



SECTOR BRIEFING NOTE
(MCRB's Briefing Paper on Biodiversity,
Human Rights and Business)

Biodiversity and the Mining Sector in Myanmar

November 2018

This Briefing Note supplements MCRB's Briefing Paper: "[Biodiversity, Human Rights, and Business in Myanmar](#)" (2018). It is addressed to companies operating in, or providing services to the mining sector that can have an impact on biodiversity, such as mining operators (including state-owned enterprises (SOEs)) and their contractors and supply companies, survey companies, drilling companies, technical service providers, etc.

The Business Case for the Mining Sector to Address Biodiversity

The mining sector's potential for small-scale and large-scale impacts on biodiversity, including from unplanned events such as tailing dam failures is well-documented. Given the widespread presence of mining sites in many areas of Myanmar, there is high potential that mining operations overlap with areas of biodiversity value that support important ecosystem services. In addition to the general business case for companies to minimise impacts on biodiversity, contained in the main [Briefing Paper](#):

- Mining operations depend on ecosystem services (e.g. water, flood regulation)
- Many mineral-rich provinces in Myanmar are in remote areas and are of high conservation value
- Assessing and managing biodiversity impacts is a legal and contractual requirement under Myanmar laws (see below for details)
- There is intense scrutiny of the mining sector by civil society and the media, internationally and locally, particularly in countries with significant biodiversity and weak government capacity to protect it such as Myanmar.

Threats to Biodiversity and Ecosystem Services from Mining Operations in Myanmar

Almost all of Myanmar lies within the Indo-Burma Biodiversity Hotspot, one of 35 global hotspots that support high levels of biodiversity and endemism (see below). More detailed information on the 42 Protected Areas and 132 Key Biodiversity Areas (KBA) is available in the main [Supplement on Biodiversity in Myanmar, including Protected Areas and Key Biodiversity Areas](#).

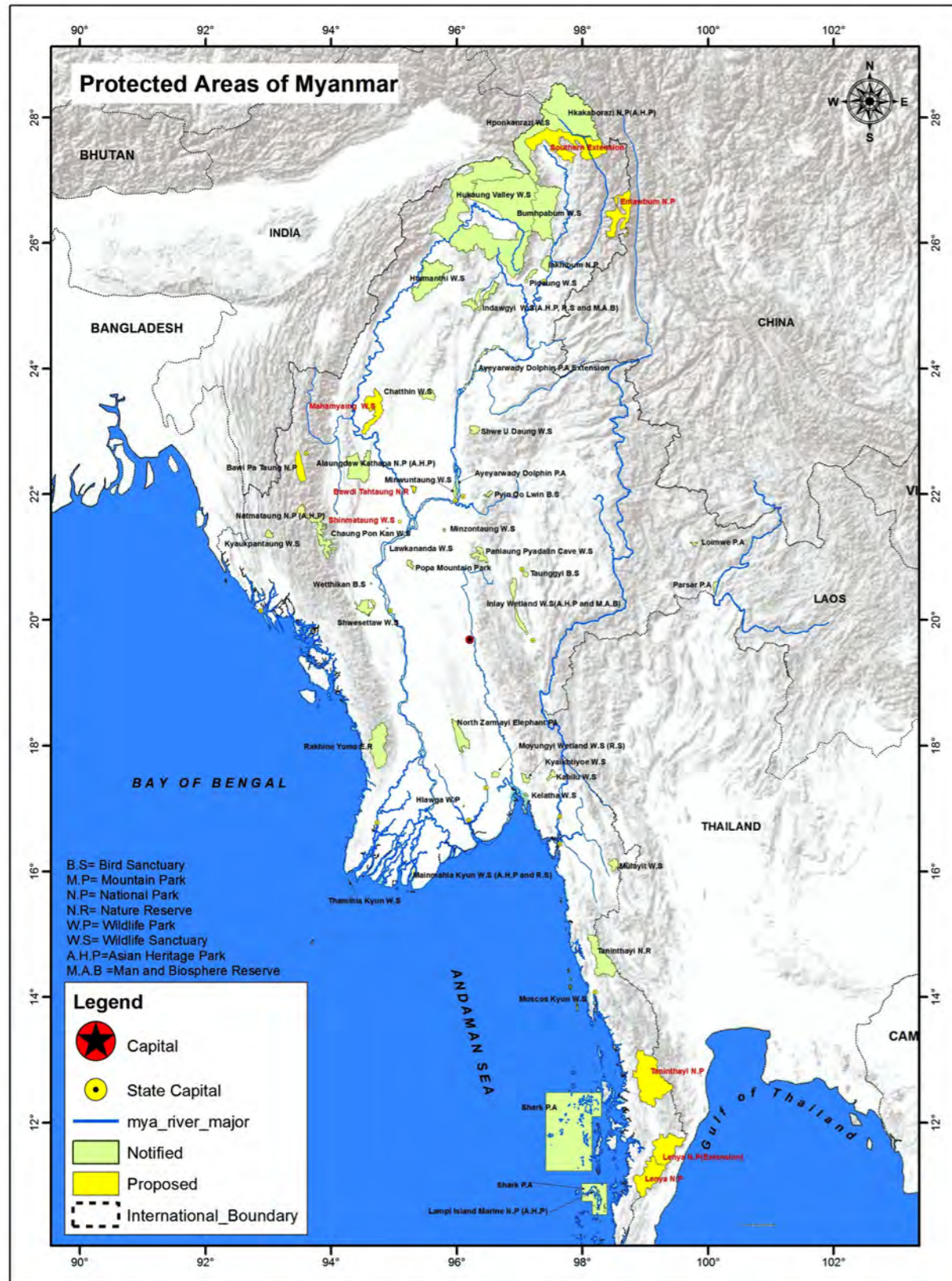
Mining of many different minerals occurs throughout the country, including close to Protected Areas and areas of high conservation value (**Figure 1**). The majority of mining licences relate to small-scale mining projects that can have significant direct and indirect impacts on biodiversity and ecosystem services (see below). There are few if any international mining companies applying international sustainability standards operating in the country.

