

THE GLOBAL MINING INDUSTRY: Between Guidelines, Initiatives and Implementation

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Extraction of the Earth's resources has been the mainstay of development since the pre-historic times. Mining is, and will always be, a core necessity of the mounting needs of the modern times, right from micro-chips to medicines and from roads to rockets.

Over the last couple of decades, the mining industry has seen heightened awareness and interest of the world in the catastrophic effects of indiscriminate and ill-advised extraction of the earth's resources. Hence, the international community has become more and more resolute about mitigating the hazards of mining. Also, the subject of mining encompasses a complex and vast range of inter-related issues. Among the stakeholders are the national and multinational corporates, NGOs, multilateral agencies, health, labour, and environmental activists, governments and the United Nations. Over time, a strong need has been felt to formulate the rules and regulations for the functioning of an industry, which makes huge profits, but at a great cost to the biosphere. Several global organisations have issued guidelines and have taken initiatives in this direction.

In this article we are examining the guidelines to check the perils of reckless mining which have evolved over time in different parts of the world. Our focus is mainly on the UN Sustainable Development Goals (SDGs), the European Union's 'Responsible Mining,' initiative, new technologies and the international standards prescribed for the safety of mine workers.

Environmental and Sustainability Reporting

The increasing awareness towards the catastrophic effects of unrestrained mining forced the big players of the mining industry to better understand and bring transparency to their operations. This applied, most notably, to the environmental, health and safety hazards posed by such activities. With the growing international pressure which has built up over time, the mining sector had to rise above its primary aim of economic profits. After the United Nations Conference on Environment and Development (UNCED) in 1992, many big mining companies started publishing yearly non-financial reports, which were mainly based on the environmental performance.¹ This was soon followed by making a public environmental compliance disclosure which was mandatory in some countries. Despite the fact that these reports were required to be detailed and site specific, they mainly focused on toxic gases, and some key environmental parameters such as water and energy consumption, land disturbance, but the carbon dioxide (CO₂) emissions were not a part of these reports.

In 1997, Global Reporting Initiative (GRI) was launched by the Coalition for Environmentally Responsible Economies (CERES), a group of environmental organisations and social investors, which in 2000 published its first guideline for preparing sustainability reports. In 2007, more than 400 companies (including 23 mining companies) registered their sustainability reports in conformance with the latest GRI guidelines, and between 2002 and 2007, mining companies have registered 145 sustainability reports in the GRI website.² The availability of such reports also led to an increase in the number of reviews published worldwide, both by consultancies and in journals.

¹Fabiana Perez and Luis E. Sanchez, "Assessing the Evolution of Sustainability Reporting in the Mining Sector" Environmental Management (March 2009). DOI 10.1007/s00267-008-9269-1

²Ibid.

By 2002, eight out of the 10 biggest mining companies had started publishing annual environmental reports separate from the general annual reports. But even with the developed standards and guidelines, there have been anomalies in reporting; between 1999-2003, only three indicators, 'total water use,' 'noncompliance,' and 'direct energy use', were completely reported, whereas five indicators, 'air emissions,' 'spills,' 'indirect energy use for products,' 'greenhouse gas emissions,' and 'total amount of land,' were "completely or partially reported" in more than half of the reports.

Good Governance of Earth's Resources

Extractive Industries Transparency Initiative (EITI), as per its website, is "The global standard for the good governance of oil, gas and mineral resources." It seeks to strengthen government and company systems, promote understanding and inform public debate on issues relating to good governance of oil, gas and mineral resources. The EITI standard comprises eight requirements that need to be fulfilled. These include, oversight by the multi-stakeholder group, legal and institutional framework, disclosures of information related to exploration and production, a comprehensive reconciliation of company payments and government revenues, disclosures of information related to revenue allocations as well as their impact on the economy. The EITI standard is implemented in 52 countries across the world, which are required to publish annual reports with respect to the eight requirements. India has neither joined nor showed any willingness to join the EITI standard.

SDGs and Mining

The SDGs spearheaded by the UN, while acknowledging the potential of the mining industry, recognised the challenges of that poorly managed mining, such as the environmental degradation, displacement, inequality and increased conflicts, among others. The SDG document also called for a 'substantial and ongoing partnership' between governments, communities, the civil society, and the private sector. It also says that the mining industry has both the opportunities and the potential to contribute towards all 17 SDGs. Mining industries are usually located in remote, ecologically sensitive and less-developed areas. They have the potential to create jobs, improve the living conditions with better education and health care, and even promote gender equality and economic growth.

