



SUSTAINABLE DEVELOPMENT AND MINING

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Introduction

- Impact of mining sector on sustainable development:
 - Milestone 1 (2006): start of a mining-led economy
 - Milestone 2 (2009): Oyu Tolgoi Investment Agreement and linkages to international financial markets
 - Fiscal integration
 - Development planning system
 - Financial system modernization
 - Securities market
 - PPP system
 - Budget
 - Milestone 3 (2016-): Sustainable development long-term vision

Introduction

- According to the IIED, contributions towards sustainability are assessed through the following sphere:
 - Economic sphere
 - Macroeconomic impact
 - Foreign trade impact
 - Impact on public finances
 - Social sphere
 - Environmental sphere
 - Governance sphere
 - Policy field
 - Corporate governance

2. Economic sphere

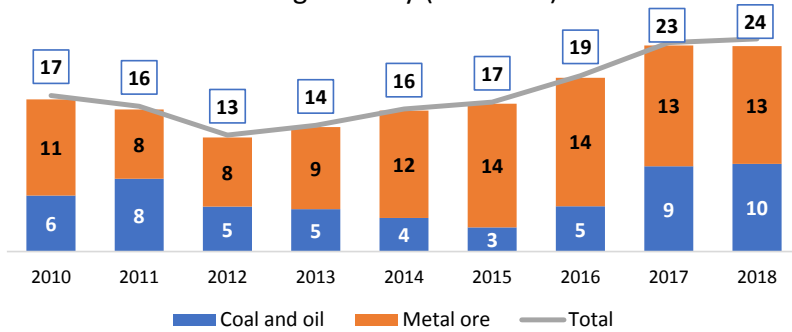
Structural transformation, percent of GDP

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Agriculture	19.2	17.9	11.7	10.3	11.3	13.4	13.3	13.4	11.7	10.3	10.8
Mining quarrying	20.2	19.5	21.5	19.3	16.4	14.9	16.5	17.1	20.1	23.5	23.5
Manufacturing	8.8	9.2	9.1	9.0	9.3	10.5	10.6	9.7	9.8	11.2	11.6
Construction	1.9	1.3	2.6	3.1	5.0	5.1	4.4	4.2	4.0	3.7	3.6
Service and trade	39.7	43.1	44.8	45.8	46.9	44.7	45.8	47.5	46.1	42.3	39.6

Source: NSO

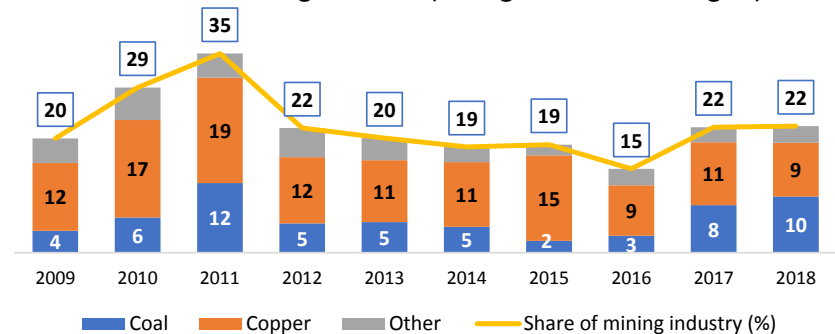
Mining contribution to the economy

Mining industry (% of GDP)



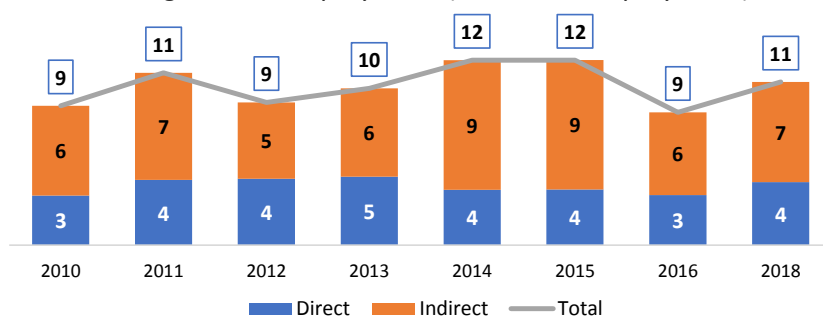
Source: NSO and ERI calculation

Mining revenue (% of government budget)



