AIMM Sector Framework Brief
Sector Economics and Development Impact Department
International Finance Corporation

MINING

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Development Impact Thesis – The mining industry has significant direct effects on national incomes, fiscal revenues, and foreign exchange revenues. Beside these direct effects, mining occupies a primary position at the start of global value chains (GVC) for core consumer goods (electronics, appliances), and produces key inputs into many productive and service sectors (e.g. agriculture, health, transportation), infrastructure, and green technologies. For mining to contribute to broad-based growth, there needs to be balanced sharing of resource rents, transparency and quality of governance institutions, allocation of resource rents across sectors, and linkages with the economy, among other conditions. IFC provides financing and advisory services in this sector which:

→ Increases fiscal revenues and other transfers
→ Creates positive effects on communities
→ Helps minimize negative externalities
→ Results in economy-wide effects
→ Improves governance in resource management

⇨ **Project Outcomes**

→ Increases participants, products, and efficiency
→ Diversifies export baskets and trading partners
→ Improves spatial connectivity
→ Deepens local economic linkages
→ Promotes adoption of sustainable practices

⇨ **Contributions to Market Creation**

Development Gaps Addressed

- Yawning fiscal and trade deficits
- Low foreign exchange reserves
- Low growth and employment
- Weak human development
- Poor transparency and governance institutions
- High environmental and social risks, including climate risks

Rating Construct – All AIMM sector frameworks include detailed guidance notes that help define project outcomes and contributions to market creation, aggregating to an overall assessment of development impact.

- For project outcomes, effects on stakeholders and the economy-wide effects are core development outcomes. For these key components, industry-specific benchmarks define the context in which an IFC operation seeks to drive changes. This gap analysis is combined with a separate set of impact intensity estimates that specify the expected results using predefined indicators.

- For contribution to market creation, industry-specific market typologies define stages of development for five market attributes (or objectives): competitiveness, resilience, integration, inclusiveness, and sustainability. These market typologies, when combined with estimates of how much an intervention affects the development of a market attribute, provide the foundation for IFC's assessment of an intervention's market-level potential for delivering systemic changes.

PROJECT OUTCOME INDICATORS		CONTRIBUTION TO MARKET CREATION INDICATORS	
Stakeholders	Effects on suppliers • Value of goods and services sourced domestically, excluding fuel and wage bill, $ • Technical and specialized skills for local suppliers* Effects on employees • Change in wages and other benefits (Local job quality) • Improvement in employees' skills • Representation of national staff in leadership, % • Share of female employees, % • Representation of women in leadership, % • • Number of non-fatal, fatal occupational injuries (#) (per million man hours) Effects on community • Money spent on shared infrastructure in local community, $ • Community development transfers, $ or % of annual revenues • Community development transfers are consistent with mining code, Yes/No • Livelihoods; jobs created in project area, # Effects on government Government transfers (taxes, fees, royalties, dividends etc.)	Competitiveness	• Effects on market structure • Effects through change in product offering and innovation • Effects on market efficiency
		Resilience	• Diversification of mining sector and trading partners • Effects on regulation and revenue management mechanisms • Ability to withstand climate shocks and stresses
		Integration	• Spatial integration: effect on trade links • Spatial integration: domestic links • Effect on domestic supply chain • Financial integration
Economy-wide	• Value-added multiplier • Employment multiplier • Export sales (or FX savings), $	Inclusiveness	• N/A (Community-level inclusion practices captured under "sustainability")
Environmental / Social	• GHG emission reduction and resource efficiency • Climate resilience • Effects on biodiversity	Sustainability	• Adoption of sustainability practices, technologies, products (ESG and climate) • Conducive legal/regulatory environment for sustainability • Broad-based capacity for supporting sustainability practices (institutions)

IFC's Environmental and Social Performance Standards define IFC clients' responsibilities for managing their environmental and social risks. While for most IFC investments, meeting Performance Standards reflects improved environmental and social performance, effects from implementation of the standards are only claimed in the AIMM framework where a clear counterfactual can be established and where the investment intent is to improve environmental or social outcomes.