The integration of mining with SDGs can be seen most prominently in African countries, especially in central and southern nations. In central Africa, mining related development has led to gender equality, health care improvement, and conflict avoidance. The same level of integration of mining with SDGs, however, has not been witnessed in South Asia; India's experience in the mining regions is largely limited to the integration in the field of primary and child healthcare in collaboration with UNICEF.³

EU and "Responsible Mining"

The European Commission developed EU Responsible mining demonstrations (REMIND) based on broad international and corporate experiences. The key objectives of REMIND are to develop multi-stakeholder dialogue, develop and promote "EU Responsible Mining Charter," build on existing sustainability indicators framework along with the building of institutional and corporate capacities for responsible mining. This commitment is to be implemented in two phases which involve identification of 'good practices' in

³Adapted from Global Goals (www.globalgoals.org)

sustainable production with focus on multi-stakeholder dialogue, setting up of an advisory board, identification of responsible mining related requirements among others. It also includes outreach activities, such as a yearly 'Mining Day' where the participating companies can come together through conferences and organisations with the stakeholders and the general public.

Both public and private sector entities from various EU nations play a role in the project, which includes government bodies, big corporations and SMEs, and academia. Unfortunately, India does not have a common platform where both public and private sector entities as well as academia and research professionals can come together to work towards a shared objective. India also needs to have such 'multi-stakeholder' dialogues as defined under EU's 'Responsible Mining' initiative where the stakeholders can meet and work towards an agreed solution to the problems.

Integration of Artisanal and Small Scale Mining (SSM)

Artisanal and small scale mining has been an important aspect of the mining industry. Even though it is not as big or powerful as the organised mining sector, it has a significant share of benefits and challenges. United Nations Economic Commission for Africa (UNECA) in 2002 published a compendium identifying the best practices in small scale mining in Africa.⁴ According to this compendium, several African countries have started recognising the significant economic benefits of small scale mining (SSM). It is usually known for its negative aspects, primarily because it is carried out by "largely itinerant, poorly educated populace with few other employment alternatives, living mostly in remote rural areas." It also uses rudimentary technology with severe impact on their own health and that of the local environment. Due to a lack of financial resources and technical/ management know-how, there is neither systematic exploration nor long-term planning.

The UN Commission on Sustainable Development in its 19th report recognised SSM as a vehicle for poverty alleviation and as a vector of development that needs to be supported as well as regulated.⁵ It also considers it necessary to fully integrate artisanal and SSM in national economies. It also laid emphasis on "strengthening support mechanisms for artisanal and small-scale mining," as also to enhance legal and social protections, technical capacities, and financial viability etc. Due to a proactive approach by the UNECA, several African countries have reported working towards integration of artisanal and SSMs.⁶ In India, artisanal mining is an "informal, illegal and unregulated system of small-scale mining by local communities," as a result, the sector does not even figure in the official records. Due to the lack of policy and seasonal nature of the activity, artisanal miners in India often work in unsafe environments with lack of technical know-how and tools, a poorly organised economy and low profit margins.⁷

Commission on Sustainable Development, Economic and Social Council

The Commission on Sustainable Development under the aegis of the Economic and Social Council of the United Nations has made mining a dedicated section for their yearly session reports. Every year, it provides critical advice on the functional and operational aspects of the mining sector and evaluates the performance on many key parameters the industry. On the issue of environment, it recommended the prioritising of the transfer of environmentally sound mining technologies and know-how.⁸ It also focused on the necessity of developing legal and regulatory frameworks, strengthening capacity for environmental

⁴"Compendium on Best Practices in Small-Scale Mining in Africa," UN Economic Commission for Africa (UNECA), December 2002 (ECA/RCID/003/02)

⁵UN Commission on Sustainable Development (CSD), Report on the 19th Session, Point 56 (a)

⁶Ibid, Point 317

⁷Deb, Mihir, Garima Tiwari, and Kuntala Lahiri-Dutt. "Artisanal and small scale mining in India: selected studies and an overview of the issues." *International Journal of Mining, Reclamation and Environment* 22, no. 3 (2008): 194-209.

⁸CSD Report on 18th Session, Point 158

monitoring, and regulating mining in sensitive areas.⁹ With regard to the social impact, the council also focused on the necessity to better enforce human rights, improve working conditions, and encourage growth of social indicators with a special focus on women and children.¹⁰ It also recognised the work of Intergovernmental Forum on Mining, and encouraged inter-governmental dialogues. But at the same time the commission, without naming anyone in particular, has also criticised the large mining companies and some governments on deviating from the standards, especially in areas where the large mining companies have to compete with artisanal and small scale mining, and urged for increased transparency in the development strategies.¹¹

Integration of Mining with Geographic Information System (GIS)

As per the 2006 Environmental Systems Research Institute (Esri) document on GIS Best Practices related to mining, "A geographic information system (GIS) is a technological tool for comprehending geography and making intelligent decisions. GIS organises geographic data so that a person reading a map can select data necessary for a specific project or task."¹² GIS is a comprehensive technology that can compile, process, analyse, display, and archive extensive volumes of data.¹³ Major proponents of integrating GIS are Canada and the United States. In recent times, many emerging economies have shown a rising reliance and adaptability with implementing the system with the domestic mining industry complex. India is yet to take any concrete steps towards its implementation. Although India has shown a willingness to integrate under the 'Digital India' initiative, it has failed to materialise on the ground, but some private companies have been using it on their own.