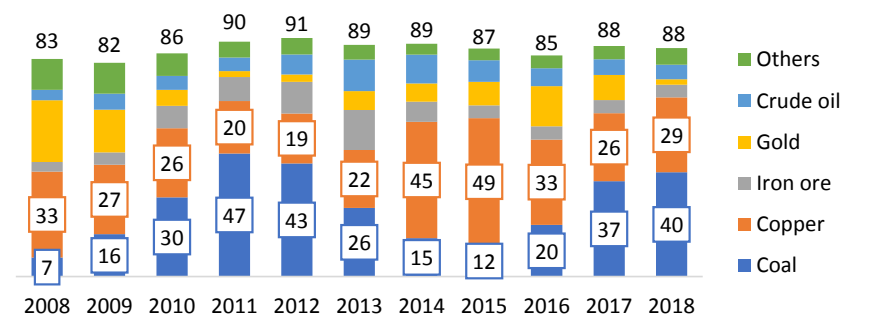
Source: Ministry of Finance

Mining related employment (% of total employment)



Source: NSO and ERI calculation

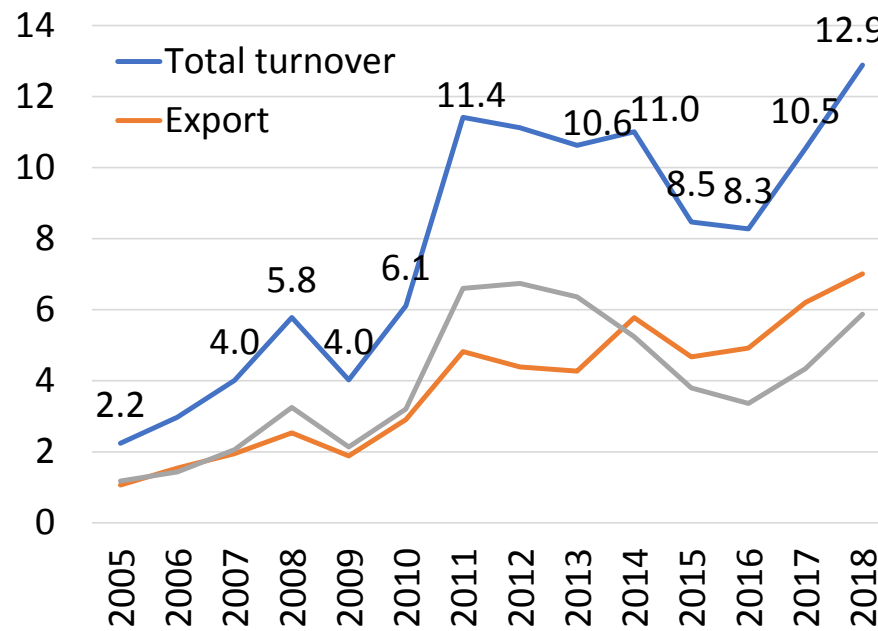
Mining exports (% of total exports)



