company may wish to clearly state which principle it is using to determine its dividend and how this policy serves shareholder interests.

From a public interest perspective, existing Erdenes Mongol profitability and performance do not justify high reinvestment rates. From its founding in 2006 until 2015, Erdenes Mongol had not reported any profits. Today, the company is producing a profit for the first time: it declared profits of Tog 41 billion (US\$ 16.3 million) over three years, 2016 to 2018. The increase in coal prices and increased shipment of coal to China from Tavan Tolgoi explain much of the improvement in profitability, rather than any improvement in performance.

Until Erdenes Mongol begins collecting dividends from Oyu Tolgoi around 2035, at the earliest, these improvements in profitability are conditional on coal prices remaining at current levels or above. Reforms are needed to transform Erdenes Mongol into a successful company that generates value for the Mongolian government under modest price scenarios. Until these reforms are completed, a dividend policy that favors reinvestment over transfers to shareholders is the equivalent of throwing good money after bad.

Accordingly, we recommend that Erdenes Mongol adopt a **constant dividend policy**. Dividends could be set as a range of percentages of net earnings or profits, whereby the board is provided with a degree of flexibility based on indicators suggested in the Erdenes Mongol dividend policy document. Given Erdenes Mongol's performance and the government of Mongolia's medium-term cash needs, a payout ratio of 50–80 percent over the next five years may be appropriate.

Finally, the government may wish to consider an open consultation with those who represent shareholder interests—the State Great Hural, the Ministry of Mining and Heavy Industry, the Ministry of Finance, and the Cabinet Secretariat. Erdenes Mongol is responsible to its shareholders, and thus its shareholders ought to be fully informed about the implications of any dividend policy.