Sector Specific Principles or Issues – The following principles will be applied for projects rated under this framework:

Principle or Issue	Treatment Under Framework
Scope of assessment	Project-level anticipated impact is based solely on the effects expected from the investment being evaluated. The assessment considers the full scope of effects, irrespective of the size of IFC's contribution relative to the total cost of the project. Market-level impact implicitly considers past and ongoing World Bank Group investments that affect the likelihood or magnitude of market creation effects expected from the project. This is consistent with the market creation model of IFC 3.0 which promotes (sequential) complementarity of IFC projects with other WBG products, including IFC's own advisory services, to facilitate private sector investments. The scope is restricted to WBG interventions directly linked to the IFC investment being evaluated.
Effects of projects with a local market	For mining sector projects with a local market, effect on customers can be expected from improved access, quality, or affordability. Access effects are realized when the project produces a product that is new in the market, or delivers additional supply, i.e. does not result in import substitution. Otherwise the project will be credited for its effect on quality or price. It is also possible that an import-substitution project generates only government (reduction in subsides) or economy-wide (foreign exchange savings) effects, without significant direct bearing on customers.
Benchmarking	Impact assessments are based primarily on the size of the deficit being addressed. This methodology gives greater weight to projects addressing large deficits and those creating missing markets. A secondary consideration is normalization to avoid disadvantaging small projects, e.g. impact per million dollars invested. In mining sector projects, government and economy-wide effects (e.g., foreign exchange generated from export sales) are scaled by the volume of invested capital. Community effects are scaled by volume of revenues generated to facilitate benchmarking, given that community transfers are typically stipulated in mining legislation or reported by firms as a share of revenues.
Treatment of negative effects	Negative externalities are taken into consideration in the AIMM assessment and highlighted when significant enough to mitigate the overall rating. Mining sector projects could generate negative effects at the project level in the following areas: (i) mining concessions and revenue sharing schemes that deviate from the standard mining code, resulting in an unbalanced sharing of revenues; (ii) significant environmental effects (e.g. significant gross GHG emissions); and (iii) large-scale resettlement. At the market level, a project could reduce competition when solidifying the monopoly position of a client operating in a market that is not a natural monopoly. Negative effects on resilience could arise from projects that (i) invest in minerals dominant in the export basket, exacerbating susceptibility to commodity price fluctuations; or (ii) result in large foreign exchange inflows without adequate stabilization measures.
Qualitative benchmarks	The analysis of the current context in which a project is taking place can be either quantitative (through benchmarking of quantitative indicators to the performance of other emerging markets) or qualitative. Quantitative benchmarks are used where possible and triangulated with a qualitative description of market features that define market stages. In cases where comparison across markets on a purely quantitative basis is not meaningful, a qualitative assessment is used instead..

Project Outcomes – Project gap analysis is used to classify project contexts according to the size of the deficit / gap being addressed. For each indicator, the size of the gap is measured in relation to development goals associated with the sector (e.g. universal access). Contexts are classified into very large, large, medium or low gap, for each performance dimension. Market gaps are defined using a combination of qualitative and quantitative benchmarks, which leaves room to consider context-specific attributes that drive investments in the sector.

COUNTRY CONTEXT	Low Gap	Medium Gap	Large Gap	Very Large Gap
Fiscal effects • Government budget • Central government debt, % GDP • Tax revenues, % GDP • Country deficit/debt	– Government C/A balance is above -0.5% – Debt to GDP [< 28%] – Revenues to GDP [>20%] – IMF FM identifies a positive trajectory on debt sustainability	– Government C/A balance is between -6 and -0.5% – Debt to GDP [28-42%] – Revenues to GDP [15-20%] – IMF FM identifies a neutral trajectory on debt sustainability	– Government C/A balance is between -12 and -6% – Debt to GDP [42-60%] – Revenues to GDP [10-15%] – IMF FM identifies a negative trajectory on debt sustainability	– Government C/A balance is below -12% – Debt to GDP [> 60%] – Revenues to GDP [<10%] – IMF FM identifies a negative trajectory on debt sustainability
Balance of payments • Trade balance	– Trade surplus	– Either trade deficit is low or reflect highly productive, growing economy	– Trade deficit is high reflecting potential competitiveness problems	– Trade deficit is very high reflecting potential competitiveness problems
Value-added multiplier	– High-income country group	– Upper middle-income country group	– Lower middle-income country group	– Low-income country group