BOX 1: FURTHER INFORMATION ON POTENTIAL BIODIVERSITY IMPACTS OF THE MINING SECTOR

- **Table 1 'Large-Scale Mining' & Table 2 'Artisanal and Small-Scale Mining'** set out some selected impacts of mining operations on biodiversity and human rights
- For a more detailed review of the *human rights impacts* of the sector, see MCRB's "[Sector Wide Impact Assessment of Limestone, Gold and Tin Mining in Myanmar](#)" (2018)
- For a more detailed list of *potential biodiversity impacts* of the sector see the resources highlighted in the Recommendations below
- For a more detailed discussion of the inter-relationship between *business, biodiversity and human rights impacts*, see [Biodiversity Briefing Paper](#) and in particular **Box 4**



Figure 1: Protected areas in Myanmar



Source: WCS, Protected Areas, 2017.

Legal and Regulatory Framework Relevant to Biodiversity and Ecosystem Services

This section highlights relevant laws, regulations and contractual arrangements applicable to the mining sector, and should be read together with **Chapter 3** of the [Briefing Paper](#) (Policy, Legal Framework and Institutions for Biodiversity Conservation) that addresses the overall policy and legal framework in Myanmar relating to environmental protection and biodiversity conservation.

Amended Myanmar Mines Law (72/2015) & Mining Rules (2018), require mines to minimise environmental damage and negative impacts on local communities, and to make an annual contribution to a fund for environmental conservation and a Mine Closure Fund for environmental rehabilitation and reforestation. The Mining Rules cross-reference the need to abide by the Environmental Conservation Law, Rules and EIA Procedure.

Production Sharing Contract (PSC) - the only provisions related to biodiversity require that prior permission must be obtained from MONREC if any trees are to be felled and that land used for mining concession must be reforested.

Environmental Conservation Law No 9/2012, the Environmental Conservation Rules (2014), Environmental Impact Assessment (EIA) Procedure (2015) set out the rules for an EIA. Annex 1 of the EIA Procedure specifies whether an IEE or an EIA is required, depending on the mineral type and size of the operation.¹ In addition, under the EIA Procedure, an EIA requirement can also be applied to a smaller project because it is located in an environmentally sensitive area - something that is not recognised in the Mining Rules. The Procedure does not distinguish between phases in the mining cycles (as is done for oil and gas).² However, the new 2018 Mining Rules pre-determines the type of process (EMP, IEE, EIA etc) to apply that is not consistent with the sizes and thresholds (as listed in Annex 1 of the EIA Procedure) or a reflection of the reality of ASM operators' capacity to handle bureaucratic processes.