Source: Custom's Office

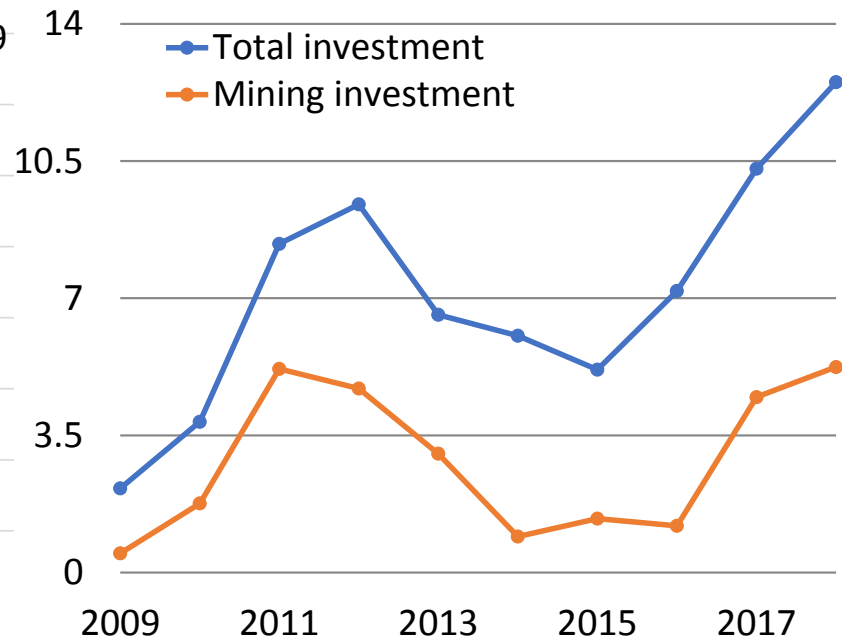
Foreign trade and investment

Foreign trade, total turnover, exports and imports, billion USD



Source: NSO

Total investment, billion MNT



Source: NSO

Managing and distributing wealth

- Distributing mining revenue between local and central government
 - Local - Weak governance
 - Central - Bureaucracy and lack of information about local need
- Sharing some of fiscal revenue to the local government in Mongolia
 - Some of real estate, land tax, mineral exploration and mining license fees leave in local level
 - Mining revenues distributed from central government to the local governments through **Local Development Fund** that was established in 2011
- Mining companies' contribution to the local development
 - 30 billion MNT was donated from mining companies in 2017
 - Botswana- Debswana , Mongolia – **Gobi Oyu development support fund (OT LLC), Khushuut development fund (Monenco LLC)**
- Life after mining
 - Sovereign wealth fund-Norway, Chile, Saudi Arabi
 - Mongolia- **Future Heritage Fund, Fiscal Stability Fund**

3. Social sphere

3.1. Artisanal and small-scale mining (ASM)

- ASM: informal mining conducted with minimal technology and machinery (70-80% of small-scale miners are informal)
- There is an estimated 30 million ASMers extracting over 30 mineral commodities worldwide
 - Of which, 10-15 million are involved in the gold sector (ASGM)
- ASM is a major source of income for rural and regional communities; however, it also creates poor environment, health and safety conditions, degrades crops and farmland, affect food production, pollutes streams and rivers
- ASGM concern: use of mercury and cyanide in gold mining process
- Progressive step to address these damaging issues: **formalization** (bringing informal income-earning activities and economies such as ASM into the formal sector through legal, regulatory and policy frameworks)
 - EITI reporting requires an estimation of the ASM sector
- According to a 2016 study, there is an estimated 100,000 ASMers in Mongolia
 - Mongolia has taken steps to formalize the sector: “Regulation on Extraction of Minerals from Small-Scale Mines” (2010) which legalized ASM and the “Sustainable Artisanal Mining” project with Swiss Agency for Development and Cooperation

3.2. Community health: Occupational health and safety (OHS)

- Health issues arising from mining can range from OHS to surrounding communities' health
- Employees are exposed to health hazards/serious accidents during project's process of blasting, mining, excavating, pumping, maintaining or cleaning
 - ILO has 10 applicable international standards and 9 codes of practice related to mining sector OHS
- Australia has the best practice of OHS: government and industry works together to achieve "zero harm" through risk management
- Mongolia has ratified ILO standards; however, it is poorly enforced