Safety and Health in Mines – (ILO)

The International Labour Organisation (ILO) in 1995 adopted the Safety and Health in Mines Convention as a result of it being one of the key agendas of the International Labour Conference that year and the year before. It was considered as the need of the hour due to both the surface and underground mines "experiencing continued heavy loss of life due to problems of occupational safety and health and catastrophic events associated with the unique and constantly changing working environment."¹⁴ The report also asked for "sufficient flexibility" in drafting the instrument to avoid difficulty in acceptance or ratification by member states due to "minor divergences between its precise terms and their national law or practice." The convention came into force in June 1998. India has not ratified the convention.

With the mining industry employing 25 million workers worldwide, "mineworkers, especially those underground, are continuously exposed to risk from extremes of noise, vibration, heat and cold, repetitive task strain, harmful chemicals, radioactive materials, potentially lethal levels of gases released during blasting, from diesel engines or from the rock strata as well as debilitating dusts". These can result in significant long-term health effects like "hearing impairment, silicosis, pneumoconiosis, asbestosis and lung cancer. In some countries there is the further risk of ankylostomiasis (hookworm) from unsanitary water supplies, and in others of policitemia, a newly identified illness caused by working long hours at high altitudes."

Significant Reductions in Diseases

ILO points out to the requirement of high ventilation rates and continuous monitoring and maintenance to ensure adequate dilution and extraction of gases. ILO also reported significant reductions in the incidence

⁹CSD Report on 19th Session, Point 58

¹⁰Ibid, Point 59

¹¹"Integrated review of the thematic cluster of mining, chemicals, waste management, transport and sustainable consumption and production in small island developing States: Report of the Secretary-General," UN Economic and Social Council, 24th February 2010

¹²Environmental Systems Research Institute (Esri), "GIS Best Practices: Mining"
<http://www.esri.com/library/bestpractices/mining.pdf>

¹³<http://technology.infomine.com/reviews/GIS/welcome.asp?view=full>

¹⁴"Safety and health in mines," Report V(I), International Labour Conference, 1994

of irreversible occupational diseases caused by dusts (silicosis, pneumoconiosis and asbestosis) in countries such as Belgium, Canada, France, Germany, India, Poland, the Russian Federation, the United Kingdom and the United States where the national laws require engineering control of the dust at source.¹⁵ The ILO also recognised low levels of mechanization and technology along with relatively unplanned mining activity to result in marginal production and poor health and safety conditions.

Integration of Mining Practices and New Technology

New technological advancements and massive equipment are being introduced both on surface and in depths of as much as 4,000 meters, which need to be integrated with the mining practices. New instruments can ensure continuous monitoring of very small movements and can provide forewarning for such catastrophic events like rock bursts. Also, ensuring sufficient ventilation, degassing of seams, and continuous monitoring of harmful gases can not only reduce the safety risks but also bring economic benefits through the sale of the gas. For rescue workers in case of a catastrophic event, proper and well maintained breathing equipment, extensive training and practice over several years is necessary. Unfortunately, in many countries, including India, this is not so and workers have to depend solely on informal training.¹⁶

Mines Inspection Authorities

All countries have reported to have dedicated government authorities to conduct safety and health inspections of the mines as per the existing international guidelines. But in reality, a lack of expertise or constrained resources has resulted in infrequent inspections by the government authorities, leading to a leeway for the companies violating the standards. In India the mine workers have stressed on the need of more frequent inspections, but the country does not provide for mineworkers to participate in enterprise level health and safety committees. Belgium was the first country to introduce mine inspections by workers' representatives back in 1897. An Internal Responsibility System (IRS) in Canada developed on the outlines of Occupational Health and Safety Convention of 1981 has resulted in extremely low accident frequencies.¹⁷ Within industrial accidents, mining deaths account for more than 60 per cent of all deaths, and development of proper systems in association with competent authorities, along with integration of new technologies is required to ensure proper safety and health standards for the mineworkers.

Conclusion

Mining as a global industry provides direct employment to 25 million people. It indirectly affects almost the entire world population, positively through being a source of oil and energy products, as well as important metals and minerals and adversely through its impact on environment and human health. The industry, however, continues to perform rather poorly in terms of gender diversity. As per the 2017 report on mining by PricewaterhouseCoopers (PwC), for the top 40 mining companies, women representation is only 12 per cent and 16 per cent in executive management teams and Board of Directors respectively.¹⁸ Mining can contribute to poverty alleviation, driving growth and enhancing living standards. But at the same time mining has resulted in many environmental liabilities, social tensions and cultural problems, especially in developing countries. More sustainable mining operations require strong, transparent and ethical governance, adequate laws and regulations, trained officials who can enforce these regulations, transparency, dialogues, which also need to include mineworkers and local communities.

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¹⁵ILC Report on "Safety and health in mines," 16

¹⁶Ibid, 10,11

¹⁷Ibid., 13,14

¹⁸"Stop. Think... Act: Mine 2017," PricewaterhouseCoopers (PwC). Retrieved from: <https://www.pwc.com/gx/en/mining/assets/mine-2017-pwc.pdf>