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ENVIRONMENTAL ISSUES OF MINING ACTIVITIES IN MYANMAR

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Abstract

The paper analyzes the environmental impacts by the different types of mining methods which are used to extract the mineral resources in Myanmar. Behind the success of national economy by exploring its mineral resources, the local people suffer the negative impact of mine projects. The environmental legal system and associated regulations are the basic means to the prevention and after-closure of mine projects. The lack of the environmental impact assessment (EIA), international environmental conservation standards and vocational training for environmental management plan represents a very serious gap in protection for communities nearby the mine sites. This study explains how to implement the international standards and CSR commitments for the environmental issues by mining activities. As a result, the contractual relationship between the State and mine enterprises is a completely key area of focus for environmental responsibilities before the deal and throughout the mine business.

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Introduction

Myanmar Mines Law allows to do mine business such as mineral prospecting, exploration and feasibility studies, large-scale, small scale and medium scale productions, pearl culturing and production, manufacturing and marketing of jewelry and finished products, such as statues and carvings in respect of metallic ore minerals, Industrial minerals and non-metallic raw minerals, Precious and semi-precious gemstones and Fuel minerals. The mine explorations can cause the environmental impacts on fresh water resources, air, soil, forest, biodiversity and cultural heritage. In the mine sites, the social issues such as land displacement, land compensation, safety issues on mine workers, resultant damage to health and remedial health care costs are occurred on the view of human rights. These issues are directly impacted to

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the local people as well as the habitual residents of the mines with a wide range of politics, health, human rights, rule of law, gender and demographics. Myanmar government has taken the concrete steps to address some of the issues by establishing the legal framework and the institutional responsibilities.

Materials and Methods

This research based on the analytical study of national legislation and international framework on the environmental degradation and human rights impact. This paper analyzes the legislation to mitigate the environmental impacts by mining activities in Myanmar. It observe show to implement the International Environmental Standards and how to take the environmental responsibilities by government and mine businesses in Myanmar.

Research Finding

This paper explores that the mineral license holders relaxed their standards for the environmental issues. Myanmar Government needs to revise its Environmental Conservation Law and Rules in the light of the State's environment and natural resources. And then, the most basic Law, Mines Law and Environmental Conservation Law provide the environmental responsibilities by the Environmental Impact Assessment and Environmental Safety Health plan. The paper found that, on the one hand, the mining enterprises need to do prior permission scheme, EIA, SIA, CSR and mine closure plans and on the other hand, the concerned ministries need to do monitor compliance on those.

Mineral Resources and Occurrences in Myanmar

Myanmar has considerable mineral resources of antimony, barite, coal, copper, gold, iron, lead, monazite, natural gas, nickel, petroleum, silver, tin, tungsten, and zinc. Myanmar's minerals include: Metallic ore minerals such as Iron and metal for steel alloys - Fe, Mn, Cr, Ni, Mo; Base and non-ferrous metals - Pb, Zn, Cu, Sn, W, Sb, Ti; Precious and rare metals - PGM, Au, Ag, Nb, Ta; Industrial minerals and non-metallic raw minerals-Chemical and fertilizer minerals - barite, fluorite, gypsum, rock salt; Ceramic and refractory

minerals - clay, limestone, dolomite, feldspar, quartz and glass sand; Construction and building materials - decorative stones, road materials, limestone for cement: Precious and semi-precious gemstones; Ruby, sapphire, jade, diamond: Fuel minerals-Oil, natural gas, oil shale, coal base. The mining industry is regulated by the Ministry of Mines, which control the all mining activities¹.

The vast majority of mineral reserves are located in the country's northern regions. Myanmar has long been a major tin-tungsten producing country in SE Asia. More than 120 Sn-W occurrences have been recorded in Myanmar as primary, secondary alluvial and eluvial deposits. World class porphyry copper deposits at Monywa area are being conducted to bulk mining and producing cathode copper. Myanmar has a variety of Pb-Zn mineralization including well-known Bawdwin deposit. The distribution of antimony deposits in Myanmar are mainly in Shan, Kayah, Kayin and Mon States.