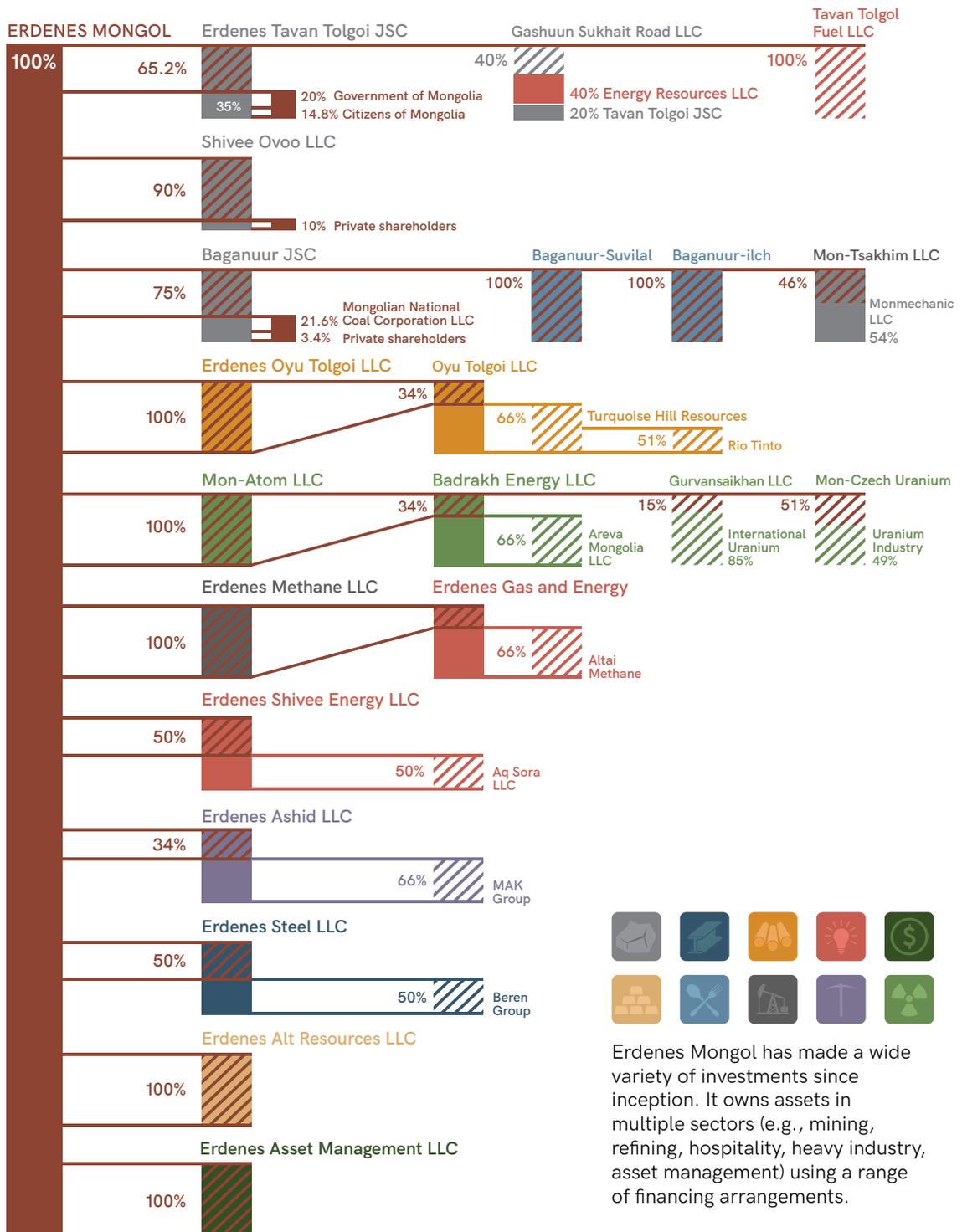
3.2 NONCONTROLLING STATE INTEREST

Minority state ownership in privately controlled companies is a fairly common practice in emerging markets; among the companies where governments have a direct ownership stake, 20–30 percent are cases of minority shareholding.³⁹ In Mongolia, Erdenes Mongol owns minority shares in at least seven entities: Oyu Tolgoi LLC copper mine (34 percent), Erdenes Ashid LLC exploration company (34 percent), Badrakh Energy LLC uranium exploration (34 percent), Gurvansaikhan LLC uranium exploration (15 percent), Mon-Tsakhim LLC

³⁹ Aldo Musacchio and Sergio G. Lazzarini (2014) *Reinventing State Capitalism: Leviathan in Business, Brazil and Beyond*. Harvard University Press, Cambridge.

subsidiary of Baganuur mine (46 percent), Erdenes Gas and Energy (34 percent), and Gashuun Sukhait Road LLC road maintenance (40 percent).⁴⁰ (See figure 1.)

Figure 1. Erdenes Mongol's shareholdings



Source: Andrew Bauer and Dorjdari Namkhajantsan (2019) *Wild Growth: An Assessment of Erdenes Mongol*. New York: Natural Resource Governance Institute.

⁴⁰ Andrew Bauer and Dorjdari Namkhajantsan (2019) *Wild Growth: An Assessment of Erdenes Mongol*. Natural Resource Governance Institute, New York.

A participation has the potential to generate extra cash flow for the government, especially for a mine that turns out to be profitable. Any paid dividends are an additional source of revenues that increase the government's take. In theory, minority shareholding also provides the government with a degree of insider information and comfort in knowing that the figures that the tax administration and regulator are receiving are correct. Government representatives may sit on the board of directors, in which case they can learn about company strategy and receive information not normally transmitted to regulatory authorities, such as technical designs and plans, quarterly updates, and safety issues.⁴¹ This assumes that government-appointed board members have the requisite technical expertise; in several countries, government appointments to mining company boards are based on patronage, undermining oversight of reinvestment and mine costs.⁴²

There is also some evidence that minority state ownership protects other minority shareholders from misappropriation or mismanagement. Tunneling, whereby assets and profits are transferred out of a firm for the benefit of the controlling shareholders—for instance, through transfer pricing, excessive compensation, or asset sales—is a common practice worldwide. Because the state is also the regulator, it has an interest in preventing such behavior.⁴³

On the other hand, state participation generates an inherent conflict of interest as the government becomes simultaneously a shareholder, tax collector, and regulator. Many countries have struggled to develop the necessary political-administrative governance systems to address these conflicts with appropriate internal checks and balances. Furthermore, while some have claimed that state participation provides the government with a “seat at the table” in project management decisions, there is no evidence that minority shares provide enough leverage to shift operator plans.

State participation also creates financial obligations. The government may be required to finance cash calls, cost overruns, and any additional capital expenditure required to maintain or expand the project. Budget cycles are often delinked from project cash calls, which are common in the extractive sector, for example. Thus companies must hold more cash-on-hand than is optimal, or government entities must borrow to cover their cash calls. If the government cannot pay its share of the required capital injection, technically its participation can be diluted. The state also becomes liable for any environmental damage caused by the mine.

Additional revenues depend entirely on the company's decision to declare dividends. Experience has shown that dividends rarely meet expectations or are as large as initial projections; companies often do not declare significant dividends or they do it only after a number of years. In the Democratic Republic

⁴¹ Interview with international mining company executive.

⁴² Interviews with Kyrgyz and Zambian mining officials, June–July 2021.