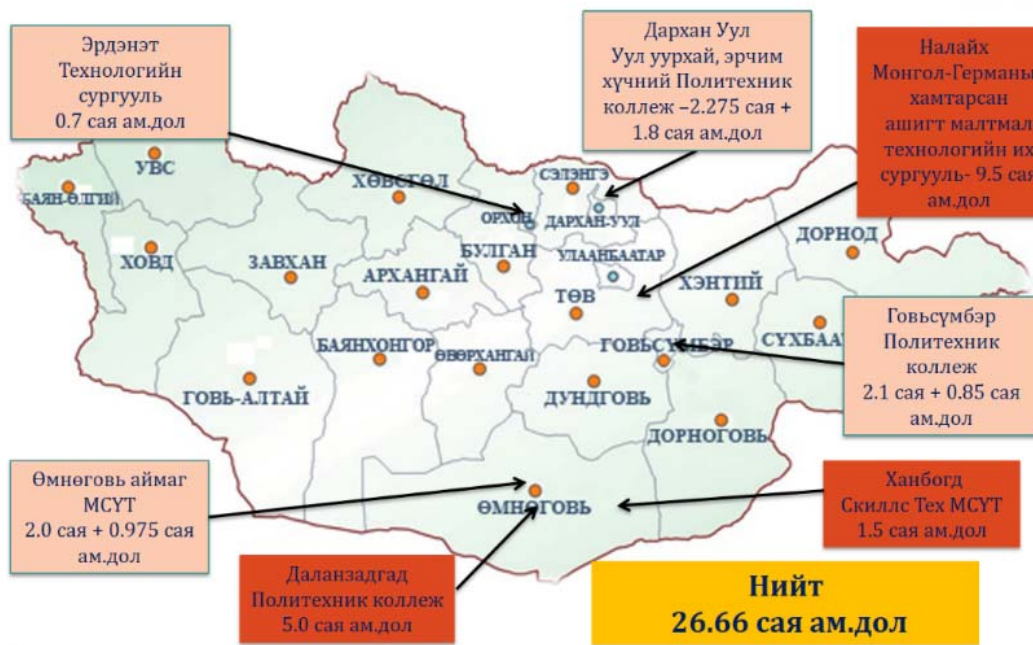
Table. Injured persons by industry

Industry	2016	2017	2018	2019-H1
Mining and quarrying	61	55	73	30
Processing industries	32	62	26	11
Construction	21	15	17	12
Transportation and storage	19	21	27	13
Defence and public administration	43	36	34	7
Other sectors	156	143	106	63
Total	332	332	283	136

Source: NSO

3.3. Education

- The lack of skilled workers causes delays in the implementation and progress of projects, increases costs and hampers compliance with local content requirements



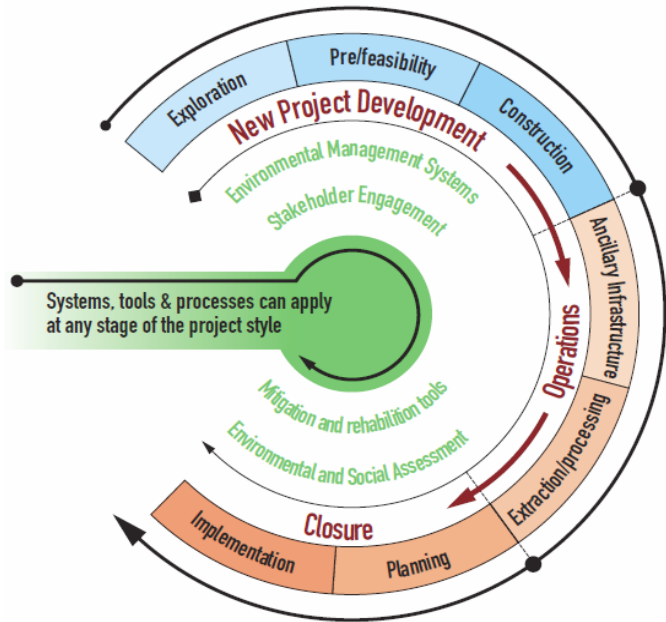
- OT's total investment in education – \$173 million
- Of which, TVET - \$78.7 million
 - School builds – 27 million USD
 - Equipment donation – 3.9 million USD
 - 3300 Scheme – 36 million USD
 - Apprenticeship program – 3.5 million USD
 - TVET Teacher Training – 5.4 million USD
 - Pre-employment – 210.000 USD
 - Pre-apprenticeship – 1.2 million USD
 - Pilot program – 20.000USD
 - 3D program – 1.5 million USD
 - World Skills - 50.000 USD

4. Environmental sphere

Environmental Impact of Mining

- In case environmental sphere is ignored, it results adverse impacts on
 - Environmental capital
 - Soil erosion and degradation
 - Water pollution
 - Air pollution
 - Economic capital
 - Decreasing inputs for other sectors as environmental capital is the fundamental resource and input for other sectors
 - Decreasing demand for mineral products
 - Social capital of mineral industry
 - Reputational risk
 - Indirect risks through rising costs of intermediate consumption and energy

4.1. Environmental sphere of supply chain of mineral sector



- Exploration stage

- Review survey don't require exploration license but drilling, excavation and other removal of vegetation is not allowed
- If exploration is financed by state budget, exploration license is not required
- Exploration is prohibited in
 - State Special Protected Areas
 - Protection zones of headwater and watershed, or forestry areas
 - Operation in these special areas is allowed if the mineral deposit is strategic important

4.1. Environmental sphere of supply chain of mineral sector

- Development stage
 - Feasibility Study
 - Detailed production plan, quantity of ore, and waste rock and other plans of whole mineral project
 - Potential environmental impacts, management plan, and closure plans are developed
 - Site preparation and clearing
 - Clearing of vegetations
 - Settlement of workers
 - Construction of access roads
 - Interruption to the natural linkages between populations of plants and animals
 - Coal transporting road of Ukhaa-Khudag- Gashuun Sukhait is passed through the areas that is populous of wild animals as well as a State special protection zone