Major minerals produced and exported are cathode copper, refined lead, refined silver, zinc concentrate, refined tin, tin concentrates, tin-wolfram mixed concentrates and coal while gold iron and steel, limestone and industrial /minerals and barites are produced for domestic consumption². Limestone in Myanmar has been mostly deposited in rock formation. The limestone quality is good enough to produce. Ornamental stones and the estimated ore reserve in the whole country are about 563 million tons. Gemstones such as rubies, sapphire, colored gemstone and jade are also exported. Myanmar Mineral policy is to boost up present production, to fulfill the growing domestic needs, to increase foreign exchange earnings, and to invite participation in terms of technical know-how and investment from sources within the country and abroad.

Process of Mineral Exploration

A mining operation begins with prospecting and exploration -- stages with long periods of investment and high risk of failure. However, prospecting and exploration are necessary forms of investment and insurance for the future

¹ Myanmar Investment Commission; Myanmar Investment Guide, 2014, P.11.

² Ibid, P.18.

of any mining company. The principal objective of mineral exploration is to find economic mineral deposits that will appreciably increase the value of a mining company's stock to the shareholders on a continuing basis, or to yield a profit to the explorer. For an established mining company, this may entail discovery or acquisition of new ore reserves and mineral resources to prolong or increase production or life of the company, to create new assets and profit centers by product and/or geographic diversification.

Methods of mining can be divided into various classes; open pit mining, glory holing, strip mining, auger mining, hydraulic mining, drilling systems and surface techniques. Open Pit Mining is a term properly applied to a surface mining method in which reclamation is deferred until all, or nearly all, of the deposit is removed within economic limits. Underground mining has the potential for tunnel collapses and land subsidence. It involves large-scale movements of waste rock and vegetation, similar to open pit mining. Glory Mining involves a mine opening at the surface from which ore is removed by gravity through raises connected to adit haulage ways beneath, and tramming the ore to the surface. Strip Mining is surface mining in which reclamation is contemporaneous with extraction. Area Mining or strip mining is generally carried out on a large scale, and consequently is low-cost by removing coal, clay, phosphate, oil-shale, etc. from thin seams exposed in deep trenches or high-walls in strip mines. Hydraulic Mining involves directing a high-pressure stream of water, via a MONITOR or nozzle, against the base of the placer bank. Rotary Percussion is fast and the least expensive method. A hammer transmitting its force through drill rods to a rotating drill bit which does the penetration. Diamond Core Drilling is slower and more expensive than rotary percussion (RC) drilling, but provides more useful and accurate samples of a mineral deposit as to the rock-mineral types and relations, and rock structures and characteristics³.

To sum up, mining is a destructive process due to exploration. Mineral exploration methods vary at different stages of the process depending on the size of the area being explored. The environmental impacts are occurred by the different mining methods. In the process of extracting minerals,

³Rocky Mountain Mineral Law Foundation, *Science and Technology Series; An Introduction to Geology and Hard Rock Mining*, Dr. Willard Lacy, P-26

underground mining is a less environmentally destructive means of gaining access to an ore deposit. While most large-scale mining projects involve open-pit mining, many large underground mines are in operation around the world. The most of Myanmar mines are used the methods of open pit mining, underground mining, strip mining and drilling. All of the mining projects have environmental impacts depending on the mining methods.

Mine Business in Myanmar

The mineral businesses such as prospecting, exploration, productions including small scale, large scale and subsistence production, and mineral processing are granted to do by the Myanmar Mines Law 1994 and the Amending Law 2015. The small and medium scale productions are only for the citizens and not for the foreigners who can do mine business in large scale production, feasibility study and mineral processing⁴. Large scale production is the commercial production of minerals which requires the technical know-how and methods with the permit terms at least 15 years up to 50 years⁵. Medium Scale production is prescribed the terms till` 15 years on the commercial mineral production⁶. Small Scale production is the commercial production of minerals which requires the technical know-how and methods with the permit terms below 10 years⁷. Subsistence production is mineral production used by the hand tools or instrument which is not by the horse power generator machine⁸. Mineral processing is the beneficiation of ore or mineral to improve their grade or their value which includes the operation of mineral dressing, concentration, smelting, refining to obtain the mineral concentrates and refined metals⁹. Feasibility study is the analysis and assessment on the mineral occurrence where the mineral exploration is done¹⁰.