⁴³ Mihail K. Miletkov (2015) “A Cure Rather Than a Disease: Government Ownership and Minority Shareholder Protection” *Multinational Finance Journal*. Vol. 18, No. 1/2.

of Congo, the state owns 5 percent of most mines and, as of 2020, seven operating mines. To date, not a single mine has paid a dividend, despite decades of production on some mines.⁴⁴

In the Kyrgyz Republic, state-owned Kyrgyzaltyn owns majority shares in many of the country's most valuable deposits. However, the government also owns 26.6 percent of Canada-based Centerra Gold, which owns the giant Kumptor gold mine, along with mines in Canada and Turkey. Public disclosures show that Centerra did not pay any dividends to the Kyrgyz state from 2017–19, although it did pay US\$ 11.8 million and US\$ 8.8 million in dividends to the state in 2015 and 2016, respectively. This represented approximately 10 percent of all fiscal payments over these two years.⁴⁵ In May 2021, the government nationalized the Kumptor mine and announced it will sell 19 percent of its shares in Centerra Gold.⁴⁶

Similarly, in Zambia, state-owned ZCCM-IH is a minority shareholder (10–20.6 percent) in nine mines, in addition to having a controlling interest in three mines and interests in other sectors such as banking, smelting, cement, real estate, and technical services. In 2019, only one of these nine mines paid a dividend; the country's most important mine, the First Quantum Minerals Ltd.-operated Kansanshi copper mine, paid roughly US\$ 9.5 million or 2 percent of all payments to the government in dividends on the government's 20 percent state equity. Overall, dividends paid by private companies on state minority shareholdings represented 1 percent of all extractive sector payments in 2018 and 2019.⁴⁷ The government has since sold some shares in the Kansanshi mine in order to service its enormous public debt.⁴⁸

Failure to pay dividends and other taxes has led to at least one nationalization in Zambia. In 2019, the government placed the UK-based Vedanta-operated Konkola copper mine into liquidation. It claimed that the company owed about US\$ 100 million in value added tax (VAT), customs duties, and other taxes and was withholding US\$ 10 million in dividends. The company denies the claim. The case is currently in arbitration in South Africa.⁴⁹

Ghana has been one of the only countries that has had some modest success in collecting dividends from its minority shareholding in mining activities. Of the roughly 15 large-scale mining operations in the country, only two to three have historically paid any dividends, despite the government owning 10 percent of

⁴⁴ Comité Exécutif ITIE-RDC (2021) *Rapport Assoupli: Exercices 2018 2019 2020 (1er semestre)*, p. 117.

⁴⁵ Centerra Gold (2021) *ESTMA Reports (2016–2019)*; Kyrgyzstan EITI (2019) *Report of the Kyrgyz Republic for 2015–2017*.

⁴⁶ Agnieszka Pikulicka-Wilczewska (2021) "Kyrgyzstan Moves to Nationalise Gold Mine Run by Canadian Company" Al Jazeera. July 9; Canadian Press (2021) "Centerra Gold Stock Falls After Kyrgyz Republic State Firm Says It Will Divest Shares" CTV News. May 14.

⁴⁷ Zambia EITI (2020) *Zambia EITI Report 2019*.

⁴⁸ Stuart Lisulo (2019) "FQM Offers to Buy Govt's 20% Shares in Kansanshi Mine for \$700m" News Diggers. February 6.

⁴⁹ Rob Davies (2019) "Zambia Seeks to Expel Copper Miner Vedanta Resources" The Guardian. August 5.

most mines as a free carried interest.⁵⁰ However, in 2017 and 2018, that figure rose to three and four companies out of 15, respectively, representing 1.9 percent of mining sector payments in 2017 and 6 percent in 2018. In the case of the Kinross-owned Chirano gold mine, the dividend represented 27 percent of all payments made by the mine in 2018.⁵¹ The US\$ 13 million dividend payment in 2018 and the company's US\$ 5.5 million 2019 dividend payment coincided with its request for a 15-year extension of its mining leases.⁵²

Cost overruns and financing terms (e.g., high interest payments on project debt) that reduce profitability eat into dividends. So do tax incentives; extensive loss carry-forward provisions can generate paper losses that impede dividend payments. That said, unless dividend payments are made mandatory, majority private owners of mines can retain earnings, reinvest profits, or shift profits to offshore subsidiaries to lower dividends on state equity. Dividend payments can be delayed, placing at risk the money earned through state equity participation. This is why many countries are now introducing the concept of "priority" shares or "preferred" dividends. When preferred shares are based on a percentage of net income, they become a form of profit-based royalty. That said, each revenue stream is subject to tax erosion and avoidance; dividends are no more susceptible than corporate income taxes but probably more susceptible than royalties or withholding taxes. Minority state ownership is no substitute for a high degree of public transparency and accountability (e.g., published external audits), hiring professional managers, and regulatory oversight.