4.1. Environmental sphere of supply chain of mineral sector

- Operation of mining

- Mining waste (overburden, waste rock, tailings and heap leach spent ore)
 - Regulation on Management Radioactive Waste Derived from Ore Extraction or Processing (2015)

	Non-Hazardous waste (m ³)	Hazardous waste (m ³)	Total waste (m ³)	Actual Payments (mil.MNT)	Recycled hazardous waste (m ³)	Burial of hazardous waste (m ³)	Exported hazardous waste (m ³)
2017	39,880.1	3,232.7	43,112.8	318.5	1,780.4	802.9	484.0

- Disposal of wastes in Mongolia
 - Overburden and waste rocks are usually dumped and any excess is bulldozed over the edge, forming slopes at the natural angle of repose
 - Wet wastes and other toxic wastes are disposed in a dam near the mine site
 - Erdenet mine’s accumulation of overburden and waste rock is increased by 10-12 million ton per year
 - Oyu Tolgoi thickens its tailings, reuse a water of tailings and disposes wastes in a dam

4.1. Environmental sphere of supply chain of mineral sector

- Water usage

- As of 2017, Mongolian mining companies used 68.2 million cubic meter of water, 92.5% of contracted volume of usage

	Contracted water usage (m ³)	Surface water usage (m ³)	Underground water usage (m ³)	Total water usage (m ³)	Reusage of grey water (m ³)
2017	73,695,603.4	8,003,409.5	60,179,913.9	68,183,323.3	3,408,628.6

- Mining companies are obligated to pay fees for water pollution

- In 2017, mining companies paid 773 million MNT, which is equal to 0.73% of total budget revenue
- Oyu Tolgoi is the most efficient in water usage - more than 85% of water used is recycled
 - 0.42 cubic meters used per ton of ore processed – significantly below the global average of 1.2 cubic meters

4.1. Environmental sphere of supply chain of mineral sector

- Closure of mining
 - Crucial issue in Mongolia
 - Average performance of mining closure in Mongolia is about 30%
 - As of 2015, 566 mines are abandoned without any closure or rehabilitation in 56 soums of 15 provinces (Ministry of Environment and Tourism)
 - Example: Nalaikh coal mine
 - Mine closure is regulation
 - Regulation on Mine Temporary and Permanent Closure (2003)- Provide only general directions but not specific obligations
 - In the Government Action Plan for 2016-2020, it is declared an activity that “create a legal environment for secondary mineral exploitation and achieve international standards of the mine rehabilitation and closure”
 - Yet, new regulations or bills specifically devoted to closure of mining have not adopted

4.2. Environmental impact assessment (EIA)

- EIA -widely used tool for measurement of environmental impact
 - In Mongolia, Law on Environmental Impact Assessment -adopted in 2011 and amended in 2017
 - EIA is mandatory for all mineral projects
 - Strategic environmental assessment (SEA)
 - State of the environment (SOE)
 - Accumulated impact assessment
 - Environmental impact assessment (EIA)
- Regulations regards to EIA and Environmental Management Plan is well defined in Minerals Law and Law on Environmental Impact Assessment
 - Implementation and transparency are not so developed yet

5. Governance sphere

5.1. Government participation

- Government participation in the mining sector is mainly regulated by the Minerals Law
- Minerals Law (2006)
 - Deposits of strategic importance (5% or more of GDP)
 - Up to 34% owned by GoM if exploration is not funded by the state
 - Up to 50% owned by GoM if exploration funded by the state
 - Common minerals
 - Conventional minerals
- All mining companies must be incorporated in Mongolia, registered as a taxpayer, operate under Mongolian law
 - At least 10% of the company's shares must be traded on the Mongolian Stock Exchange

5.2. Investment

- Investment into the mining sector is regulated by the Investment Law
- Under the law, entities may get Stabilization Agreement Certificates
 - fixed corporate income tax, customs duties, value added tax and royalties throughout the duration of the certificate.
- Any entity planning on investing over 500 billion MNT in Mongolia can negotiate an Investment Agreement with the GoM
- Regulated by Government Resolution #52, #255
 - Not a standard model contract - General outline of the contents of the agreement
 - Negotiations are not public
 - Public participation and regulation are difficult
 - Several older stabilization agreements were made under the now nullified Foreign Investment Law
 - Currently, only the Oyu Tolgoi investment agreement is fully public