⁴ The Law Amending the Myanmar Mines Law 2015, Pyidaungsu Hluttaw Law No.72/2015, December 24, 2015.

⁵ S.2(g) of the Law Amending the Myanmar Mines Law 2015.

⁶ S.2(h), Ibid.

⁷ S.2(i), Ibid.

⁸ S.2(i), Ibid.

⁹ S.2(i), Ibid.

¹⁰ S.2(e), Ibid.

Mineral exploration means the defining and gaining knowledge of the size, shape, location, quality and quantity of a mineral deposit¹¹.

The holder of mineral production permit shall pay royalty on the value of the mineral sold within the rates mentioned below as determined by the Ministry: for gold, platinum, uranium and other precious metallic minerals that the Ministry may, with the approval of the Government prescribed by notification from time to time at the rate of 5%; for silver, copper, tin, tungsten, nickel, iridium, rhodium, niobium, tantalum, palladium, ruthenium, columbium, thorium, cadmium, and other metallic mineral that the Ministry may, with the approval of the government prescribe and publish by notification from time to time at the rate of 4%: for iron, zinc, lead, antimony, aluminum, arsenic, bismuth, chromium, cobalt, manganese and other metallic mineral that the Ministry may, with the approval of the Government prescribe and publish by notification from time to time at the rate of 3%: for industrial mineral or stone at the rate of 2%¹².

In the Law Amending Myanmar Mines Law, it is found that the environmental and social impact assessment must be done by the investors of mineral productions. The permit holder of mineral production shall comply with the rules prescribed under the law in respect of carrying out not to harm the socio-economy of the local people and to be the least environmental impacts; making the funds for the yearly environmental preservation; and contributing the reserve funds for the soil maintenance, land resettlement and environmental conservation on and after the mine closure¹³. The Director General, chief inspector, shall make the inspection on the plans of environmental impact and social impact of the mineral exploration, mineral prospecting, mineral production and mineral processing¹⁴.

To increase the country's mineral exploration and production for State's economy, the Government invited the foreign investors to do business in Mining sector. At present, the Investment Law has been enacted by the

¹¹ S.2(d), Ibid.

¹² S. 17 of the Law Amending the Myanmar Mines Law 2015.

¹³ S.16, Ibid.

¹⁴ S.23, Ibid.

Pyidaungsu Hluttaw on 18th October 2016 by repealing the foreign investment law and citizen investment law.

Environmental Impacts of Mining Activities

Mining operations mobilize large amounts of material, and waste piles containing small size particles are easily dispersed by the wind. Mineral exploration has great effect on the quality of air, contamination of water resources, soil pollution, loss of biodiversity and forest resources, sedimentation and mining waste problems due to the blasting rock to get the mineral resources from the earth. Large-scale mining has the potential to contribute significantly to air pollution, especially in the operation phase. All activities during ore extraction, processing, handling, and transport depend on equipment, generators, processes, and materials that generate hazardous air pollutants such as particulate matter, heavy metals, and carbon monoxide, sulfur dioxide, and nitrogen oxides.

Surface water changes in quality (especially in terms of drinking water and such uses as agriculture and other water-intensive industrial/commercial operations), discharge quantities such as stream flow regime fluctuations with sharper flow peaks and reduced dry season flows, stream channel alterations from erosion and slumping, and runoff including wash-off or hazardous chemical leachates (such as sulfates, sulfides, and salts) from unrehabilitated and poorly revegetated mine dumps and discard areas and the interrelated problems involving the release of heavy metals (including lead, copper, mercury, aluminium, selenium, zinc, uranium, nickel, chromium, and others) and acids, especially sulfuric, into nearby water bodies where excess acid generation overwhelms the natural buffering capabilities present in adjacent land and water resources.

Topographic modifications include the large-scale removal of soil, vegetation, and overburden to access ore or other mineral deposits and create nearby sites for tailings storage, water storage dams and reservoirs, and waste disposal pits. Soils change in characteristics through accelerated wind and water erosion, sharply increased acidity and salt content, development of nutrient deficiencies or imbalances, compaction, surface crustiness, or desiccation. Soils can be removed partially or entirely, altered, indurate,

contaminated with toxins, or otherwise adversely affected by road building or mining construction to certain depths below the surface such that short-term and even mid-term recovery following reclamation is problematic.