There may also be a political reason to be wary of state minority participation: it can align state and corporate interests, easing business for corporate elites by opening up direct channels of communication with the managers of state equity, whether at a ministry or in an institutional investor. For instance, board members appointed by the government can act as spokespeople for the company within the government. This can be helpful for corporate interests when there are conflicts with state regulatory authorities. Operators of mining companies often want government-appointed board members to serve for this reason.⁵³ Additionally, state minority ownership can act as a means for business elites to build political ties as a way to overcome institutional voids or to motivate state actors to provide them with resources and preferential treatment.⁵⁴

In response, several governments have divested themselves of minority shares in private enterprises. For example, Singapore's Tamasek Holdings, originally established to manage the government's equity in commercial enterprises, sold all its minority shares in 1985, although its subsidiaries do hold minority

⁵⁰ The government owns 0.01 percent of AngloGold Ashanti's global operations rather than its domestic mines and 20 percent interest in the Ghana Bauxite Company. In all other cases, the government owns a 10 percent share of the mine.

⁵¹ GEITI Secretariat (2019) *Final Report for 2017 & 2018 Mining Sector*.

⁵² Ghana News Agency (2019) *Chirano Gold Mine Presents GHC 27.6 Million Dividends to Government*. December.

⁵³ Interview with senior mining company official.

⁵⁴ M. Faccio, R. W. Masulis, and J. McConnell (2006) "Political Connections and Corporate Bailouts" *The Journal of Finance*. Vol. 61, No. 6, pp. 2597–2635.

shares. It has focused instead on professionalizing and growing majority-held state-owned enterprises.⁵⁵ The government of Canada has similarly divested itself of most of its minority shareholdings in private companies—such as its 18.7 percent ownership of Petro-Canada and stakes in General Motors—even though it maintains a significant presence as a majority shareholder in a number of businesses, including banking, broadcasting, railways, and fish marketing. In the mining sector, Zambia just sold some shares in its strategically important Kansanshi copper mine, while the Brazilian government has divested from mining giant Vale.⁵⁶

Still, minority state shareholding in mines is becoming more popular globally. For example, under Kenya’s Mining Act (2016), the government is allowed to take a 10 percent free carried interest in large-scale mining projects, with the possibility of purchasing an additional participation at fair market value.⁵⁷ This “free” equity concept has now become almost a standard in most African countries.

In 2007, the government of Malawi negotiated a reduction of corporate income tax from 30 percent to 27.5 percent and an exemption from a resource rent tax in exchange for a 15 percent equity share in Paladin Africa, the operating entity of the Kayelekera uranium mine. To date, Paladin Africa has not paid any dividends. Independent modelling suggests that the mine may never pay dividends.⁵⁸

More commonly, governments have sold shares in state-owned mining companies, especially in former socialist countries. For instance, the government of Poland sold all but 31.8 percent of its shares in copper giant KGHM over several phases in the 1990s and 2000s, although it maintains a controlling interest in the company as the largest shareholder, all but guaranteeing continued dividend payments. The government of Bulgaria sold all its state mining assets in the mid-1990s. The Indian government sold the majority of previously state-owned Hindustan Zinc Ltd., retaining a 30 percent share.⁵⁹

Even though a provision for state participation has become consistent with current practice in many mining fiscal regimes, careful consideration should be given to the factors that would impact on the decision to pay dividends. An antidilution provision and a mechanism to receive dividends payment early in the projects could be included in mining agreements, with proper procedures on how these mechanisms will be applied.

⁵⁵ C. Balding (2012) *Sovereign Wealth Funds: The New Intersection of Money & Politics*. Oxford University Press.

⁵⁶ Cecilia Jamasmie (2021) “Brazil BNDES Sells Stake in Vale for \$2 Billion” Mining.com. February 23.

⁵⁷ The distinction between large-scale and small-scale operation can be found in the second schedule of the Mining Act. Additionally, the Mining Act (2016) Part VI, Article 48 (1) states: “Where a mineral right is for a large scale mining operation, the State shall acquire ten percent free carried interest in the share capital of the right in respect of which financial contribution shall not be paid by the State. The provisions of sub-section (1) shall apply to large scale mining operations and to mining operations relating to strategic minerals.”

⁵⁸ Rachel Etter-Phoya and Grain Malunga (2016) *Kayelekera Uranium Mine, Malawi: Narrative Report*. OpenOil.

⁵⁹ World Bank (2011) *Overview of State Ownership in the Global Minerals Industry*. Extractive Industries for Development Series No. 20.

Alternatively, governments may wish to consider other fiscal tools to raise tax revenue. The Chilean Senate just proposed a new sliding-scale royalty, the Peruvian government is considering a resource rent tax, the Russian Federation imposed export duties on nickel and aluminum, and the US state of Nevada just imposed a new tax on gold and silver exploitation.⁶⁰ In the next section we will explore the pros and cons of key fiscal instruments.