COUNTRY CONTEXT	Low Gap	Medium Gap	Large Gap	Very Large Gap
Employment • Labor market participation rate, total (% of population 15-64 years) • Unemployment rate % • Share of informal employment	– High level of labor market participation and high absorption rate for skilled labor force – Unemployment low – Share of informal employment low	– Above average labor market participation, skills for mining sector; some gaps – Evidence of measures to improve productive employment – Unemployment rate average – Share of informal employment average	– Low level of labor market participation, including of skilled labor force – Technical skills for mining sector typically imported – Unemployment rate high – Share of informal employment high	– Very low level of labor market participation, including of skilled labor force – Technical skills for mining sector typically imported – Unemployment rate very high – Share of informal employment very high
Community • Community development transfers • Shared infrastructure in local community • Jobs created in local community during construction phase	– Project located off-shore, or in a largely uninhabited area – May have legislation that requires compensation of local community by mining company, but these provisions are not applicable to the project context	– Project located in low-income area with some economic activity and average access to infrastructure including basic services – Has legislation that requires transfers to local community, local or central government that is broadly applied	– Project located in low-income area with limited employment and economic opportunities/activity – Local community has limited access to infrastructure – May have legislation that requires transfers to local community, local or central government	– Project located in remote/ very low-income area with limited economic activity and limited employment opportunities – Local community has very limited access to infrastructure

"Core outcomes" for mining sector investments include effects on stakeholders including the government (through taxes and other transfers) and the local community, and economy-wide effects (foreign exchange effect on balance of payments, value-added, and employment). The rating will be driven mainly by effects on government transfers, value-added, and employment. Government transfers and community outlays are a function of the fairness of the mining concession on benefits sharing and are a proxy for a mining operation's potential effect on economic and social investments. Value-added employment effects reflect the extent of linkages between the mining operation and the local economy, typically achieved through two main stakeholders: suppliers (backward linkages) and customers – local firms dependent on the mining sector for industrial inputs (forward linkages). A project need not deliver impact in all potential core outcome dimensions but should do so in the intended area of focus and must be based on a "fair" concession. The country's transparency and governance indicators, as well as conditions precedent to IFC's investment that contribute to improving existing systems, are assessed in determining both the quantum and likelihood of potential impact.

An IFC operation's project-level impact is assessed based on the magnitude of its effects in relative terms, i.e. using a normalization rule that provides an indication of the intensity of impact (e.g. impact per dollar invested). Table below provides summary for the impact intensity assessment categories.

PROJECT INTENSITY	Below Average	Average	Above Average	Significantly Above Average
Fiscal effects • Gov transfers, (taxes, fees, royalties, dividends etc.), $	– Project has marginal fiscal effects – May be evidence of important exemptions from payments in mining code	– Payments to government over project life < 0.75 times of $ invested	– Payments to government over project life 0.75-1.5 times of $ invested – Payments to government are consistent with mining code	– Payments to government over project life >=1.5 times of $ invested – Payments to government are consistent with mining code
Balance of payments • Export sales (or FX savings), $	– Marginal effects, export sales (or foreign exchange savings) < 1 times of $ invested	– Export sales (or foreign exchange savings) over project life 1-2.5 times of $ invested	– Export sales (or foreign exchange savings) over project life 2.5-5 times of $ invested	– Export sales (or foreign exchange savings) over project life >= 5 times of $ invested
Economy-wide effects • Value-added multiplier • Employment multiplier	– Annual value-added creation is low, below 0.82 million USD per 1 million USD of investment – Employment creation is low, below 29 jobs per million USD invested	– Annual value-added creation is average, between 0.82 and 1.10 million USD per 1 million USD of investment – Employment creation is average, 29-76 jobs per million USD invested	– Annual value-added creation is above average, between 1.10 and 1.45 million USD per 1 million USD of investment – Employment creation is above average, 76-194 jobs per million USD invested	– Annual value-added creation is very high, above 1.45 million USD per 1 million USD of investment – Employment creation is very high, above 194 jobs per million USD invested