In the process of extracting coal or minerals, thousands of acres of landscape are destroyed. Plants and trees are sloughed away by mining equipment and animals lose vital habitat areas. Flora and fauna alterations to and loss of native habitats for indigenous fauna and flora, vegetation cover, invasion by alien plant/animal species, altered plant community species composition, contamination and destruction of entire food webs. Disturbances of natural, quasi-natural, or cultural landscapes inevitably result in changes in composition and structure of plant species, disrupt soil strata, and stimulate invasion by disturbed-site plant species that in turn can alter composition of local invertebrate and other associated species and habitat¹⁵.

The mining process removes plant growth that would deter erosion and this allows the excess sediment to wash down. Once in streams the excess sediment covers the stream bed and blocks sunlight by making the water murky. Because sunlight cannot reach the bottom, algae stops growing and the fish and small animals that feed on algae starve. The process continues up the food chain reducing the type and amount of living things in the waterway¹⁶.

Generation of tailings and other wastes that may release toxic elements or be mobilized by erosive forces; Gaseous emissions from mineral processing, methane emissions from mine openings, fumes from coal seam fires; Damage to heritage sites; and Destruction of adjacent habitats arising from the development of camps, towns and services stimulated by the mining project¹⁷. There are so many incidents that are caused by the mining activities in Myanmar. Among those, this research paper analyzes three environmental problems in the areas of large scale mining projects.

As of November 2010, excavation of iron deposit on Pinpet Mountain in Taunggyi Township, southern Shan State seems imminent as bulldozers

¹⁵ <https://www.sgu.se/en/mineral-resources/>

¹⁶ <https://www.sgu.se/en/mineral-resources/>

¹⁷ Overview of Best Practice Environmental Management in Mining; Best Practice Environmental Management in Mining; Environment Australia, 2002, p-15

have begun clearing the area. Farmers at the site are being displaced and there are fears of further forced relocation. Construction of an iron factory has begun. A 250-mile pipeline transferring natural gas to the iron factory has destroyed villagers' farmlands along the route¹⁸. The Tigyit coal mine in south eastern Shan state, just 13 km from Inle Lake, is Myanmar's biggest open pit coal mine, producing 2,000 tons of coal daily. There is also a coal fired power plant in Tigyit which is slated for use at the Iron mining factory in Taunggyi. Polluted water from the mine and waste from the power plant flow via the Balu creek into Inle Lake, however as yet there has been no study on the impact of the project on the lake.

In Tenasserim Region's Dawei District, residents of MyaungByo village faced the severe environmental damage to their farmlands caused by the tin mine's wastewater. The lands of the ethnic Dawei village have been affected by increasing amounts of wastewater ever since Myanmar Pongpipat took over the Heinda mine. The creeks and rivers got shallow, many species of plants and animals went extinct and many of plantations, houses, wells and religious buildings were destroyed due to waste and sediment. In 2012, there was more flooding causing further destruction of houses, plantations and water sources along the Myaung Byo creek, which is now filled with waste and sediment from the mining project. The impoverished families complained of a sharp drop in income due to a loss of farmland, while their health suffered from a lack of drinking water because wells had been contaminated by wastewater¹⁹.

Letpadaungtaung Copper Mine Project is situated about 7 miles of Nyaung-Pin-Gyi Port in Sarlingyi Township of Monywa District in Sagaing Region. In April 2011 Norinco finished a "Production Sharing Contract" with the Union of Myanmar Economic Holdings Ltd (UMEHL) for the rights to implement copper production project in Monywa. On May 2011, Chinese embassy announced the confirmation of the production sharing agreement for Monywa copper mine. The copper mine uses an advanced process called the

¹⁸ Burma's Environment: People, Problems, Policies, The Burma Environmental Working Group (BEWG) 2011, P.60.

¹⁹ www.earthrightsinternational.com.

solvent extraction-electro winning (SX-EW) method. In basic terms, copper ore is mined, crushed and stacked on an allegedly 'impermeable' liner.