⁶⁰ Rhiannon Hoyle and Ryan Dube (2021) "Governments Want to Cash In on Miners' Ballooning Profits" *Wall Street Journal*. July 12.

4. Alternatives to state equity participation

From a purely financial perspective, state equity should be viewed as but one tool for collecting fiscal revenues from mining projects rather than imbuing it with special significance because equity is a type of ownership. As with any fiscal tool, there are advantages and disadvantages of using direct participation to raise revenues, which we discussed above. Here, we discuss the advantages and disadvantages of alternative tools, namely royalties, corporate income taxes, withholding taxes, and resource rent taxes. We exclude other fiscal tools, such as value added taxes, excise taxes and fees, either because they are generally much less significant to overall government take than the instruments listed or apply generally to all sectors equally.

4.1 ROYALTIES

Royalties are designed as compensation to the owner of an asset for use or depletion of that asset. In this case, the subsoil minerals belong to the Mongolian state and mining companies are being charged for the depletion of these finite assets. Royalties can also compensate the state for permanent environmental damage. There is a global trend to raise royalties, including in Burkina Faso, Gabon, and Ghana. Tanzania recently increased its royalty rates from 5 percent to 6 percent for gemstones and diamonds and from 4 percent to 6 percent for metallic minerals such as copper, gold, silver, and platinum group minerals.

Gross royalties have interesting features. For instance, they ensure a minimum revenue to governments, they are easier to administer than other tax instruments (although often more complex than people think), and they are less subject to base erosion. As such, they are easier to collect than dividends from state participation. But, as royalties are not related to profitability, they are regressive and are paid even if a mine is not profitable. As such, they are treated as a fixed cost by investors and should be kept at a reasonable level.

Mining royalty rates can be fixed, variable, or progressive. Fixed rates are the most common. It is estimated that three quarters of countries have fixed ad valorem royalties for base and precious metals, as well as precious stones. Mongolia uses the standard ad valorem royalty.

Although traditional ad valorem royalties remain a key tax administration tool because of their administrative simplicity and revenue certainty, they do not

adjust to profitability. Thus, they represent a disincentive to invest on marginal mines and are treated as a per-unit cost by miners. Thus, there is a trend to bring some economic efficiency and more progressivity to the fiscal regime by introducing price-based and profit-based royalties. Burkina Faso, Côte d'Ivoire, the Kyrgyz Republic, and Queensland, Australia, for example, have adopted royalties whose rate increases as mineral prices increase, generally using an independent index such as the London Metal Exchange index, or that can be calculated on a marginal basis. The Kyrgyz Republic's royalty rates by price are presented in figure 2.

Figure 2. Kyrgyz Republic's price-based royalty for gold



Source: NRG1 (2019).

Sliding-scale royalties have some distinct advantages. First, they are relatively simple to administer. Less data is required to collect sliding-scale royalties than most other fiscal instruments, including state equity, withholding taxes, or corporate income taxes. Second, they are not as susceptible to base erosion or profit shifting techniques as most other fiscal tools. Third, since royalties compensate the state for the loss of a finite asset, they are assessed as soon as the mine starts production. Thus, state revenues begin earlier in the production cycle than for other instruments except bonus payments and some VAT, fees, and levies. Fourth, they are more progressive than a single royalty rate. The state

can receive all the benefits of a basic royalty while adding progressivity to the fiscal regime, capturing a significant portion of superprofits and stabilizing the regime.

On the other hand, sliding-scale royalties can be distortionary in that they fluctuate with the evolution of prices but do not take into account changes in costs. In other words, an open-pit high-grade mine will pay the same royalty rate as an underground low-grade mine, while the former will be much more profitable. Thus, the variable rate royalty acts as a disincentive to expand into low-grade ore bodies when prices are high.

They are also difficult to calibrate. One core issue of variable royalties is determining the scale. Some countries, such as the Plurinational State of Bolivia, set the bands too low, mitigating the progressive element of the royalty. Others, like the Kyrgyz Republic, set them too high, meaning that they have not been able to capture superprofits effectively. The bands have to be set at the right prices to be effective.

Finally, they are more applicable to some minerals than others. Gold and some basic metals, such as copper or nickel, are easier to range because they are widely traded commodities with publicly available index prices. On the other hand, some of Mongolia's resources may have illiquid markets with few producers. Uranium, for instance, is produced by a handful of mines in the world. It is therefore much harder to determine proper price bands that remain relevant over the life span of mines.