PROJECT INTENSITY	Below Average	Average	Above Average	Significantly Above Average
Community • Comm dev transfers, $ or % • Jobs created during construction phase • Money spent on shared infrastructure	– Shared revenues low compared to similar IFC projects – Project has low impact on local communities' access to infrastructure – The project has no significant impact on local employment	– Shared revenues average compared to similar IFC projects – Project allocates modest share of invested capital to develop shared infrastructure – Up to half of construction jobs sourced locally	– Shared revenues high vs. similar IFC projects – Project allocates an above average share of invested capital to develop shared infrastructure compared to similar IFC projects – More than half construction jobs sourced locally	– Shared revenues significantly above average vs. similar IFC projects – Project allocates large share of invested capital to develop infrastructure vs. similar IFC projects – Significantly more than half of jobs sourced locally

The AIMM methodology considers the uncertainty around the realization of the potential development impact being claimed, making a distinction between the potential outcomes that a project could deliver and what could be realistically achievable in the project's development context. Table below presents the key types of risks factors for mining sector operations.

PROJECT LIKELIHOOD	Operational Factors	Sector Factors
Assessment Considerations	• Client's track record of delivering impact in the proposed focus area • Client's market position and product offering • Sponsor's technical strength and support to project • Covenants assuring implementation of project components • Collaboration track record of implementing entities • Project likelihood of reaching financial close at targeted level of capitalization • Realism of magnitude of anticipated impact (measured against industry standards, client/EPC contractor's experience, public sector capacity in tax administration, quality of local institutions) • Negative factors affecting the project company, sponsor or the management team which detracts from likelihood (e.g. litigation, impaired reputation on important development issues such as employment standards) • Funding and sequencing of advisory services to strengthen impact on community	• Definition and realism of development impact targets • Extent of political support and social buy-in • Track record in sector policy reversals and revision of contracts • Financial viability in the absence of incentives e.g. tax exemptions • Resilience to exogenous shocks • Country's ranking on World Governance Indicators • Country's compliance with EITI or comparable standards • Availability of macro stabilization mechanisms • Quality of public expenditure and financial accountability framework

Contribution to Market Creation – A market is defined as the industry or sub-sector in which the project is taking place (excluding markets affected by the project through economic linkages). "Market" refers to the full spectrum of primary activities from exploration to reclamation, as well as processing activities linked to the mining operation (refinery, smelter, beneficiation) . A project's contribution to market creation assessment refers primarily to developments in the national mining industry. In measuring a project's impact on financial integration, access to local or global capital markets by mining firms operating in the local market is assessed.

Mining market typologies provide the building blocks in the AIMM system to construct a narrative for how much an IFC intervention is advancing a market objective. These typologies provide a description of the various stages of development for a given sector from least developed to most advanced and enable the location of the market before and after IFC's intervention.