The local people from four villages began the protest to stop the project in June 2012 with the representatives of 26 villages. In September 2012, over 5000 villagers participated in protest at the letpadaung copper mine. Protestor demanded the copper mine to be closed by claiming it had led to environmental destruction, forced relocation and illegal confiscations²⁰. There were about 124 times of protests during that 2012. Myanmar government formed the Investigation Commission by Presidential Notification. In respect of the investigation into the environmental protection standards in place at the Project, Commission members examined soil samples taken from within the Project area and also from a number of neighboring pits. The commission also met with representatives of the Myanmar Environmental Institute and presented with data in relation to fauna, air pollution, water quality, sediment samples, existing baseline air quality, project development and environmental management.

In the cases of much environmental destruction in Myanmar Mining sector, many environmental problems give rise to human rights violations. Environmental sustainability and the promotion of human rights are closely intertwined and complementary objectives that are at the core of sustainable development. The right to healthy environment is now recognized in S.45 of the 2008 Constitution that the Union shall protect and conserve natural environment. This constitutional right confers the substantive rights such as the rights to life, health, food, water, culture and procedural rights such as Rights to access to information, participation in decision-making, and access to justice.

Environmental Responsibilities for Mining Activities in Myanmar

Environmental protection should always be the primary objective in seeking development. The issue of economic development is intertwined with that of corporate responsibility and good corporate governance. It is obvious that the business company who does not practice such responsible conduct

²⁰ <http://www.charltonslaw.com/en/lawyers/index.htm>

cannot contribute to the economic development of the state. The main responsibility is to obey the provisions of the Law and the terms of the contract. They have the responsibilities in carrying out the environmental conservation, protection in the project and its environment in accordance with the existing laws, managing the system to dispose industrial waste from the factories, contributing the funds for Corporate Social Responsibilities (CSR) and submitting the reports to the Ministry concerned and MIC.

The Environmental Conservation Law 2012 vests the responsibility to stipulate environmental quality standards on the Ministry of Natural Resources and Environmental Conservation as follows: suitable surface water quality standards in the usage in rivers, streams, canals, springs, marshes, swamps, lakes, reservoirs and other inland water sources of the public; water quality standards for coastal and estuarine areas; underground water quality standards; atmospheric quality standards; noise and vibration standards; emissions standards; effluent standards; solid wastes standards; other environmental quality standards stipulated by the Union Government²¹. In respect of mineral resources, the relevant Government departments and Government organizations have to carry out the conservation, management, beneficial use, sustainable use and enhancement of regional cooperation²².

If it is found that a holder of the prior permission fails to comply with any of the terms and conditions relating to environmental conservation contained in the prior permission, the Ministry may pass any of the following administrative penalties: causing to comply with in accord with the terms and conditions after warning, causing to sign the bond; causing to comply with in accord with the terms and conditions after paying a fine.²³ The Ministry may, with the approval of the Union Government, exempt or relieve any Government department, organization or private business from complying with any provision contained in this Law for the interests of the Union and its people²⁴.

²¹ S.10 of the Environmental Conservation Law 2012.

²² S.18, Ibid.

²³ S.25, Ibid.

²⁴ S.36 of the Environmental Conservation Law 2012.

As the mining sector is included in the prohibited activities under MIC Notification No.26, the foreign investor in mining sector shall perform the specific condition ruled by the relevant Ministry for recommendation²⁵. According to Rule 67, the investor needs to obtain the approval of the Ministry concerning the environment impacts²⁶. Mining Enterprises need to prepare Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) report, depending on IEE report, before submitting application for MIC Permit to Myanmar Investment Commission (MIC) under Investment Law 2016. Investors also need to carry out social impact assessment (SIA) studies and prepare reports before submitting application for MIC permit for projects in Myanmar.

Manufacturing of minerals is included in the list of economic activities which required the Environmental Impact Assessment²⁷. Foreign investor has the main duty to make the EIA report that included the information necessary for decision-making on an executive summary; results from EIA studies; information on data gaps and major sources of uncertainties; technical appendices; and visual aids and easy-to-read text. In the Environmental Conservation Rule 2015, large scale production shall make the EIA report with the environmental management plan²⁸ and take the certificate of the performance of the environmental conservation²⁹. The investor who invests in large scale mining production shall abide by applicable laws, rules, procedures and best standards practiced internationally so as not to cause damage, pollution, loss to the natural and social environment and not to cause damage to cultural heritage³⁰.