Profit-based royalties are royalties that increase and decrease depending on a mining project's operating profit. Chile, Niger, Peru, and South Africa have each adopted such a royalty. Profit-based royalties require additional information, such as earnings after tax and interest payments or operating profit, to determine bands. This data can be manipulated by companies in a manner similar to manipulating corporate income taxes owed. For this reason, they are not recommended.

As with other fiscal instruments, royalties should not be assessed in isolation from the broader fiscal regime; they represent only one of the instruments that make up a fiscal regime. That said, they are important for compensating the state for a permanent loss of an asset and permanent environmental damage and should be set at a rate that compensates the state appropriately. Although they are generally regressive, a sliding-scale or variable rate royalty can help make them more progressive. We recommend that any revision of royalty rates be based on market analysis of appropriate rates for specific commodities, the rates' impact on the decision to invest as described in a model, and the environmental impact of exploitation in Mongolia (i.e. higher rates to compensate the nation for loss of irreplaceable habitat and other natural assets versus lower rates where there is less environmental impact).

4.2 CORPORATE INCOME TAXES

There are two schools of thoughts with regard to corporate income taxes (CIT). One is that there should be a specific CIT rate for mining companies. The other is that the mining sector should be subject to the same tax rates as the general one. Most countries have now moved to the latter approach. This said, some countries

have offered tax holidays or reduced rates to mining companies. Burkina Faso, for instance, previously gave a 10 percent reduction to mining companies, taxing corporate income at 17.5 percent rather than the general rate of 27.5 percent. This is no longer the case. As mentioned, there is no rationale for why a mining company—making profits—should not be taxed at the same rate as a company in any other sector. Furthermore, evidence suggests that tax holidays do not increase mining investments but do significantly reduce government take.

Corporate income taxes are particularly susceptible to tax avoidance practices, generally referred to as base erosion and profit shifting (BEPS). Excessive deductions, lax capital depreciation rules, bloated costs, and shifting of profits to offshore subsidiaries are common practices. In most countries, rules to prevent BEPS and their enforcement are generally more important for collecting significant CIT than the tax rate itself.

Table 3. Corporate income tax rates in 14 mineral-dependent and regional countries

	BOTSWANA	CHINA	DRC	GHANA	INDIA	INDONESIA	KAZAKHSTAN	KYRGYZ REPUBLIC	MONGOLIA	PAPUA NEW GUINEA	RUSSIAN FEDERATION	REPUBLIC OF KOREA	TAJIKISTAN	ZAMBIA
CIT (%)	22	25	30	35	30	25	20	10	25	30	20	27.5	23	35

As much as there has been a tendency to increase royalties in the mining sector, there has been an opposite downward trend for general corporate tax rates worldwide. While CIT rates of 35–40 percent were common globally 10–15 years ago, the global average is currently 24 percent. Mongolia’s 25 percent rate is in line with the global average, slightly higher than the Asian average of 21.4 percent.⁶¹ On the other hand, deductions matter as much as the rate. The Mongolian government may wish to limit BEPS and question certain deductions, issues dealt with below.

4.3 WITHHOLDING TAXES

Withholding taxes (WHT) are applied to services provided by companies that do not have a permanent establishment in Mongolia. Standard rates in Mongolia are 20 percent for dividend payments to foreign entities, 20 percent for interest payments, and 20 percent for royalties. However, double-taxation agreements (DTAs) are often used to avoid or lower payments of withholding taxes. It is important to bear in mind that, for a multinational enterprise, it is relatively easy to set up a subsidiary in one of the jurisdictions where favorable WHT rates have been negotiated. In Mongolia, DTAs allow for significant reductions

⁶¹ KPMG (2021) [Corporate Tax Rates Table](#).

in withholding tax payments. For instance, interest payments on debt issued by a Republic of Korea-based entity to a mining operation in Mongolia are charged at a rate of only 5 percent rather than the statutory 20 percent rate. Similarly, dividend payments to a parent company of a mining operation in Mongolia are taxed at only a 5 percent rate if based in Canada, China, Hungary, Germany, Republic of Korea, Singapore, or Vietnam, among others, rather than the statutory 20 percent rate.⁶² France, Singapore, and Ukraine are among those with a 5 percent rate for royalties in their tax treaties with Mongolia.

This suggests that it would be advantageous for a mining company to receive debt financing and legal services from a Republic of Korea-based subsidiary, pay royalties to a France-based subsidiary for use of proprietary software, and pay dividends to a Canada-based subsidiary to reduce withholding taxes, for instance.

DTAs can be renegotiated. But this is often lengthy and difficult. One reason is that if a treaty is reopened, all elements of the agreement are reopened for negotiation or the treaty can be canceled outright. International norms require that a country wishing to cancel a DTA has to give a significant notification period. What is more, if a company has a stabilization clause in its mining agreement, it will claim that rate due while the treaty was in force.