MARKET TYPOLOGY	Highly Developed	Moderately Developed	Underdeveloped	Highly Underdeveloped
Competitiveness	– Sector fully competitive, with mostly private sector-owned assets – State may hold minority interest in companies – State-owned mining companies operate on equal footing with private companies – Industry technologically advanced with high level of efficiency – Companies are generating value from their asset base – Overall productivity has stabilized at optimal levels	– Sector has relatively large number of players, most assets majority-owned by private sector – Individual private companies may wield significant market power – State may wholly own assets in strategic minerals or market segments – Small-scale operations, if present, have low market share – Efforts to consolidate or formalize small mines – Sector in growth or asset renewal phase with some assets employing BAT	– Sector operates under monopoly or oligopoly structure – Majority of mines operate at high marginal cost – Sector overall has low productivity – May be a trend toward inefficient capital allocation – May be large number of small-scale mining operations that are informal, or regulated but not large enough to effectively compete	– Sector is limited in scope with no private sector participation – Observed market structure could be due to legislation that gives monopoly rights to a public entity – Business case for development of existing reserves, or local value addition, has not been made – No business incentives for innovation and technology upgrades
Resilience	– Sector is diversified; no single mineral contributes a large share of GVA or export revenues – Sector may be exposed to external shocks, but is structurally well prepared to manage shocks – Country has robust revenue management framework – Comprehensive mining regulatory framework is in place and enforced – Regulatory entity and other mining regulation enforcement bodies are well equipped to implement the regulation – Adequate autonomy of regulatory bodies – Country may be participant in EITI or similar systems, or complies with EITI principles – Country has comprehensive framework providing and enforcing technical specifications in assets	– Sector GVA and export revenue base is somewhat diversified with no single commodity accounting for more than half of the value added or revenues earned – The sector has made progress in adding value to its minerals – Country put in place some mechanisms to mitigate impact of external shocks – Mining code or legislation package exists – Public sector capacity is not sufficiently advanced to effectively regulate sector – May be legacy contracts (concession agreements and long-term service contracts) at risk of renegotiation – Certain segments of market that are not fully regulated – Sector has started to add new or upgrade assets to improve climate resilience	– Sector dominated by one mineral which accounts for more than 50% of export revenues – Limited local value addition – Economy exposed to commodity price shocks with limited measures to manage – FX revenues from sector may constitute significant share of total FX earnings – Country has incomplete mining regulation – Sector regulation enforcement bodies lack capacity to fully and effectively enforce – If a mining code exists, it is not fully implemented – May be certain segments of markets that are informal and unregulated – Lack of transparency in terms of the content of concession agreements and use of fiscal revenues	– Sector dominated by informal/unregulated operators – Country does not have sector legislation or there are significant gaps in existing legislation – Sector has high exposure to exogenous shocks with no mitigation mechanisms – Business case for climate resilience technologies or practices has not been made
Integration	– Sector has strong backward and forward linkages – High local processing, value added exports – Diversified set of trading partners for mineral commodities and products – Sector relies on shared infrastructure, has strong linkages w/economy, is financed through diverse instruments and investors – Corps. well-capitalized w/access to capital markets – No evidence of restrictions to FDI flows into sector	– Sector is well-integrated to GVCs but through primary commodities exports – May be some local value addition resulting in export of intermediate goods – Sector has a relatively large number of trading partners, is moving to a third-party access model for mining infrastructure, has some linkages to the domestic economy – Increasing local content in sector construction, operation and maintenance	– Sector has limited linkages to GVCs – Country exports few primary commodities – Operations tend to be in isolated areas with limited economic linkages – Sector infrastructure mostly captive, operates as an enclave industry with limited local content – Sector may be dominated by small firms or juniors w/limited access to capital – Significant barriers to the flow of FDI into sector	– No/limited sector exports – No or limited physical connectivity between mining operations and local economic hubs – Limited local supply chains within sector – Sector relies mostly on internally generated funds with limited integration into domestic or global capital markets

In general, most individual projects are not expected to make a significant and immediate systemic market change, unless the project is a pioneer in a non-existent or nascent market. Instead, most projects are expected to have incremental effects on the market. In

other words, it takes more than one intervention to move a market to the next stage. This means that integrated and concerted efforts are often needed to generate substantial market effects. For example, cumulative World Bank Group efforts over time will have a stronger effect on markets than non-integrated and non-concerted interventions. Where a project is explicitly part of a programmatic approach, the expected movement induced by the program should be the basis for the assessment where timebound movements, market effects, and indicators are available. The most important market effects from IFC's mining sector operations are:

MARKET MOVEMENT	Marginal	Meaningful	Significant	Highly Significant
Competitiveness	Competitiveness in the mining industry is driven by changes in the market's functioning that create incentives for efficiency, innovation and local value addition. These incentives could derive from changes in market structure, introduction of experienced operators, and a supportive business environment that enables firms to respond to exogenous pressures e.g. commodity price cycles, among others. An IFC investment in mining promotes competitiveness when it creates opportunities and incentives for market entry (by experienced firms capable of improving performance of assets), innovation (influenced by conventional R&D as well as technological advancements in related industries), and efficiency (from enhanced capital management and reform of business processes).			
Resilience	Resilience in mining refers to the extent to which the market can weather external and internal shocks. The main sources of shocks are commodity price cycles, and developments in major trading partners' economies. Internal shocks often arise from quality of institutions, policy or regulatory changes that increase the risk of nationalization of existing assets, or renegotiation of contracts. Shocks could also arise from robustness of physical structures to climate risks and weak corporate governance. Resilience in the mining sector is reflected in its ability to maintain investment and production momentum in the face of transient market shocks. The sector's business case remains intact beyond the ups and downs of commodity cycles, and decision making is focused on value creation. IFC (and associated WBG) investments support resilience when they promote diversification of production and trading partners in the mining sector; strengthen the capacity of regulatory frameworks and institutions to support investments, competition, and transparency; and trigger market-wide changes in climate resilience of mining assets. Resilience could also be achieved through establishment or operationalization of stabilization mechanisms.			
Integration	Mining sector projects promote integration by strengthening linkages to global and regional value chains, improving domestic physical integration, (linking new production areas to domestic economic hubs; development of shared mining infrastructure), and deepening linkages to domestic supply chains (local value addition and increased participation of local private sector in the mining supply chain). IFC projects are considered to contribute to market creation when they enable a country to access a new global market, either through the production of a new mineral or expansion of existing operations to serve new markets. Integration also derives from the introduction of downstream activities e.g. metallurgical processing, fabrication and manufacturing, which enable a country to integrate into multiple rungs of the global mining value chain. Projects may also contribute to integration through development of shared infrastructure, and supporting the introduction of new financing instruments the enable capital mobilization from a broader range of financiers.			
Sustainability	Sustainability in mining entails supporting the use of technologies and production practices that mitigate climate change, minimize negative environmental effects (e.g. loss of top soil, disturbance of natural habitats and/or ecosystems), improve efficiency of energy and water use, improve management of waste and residue, ensure adequate reclamation efforts, and improve social outcomes especially for communities and workers. It also entails robust corporate governance systems that align management and shareholder interests. IFC mining sector operations could contribute to market sustainability by introducing replicable innovative technology and business practices to address each of the above, including best practice in the management of environmental and social risks, improving community benefits/opportunities, and strengthening corporate governance systems. In addition, projects and policy efforts (through complementary IFC AS or WB support) to enhance the legal and regulatory environment or enforcement of existing frameworks, as well as improve the capacity of standard setting, certification and verification bodies, will contribute to this market attribute.			

The market likelihood adjustment follows the principles for the likelihood adjustment for project outcome potential. In general, the likelihood assessment includes sector-specific, as well as broad country risks that may prevent potential catalytic effects from occurring, plus political economy or policy/regulatory risks that may constrain market systemic change. Due to the diversity of market creation attributes and channels, most of the likelihood factors are expected to be sector, or intervention specific.

MARKET LIKELIHOOD	Sector Factors	Political / Regulatory / Policy Factors
Assessment Considerations	• Existing endowments; scope for demonstration/replication • Sector regulation of upstream exploration and development • Public partner track record in meeting contractual obligations • Extent of social buy-in • Policy coherence: subsidies, import subs., local content • Global supply and demand trends • Availability of WB support for frameworks and capacity • Availability of AS technical assistance • Country's ranking on World Governance Indicators • Country's compliance with EITI or comparable standards	• Presence of established and well-tested regulatory and legal framework • Existence of a capable and independent mining regulator • Government track record in upholding new policies (measuring risk of policy reversals) • Regulatory scope and capacity • Availability of WB technical assistance to improve policies and regulatory capacity

MARKET LIKELIHOOD	Sector Factors	Political / Regulatory / Policy Factors
	• Availability of macro stabilization mechanisms • Quality of public expenditure and financial accountability	