In making the EIA report, foreign investment company should follow the principles of International Association for Impact Assessment (IAIA). EIA process should provide for: Screening- to determine whether or not a proposal should be subject to EIA; Scoping- to identify the issues and impacts that are likely to be important and to establish terms of reference for EIA;

²⁵ Notification No.26/2016 by Myanmar Investment Commission, 21st March 2016

²⁶ Rule 67 of Environmental Conservation Rule 2014

²⁷ MIC Notification No.50/2014, 14th August 2014.

²⁸ Rule 2 (p) of the Environmental Conservation Rule, 2015.

²⁹ Rule 3, Ibid.

³⁰ S.65 (g) of the Investment Law 2016

Examination of alternatives- to establish the preferred or most environmentally sound; Impact analysis - to identify and predict the likely environmental, social and other related effects of the proposal; Mitigation and impact management - to establish the measures that are necessary to avoid, minimize or offset predicted adverse impacts; Evaluation of significance- to determine the relative importance and acceptability of residual impacts (i.e, impacts that cannot be mitigated). Preparation of environmental impact statement (EIS) or report- to document clearly and impartially impacts of the proposal, the proposed measures for mitigation; Review of the EIS- to determine whether the report meets its terms of reference, provides a satisfactory assessment of the proposal(s) and contains the information required for decision making; Decision making- to approve or reject the proposal and to establish the terms and conditions for its implementation. Follow up - to ensure that the terms and condition of approval are met; to monitor the impacts of development and the effectiveness of mitigation measures³¹.

As Myanmar is a signatory state of the Stockholm Declaration on Human Environment 1972 and Rio Declaration on Environment and Development 1992, environmental policy was adopted in 1994 and Myanmar Agenda 21 was issued in 1997. But, there is no provision for environmental impacts of mining activities but for environmental provision on other factors. Then, Myanmar is a member country of World Bank Group and International Finance Corporation (IFC), foreign investors in Mining sector should apply the 2007 Environmental, Health and Safety (EHS) Guidelines and 2012 Performance Standards of IFC. The EHS guidelines are applied by their respective policies and standards on the waste water management, hazardous materials management, control of air emission, land contamination, energy conservation and emergency preparedness and response. The multinational corporations shall have the Environmental Management Policy and Plan by following up the EHS Guidelines.

³¹ Impact Assessment Inter-organizational Committee on Guidelines and Principles; 1994, Guidelines and Principles for Social Impact Assessment, Environmental Impact Assessment Volume 12, No. 2,107-152.

As the mine explorations are used the volatile organic compounds, ozone depleting substances and greenhouse gas, compressed gas, flammable liquids and solids, oxidizing substances and toxic materials, and heavy machinery equipments, the enterprises have to perform the regulatory requirements; technical feasibility and cost effectiveness of the available options for prevention, control and release of emission; wastewater management including the industrial wastewater, process wastewater, storm-water and sanitary wastewater; water conservation program, i.e, water monitoring/ management techniques, process and cooling/heating water recycling, reuse and other techniques and sanitary water conservation techniques; internationally-accepted hazard assessment such as Hazardous Operations Analysis (HAZOP), Failure Mode and Effects Analysis (FMEA) and Hazard Identification (HAZID); noise monitoring program preferred method for controlling noise from stationary sources; risk management actions involving the risk screening, interim risk management, detailed quantitative risk assessment, and permanent risk reduction measures; and plan for community health and safety which means the projects including the life and fire safety systems, health and education facilities, transport project of hazardous materials, disease prevention and emergency preparedness and response plan³².

In the Performance standards of IFC, standard 1, Assessment and Management of Environmental and social Risks and Impacts, establishes the importance of (i) integrated assessment to identify the environmental and social impacts, risks, and opportunities of projects; (ii) effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them; and (iii) the client's management of environmental and social performance throughout the life of the project. The clients, mine enterprises, should conduct the Environmental and Social Assessment and Management System (ESMS) incorporated with the policy; identification of risks and impacts; management

³² Environmental, Health, and Safety (EHS) Guidelines; General EHS Guidelines, International Finance Corporation, 2007.

programs; organizational capacity and competency; emergency preparedness and response; stakeholder engagement; and monitoring and review³³.