WHT rates are aligned with international standards. We do not recommend modifying the rates themselves but rather monitoring the potential use of DTAs as a means of reducing WHT payments. Mining agreements should also incorporate General Anti-Avoidance Rules (GAARs) stating that treaty shopping be considered a tax avoidance mechanism. However, in practice, it appears difficult for governments to enforce these provisions.

4.4 RESOURCE RENT TAXES

A resource rent tax (RRT) is a rate-of-return-based form of taxation. The investor earns a minimum rate of profit, or return on investment, over the life span of the project; we shall refer to this as the required, or threshold, rate of return. As soon as the investor has earned the threshold rate of return then an RRT is charged on any additional profits.

The point at which the investor has earned the threshold rate of return is calculated by taking the annual net cash flow of the investor and compounding this as long as the cumulative cash flow is negative. The annual net cash flow is the investor's annual revenue less all its outgoings: capital costs, operating costs, royalties, income tax, and all other taxes and charges.

The typical annual pattern of this cash flow is an initial series of negative amounts during exploration and development, followed by increasing positive amounts as production commences and then builds up. The threshold rate of

⁶² KPMG (2018) [Mongolia Tax Profile](#).

return is earned when these later positive values outweigh the compounded value of the earlier negative cash flow. The cost of having to wait for this positive cash flow is reflected in the early amounts being compounded at the threshold rate of return.

A simple RRT on an accumulated cash-flow basis as presented above has some advantages. First, it is progressive and efficient. Because it is calculated on profitability as a whole, it captures higher profits derived from higher prices, lower costs, or more favorable geology. It also does not affect marginal projects as long as the RRT threshold—for example, a 20 percent return—is reached. As such, in lower profitability projects, it may never be triggered. It also requires the same information as standard tax filing. A simple RRT should normally not require any information additional to that required by the standard tax filing submitted by the mining company. It can be calculated in a matter of hours.

On the other hand, countries often hesitate to introduce an RRT in their fiscal regimes for several reasons. First, they are susceptible to BEPS manipulations. As they rely on the same information as the income tax filing, RRT calculations are also susceptible to tax erosion practices. For instance, if the mining company inflates its costs through transfer pricing or lowers its net income, the calculation of RRT would also be impacted. Second, RRTs are perceived as complicated to administer, both by mining companies and governments. Companies are often under the impression that *all* superprofits will be charged. In reality, only an additional 15, 20, or 25 percent of profits is taxed over and above a threshold of 20 or 25 percent return. In fact, companies generally retain a large percentage of superprofits.

5. The case for and against sale of the government of Mongolia's mine shares

Profitability figures are only available for two of Mongolia's mines with significant government shareholdings, the Oyu Tolgoi gold-copper mine and the Tavan Tolgoi coal mine. There is not enough data to determine profitability at Baganuur, Shivee-Ovoo, Mongolrostsvetmet, or Erdenet, for instance, due to lack of data or aggregation of mining profits with those from other activities (e.g., processing plants, restaurants).

The government of Mongolia owns 34 percent of the **Oyu Tolgoi LLC**, the mine's operating entity. Erdenes Mongol holds these shares, which were purchased using loans from Rio Tinto charging LIBOR (London Inter-Bank Offered Rate) plus 6.5 percent interest. As of August 2021, 1-year LIBOR was 0.24 percent. As of December 2020, the cost of state equity to the government was US\$ 1.4 billion including US\$ 800 million in interest payments. Future underground development could add to this amount, as Erdenes Mongol would be responsible for covering 34 percent of the costs.

In its analysis, consulting firm CRU projects that between 2034 and 2050, the government of Mongolia will receive approximately US\$ 1.8 billion per year in revenue from Oyu Tolgoi. Combined corporate tax, withholding tax, and royalties are expected to represent 2.5 times dividends on state equity.

The CRU analysis suggests that a sliding-scale royalty with a lower state equity participation would yield higher fiscal revenues for the government over the life span of the mine *and* would front-load payments relative to the Mongolian regime.⁶³ Mongolia might be losing about US\$ 1.5 billion in net present value (NPV), depending on costs and prices, over the life span of the mine relative to hypotheticals in which it would impose Chilean or Zambian fiscal terms. Royalty payments are higher in both jurisdictions, and withholding taxes are a significant revenue generator in Chile. The government may therefore wish to seriously consider negotiating an exchange of state equity in favor of higher royalties or imposition of a sliding-scale royalty, notwithstanding stabilization clauses in the contract.