5.3. Conflict resolution

- Arbitration in Mongolia is regulated by the Arbitration Law (2003, amended in 2017)
- Arbitration – quickest and least costly way to resolve conflicts
 - Many arbitration courts are specialized – allows conflicts to be resolved based on precedents and past experiences
- Companies can include provisions for arbitration in their investment agreements
- A safeguard for investors who are wary of Mongolia's legal institutions

5.4. Fighting Corruption

- Corruption is major drawback for allocating and managing natural resource revenues
- Main reasons that is making **mining industry vulnerable to the corruption**:
 - Large capital expenditure
 - Extensive regulation
 - Fixed location
- According to Transparency International report (2017), corruption **risks exist in mining approvals** regimes in all countries
- Fighting corruption in Mongolia
 - **Legal framework**- Anti-corruption Law (2006)- Independent Authority against Corruption, On the regulation of public and private interests and prevention of conflict of interest in public service law (2012)
 - **Increasing transparency**- Glass account law (2014) , EITI (2010)

5.5. Exploration and Development

- Licensing
 - a legal entity must first obtain a reconnaissance, exploration and extraction license
 - Licenses are obtained through a tender process
 - Land available for reconnaissance is decided by the Mineral Resource and Petroleum Authority with approval from the Citizens Representative Khural
 - Local government monitors and ensures the correct usage of land
- Mining companies must create local cooperation agreements with the local government and community
 - Cover issues of environmental protection, employment, infrastructure development and overall mine usage
- Access to information
 - EITI Mongolia (2006)
 - stakeholder working group consisting of representatives from the government, mining companies and the general public.
 - Works to encourage the public publishing of mining contracts and purchase agreements
 - However, no legal consequences for not publishing this information – lack of access to information in the mining sector

5.6. Active Mining

- Taxation
 - No specific mining tax – regulated by the Corporate Income Tax Law
 - Ease of implementation and clarity
 - While a special mining tax regime may increase gains from the sector – hard to implement and requires high amounts of administrative resources
- Royalties
 - Tax-and-royalty system - a mining license holder pays a royalty based on the sales value of all products extracted, sold or shipped for sale
 - Based on benchmark prices with a sliding scale royalty system
 - GoM can also impose an additional royalty (up to 5%) on deposits of strategic importance

5.7. Closures

- When first applying for an exploration license, companies must include an estimate of the cost of environmental protection
- After obtaining a license, companies must submit a detailed environmental projection plan after consultation with the Governor of the province they are operating in
- Mining license holders must place 50% of the funds for annual environmental protection costs with the local government
- Contracts made with the Ministry of Environment and Tourism and the local government are registered in the Resource Contract Database
 - Easily accessible to the public for additional oversight

5.7. Fiscal Stability Fund & Future Heritage Fund

- Fiscal Stability Law (2010)
 - Provides clear cut goals and regulations for maintaining fiscal discipline
 - However, has been amended numerous times
 - The ceiling on the net present value of government debt has been continuously changed (from 40% of GDP in 2010 law to 60% in 2016)
- Future Heritage Fund Law (2016)
 - Shows Mongolia's willingness to invest in sustainable development
 - Projected funds are based on estimations of Mongolia's commodity exports
 - Highly optimistic estimates, especially for coal – may hurt the stability of the fund
 - Issues with institutional implementation

Conclusion

- **Economic:** Mineral commodities dominate Mongolian export and changes of these commodity prices fluctuate government revenues. Mongolia needs to develop non-mining sectors and especially, focus on export diversification and effective revenue management.
- **Social:** Besides obtaining a mining license, a “social license” is becoming increasingly important as well. To avoid the costs associated with mining development delayed, interrupted or shut down, mining companies need to maintain and cultivate a relationship and line of communication with the local communities and relevant stakeholders.
- **Environmental:** Implementation of existing environmental regulations are not sufficient during all phases of mineral projects; mine closure is one of the largest causes of adverse environmental and social effects
- **Governance:** Although Mongolia has legislation which encourages and enforces good governance, there exists issues with implementation and adherence. Additionally, there is a lack of transparency.



Thank you