In accordance with the IFC performance standard 1, the mine enterprises should have the overarching policy defining the environmental and social objectives and principles that guide the project to achieve sound environmental and social performance. The risks and impacts identification process will be consistent with good international industry practices. The client will establish the management programs that will describe mitigation and performance improvement measures and actions. The process of identification of risks and impacts will consist of an adequate, accurate, and objective evaluation and presentation, prepared by competent professionals. The ESMS will maintain an emergency preparedness and response system so that the enterprises will prepare to prevent and mitigate any harm to people and/or environment. The clients will establish the procedures to monitor and measure the effectiveness of the management program, as well as compliance with any related legal and/or contractual obligations and regulatory requirements. Moreover, the enterprises will develop and implement a Stakeholder Engagement Plan that is scaled to the project risks and impacts and development stage, and be tailored to the characteristics and interests of the Affected Communities³⁴.

Mine Enterprises have to consider the sustainable development for the civil society by performing the Corporate Social Responsibility (CSR). Due to the voluntary character of CSR, management activities and corporate performances essentially depend on how social and environmental concerns are perceived among both companies and stakeholders. Corporate Social Responsibility (CSR) focuses on business impacts on society and environment, and development of society along with business. In today's world for a successful project execution and running a business successfully, a sustainable program development is very importance and here since project inception stage due attention to CSR is a key for success, optimizing profits,

³³ Performance Standard 1, Assessment and Management of Environmental and social Risks and Impacts, International Finance Corporation, 2012.

³⁴ Performance Standard 1, Assessment and Management of Environmental and social Risks and Impacts, International Finance Corporation, 2012.

developing local resources, and minimizing cost and time over-run due to societal disputes.

Thus, an important activity for governments is to raise awareness for CSR and to build the respective capacities among both groups. Improve disclosure and transparency: Reliable information on the economic, social, and environmental corporate performances is a prerequisite for investors, regulators, employees, suppliers, and customers (including public procurers) so that they can favour those who take CSR seriously. Governments can play a key role in improving the quality and dissemination of the respective CSR reports. By considering the economic, social, environmental, and/or other ethical criteria in investment decisions, socially responsible investment merges the concerns of a broad variety of stakeholders with shareholder interests³⁵.

In doing research on environmental impacts in mining sector, Myanmar had poor legal framework and technical capacity to adequately regulate environmental impacts of such a large and environmentally sensitive project until Environmental Conservation Law 2012. Especially, environmental quality standards and the framework for environmental impact assessments had not been adopted. The main reason why the cases were occurred in the foreign investment on mining sector was that EIA did not look at the cumulative impacts of these projects on people living in the area. After the Environmental Conservation Law 2012 and Investment Law 2016, the foreign investors have to perform the international standards and EIA standards by national laws and procedures. This would require a well-intentioned, institutionally sound and genuine democratic government that could demonstrate a real commitment to human rights, the environment, transparency and development.

³⁵ Following up the World Summit on Sustainable Development Commitments on Corporate Social Responsibility; Options for action by governments, Fanny Calder and Malaika Culver well, 2005, P.14.

Conclusion

In order to reduce the environmental degradation, the Environmental Conservation Law 2012 and Environmental Conservation Rules 2014 establish a broad framework for environmental protection. Although the laws promote environmental conservation standards, there are still lacks in the environmental quality and conservation standards and rules for waste management and disposal, requirements for polluters to pay for damages. Then, the Foreign Investment Law 2016 provides a “prior permission scheme” for business that can cause environmental impacts, mine safety management plan and mine closure plan for lasting socio-economic benefits but it makes investor hardship whether the permission can get or not. And then, it is found that EIA requirements outlined in the 2012 Environmental Conservation Law and 2015 EIA Procedure are reflected in MIC decision-making processes regarding the granting of permits and approvals. Thus, existing Myanmar National Laws are well developed to promote investment and to protect environment and natural resources. However, present in Myanmar, CSR activities are very weak because of the lack of CSR policy in most of the mine enterprises. As a result, the contractual relationship with the State and mine enterprises is a completely key area of focus for HRDD before the deal and throughout the process of companies’ operations. In addition to this, government must take into account both the judicial and non-judicial mechanisms when addressing business-related human rights abuses caused by environmental issues.

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