⁶³ CRU International (2021) *Study on the Economics of Optimally Developing Mongolia's Mineral Resource Wealth*. Table 74, Page 142.

The case of **Tavan Tolgoi** is completely different, given that it is controlled by the government. The government owns 85.2 percent of the coal mine, of which 65.2 percent is held by Erdenes Mongol. In its base case scenario, CRU projects a 49 percent profit margin ([government take + retained earnings] / EBITDA) in 2025 and 60 percent in 2030. (EBITDA is earnings before interest, taxes, depreciation, and amortization.) While relatively high—the coal industry’s gross margin as a whole has vacillated between 20 percent and 50 percent over the last decade—CRU figures do not allow us to calculate profit margin over the life span of the mine.⁶⁴ High profit figures may simply be due to the years that were chosen during peak production.

Several reports, including from the World Bank, have advocated privatization of the government’s Tavan Tolgoi shares. However, we would suggest considering the options carefully. In theory, Tavan Tolgoi should only be privatized if the net present value (NPV) of 85.2 percent of dividends plus retained earnings is less than the NPV of the mine sale price. This assumes that costs are the same under Erdenes Mongol and the private sector operator, as higher costs under the private sector operator would lower government take. It is unclear whether this is a realistic assumption; although Erdenes Mongol is a relatively inefficient operator, private mining companies have an incentive to increase costs as part of transfer pricing and profit repatriation schemes. The threshold for sale price also assumes that Erdenes Mongol and a private sector operator would be evading corporate income taxes at the same rate and would be equally honest (or dishonest) in declaring volume of production, which also may be an unrealistic assumption.

Under CRU’s base case scenario at a 10 percent discount rate, dividends on the mine from 2020–30 are approximately US\$ 435 million in NPV (of which US\$ 371 million goes to the government).⁶⁵ Retained earnings would be US\$ 1.5 billion in NPV (of which about US\$ 1.3 billion goes to the government). Therefore, a fair sale price would be more than US\$ 1.7 billion in NPV, likely significantly more given that the mine would continue production beyond 2030 and given expected tax avoidance by private mining companies.

Sale of Tavan Tolgoi shares would generate immediate revenues for the state. However, privatization implies exchanging one set of risks for another. On the one hand, a state-owned enterprise can divert retained earnings to company managers and politically connected individuals, increase costs unsustainably (e.g., labor costs, bloated supplier contracts), build unnecessary infrastructure, borrow against future earnings, and produce inefficiently due to technological and marketing limitations relative to international mining companies, reducing revenues for the government. On the other hand, a private operator can evade taxes and is a political liability because the government can be accused of “selling out” to the private sector or foreigners, especially if there are social or environmental challenges near the mine site. The choice is far from clear.

⁶⁴ Aswath Damodaran (2021) *Margins by Sector (US)*. New York University.

⁶⁵ Table 91 on page 155.

Ideally, the government would reform Erdenes Mongol and operating state-owned mines (e.g., Tavan Tolgoi, Baganaur, Shivee-Ovoo, Erdenet, and Mongolrostsvetmet) to ensure that they are operating efficiently, managers are technically proficient, dividends are paid, and mines are publishing audited financials using international accounting standards. This would involve enacting new legislation and strengthening oversight by the Ministry of Mining and Heavy Industry or the Government Agency for Policy Coordination on State Property, as well as requiring and publishing independent external audits of each mine. However, should this not be possible in a timely manner, the government may wish to consider partial or full privatizations of some mines.

6. Conclusion

As we have seen, minority state ownership of mines rarely generates revenues for the state. When it does, these revenues are meager or lower than projected. Any nonfinancial benefits from state minority ownership—such as access to information through the board—are mitigated by political appointments and can be replicated through regulation and adequate enforcement. Where possible, the government should negotiate increased royalties or a resource rent tax rather than demanding more equity in a project.

The case for state control of mines is more ambiguous. State controlling interest can generate revenue for the state, enable a government to exercise greater control over the sector, encourage local business development, and address market failures. However, majority state ownership of mines can also crowd out private investment, drain public resources, and introduce a source of patronage and corruption. State-owned mines also generally suffer from unjustified high costs, over-reinvestment, or unjustified low revenues. In this way, they are similar to privately owned mines, except that the political economy of addressing these challenges may be quite different. For instance, there may be a political imperative to employ local community members through the mine, driving up costs. And state-owned mines are often used to leverage borrowing for other politically motivated projects.

The success of controlling interests in mines is generally conditional on certain criteria, namely enforced laws and regulations to ensure that state-owned mines benefit the whole population rather than just locals and those with access to mine revenues. These laws and regulations ought to cover state-owned enterprise mandates, professional board and management, dividend policy, independent oversight, accounting, and transparency, at a minimum.