National Environmental Quality (Emissions) Guidelines (2015) that apply as part of the EIA process, set specific effluent levels for certain types of mining operations intended to protect ecosystem health.

Biodiversity Action Plans can be required as part of Environmental Management Plans (EMPs) that are an integral part of EIAs, and are contractually binding commitments. The Environmental Compliance Certificate (ECC) issued at the end of the EIA process can also add specific requirements on biodiversity protection where needed.

There have been very few publicly disclosed EIAs carried out in the mining sector in Myanmar.³ Those that have been disclosed have addressed biodiversity impacts, impacts on ecosystem services and priority ecosystem services and one developed a strategy for biodiversity offsets.

They have referenced the following:

- IFC's Performance Standards (PS), which includes PS 6 on Biodiversity Conservation and the Sustainable Management of Living Natural Resources (2012)
- World Bank Group Environmental, Health and Safety (EHS) Guidelines (General) (2013) and the EHS Guidelines for Mining (2007) that contains specific provisions on biodiversity

TABLE 1: BIODIVERSITY IMPACTS AND RELATED HUMAN RIGHTS IMPACTS - LARGE-SCALE MINING

	BIODIVERSITY IMPACT	ACTIVITIES CAUSING OR CONTRIBUTING TO THE IMPACT	RELATED HUMAN RIGHTS IMPACTS
EXPLORATION	Habitat damage, fragmentation and loss Species disturbance and loss	<ul style="list-style-type: none"> Progressive land clearance and degradation during exploration and construction of exploration facilities as exploration operations move from place to place Physical damage from exploration activities, including drilling, use of equipment, noise and vibration, collisions Erection of barriers to migration paths, both physical (fences, roads, etc), and operational (noise, light, etc.) Construction of access roads and other infrastructure. These can directly result in habitat loss and extraction, and indirectly open up previously inaccessible areas to development -- which have a potentially more far-reaching impact on biodiversity 	<p>Right to Food and Adequate Standard of Living</p> <ul style="list-style-type: none"> Reduced or eliminated provisioning services through loss of food stocks, medicines, construction materials and fuel. Restriction of access due to destruction or degradation of plants and animals, or their habitats
	Species loss	<ul style="list-style-type: none"> Hunting and fishing activities of site personnel and/or by local villagers to sell to site personnel Exacerbation of wildlife trade by site personnel, local villagers looking for extra income and/or external trafficking networks. Introduction of invasive species 	<p>Right to Water</p> <ul style="list-style-type: none"> Reduced physical access to water, because of blockage of access from facilities and associated security zones Reduced access to potable water due to pollution Reduced quantities of water due to use for operations Reduced regulating services because of altered hydrologic /hydrogeological regimes, including reduced groundwater
	Habitat damage, fragmentation and loss Overexploitation of resources	<ul style="list-style-type: none"> In-migration of people seeking employment or other economic opportunities and related agricultural conversions and other resource use 	
PRODUCTION	Habitat damage, fragmentation and loss Species disturbance and loss	<ul style="list-style-type: none"> Progressive land clearance and degradation, deforestation from open pit development, waste rock disposal, processing facilities, tailings impoundments, etc. Contaminated discharges to soil, air and water, accidental spills, fires and explosions that kill, significantly reduce and contaminate both plant and animal species, including through acid mine drainage Runoff of water contaminated with suspended solids, that can be a particular challenge in high rainfall areas leading to soil erosion and siltation that have physical and biological impacts Abstraction/depletion of water resources Disruption of hydrological or hydrogeological regimes, leading to impacts on terrestrial or aquatic biodiversity Disturbances of animals and plants due to noise, light, dust, etc. Construction of export infrastructure (such as roads or pipelines) result in further habitat loss or fragmentation Release of toxic pollutants from smelters 	<p>Right to Health</p> <ul style="list-style-type: none"> Directly, due to consumption of contaminated plants and animals Indirectly, due to restricted or eliminated access to plant or animal biodiversity with health-restoring properties <p>Cultural Rights</p> <ul style="list-style-type: none"> Reduced or eliminated access to habitats that are culturally significant
	Habitat change due to climate change	<ul style="list-style-type: none"> Significant demand for energy that may be supplied through carbon emitting energy resources for mining operations Indirectly through use of carbon-intensive commodities by its supply chain 	[continued overleaf]

TABLE 1 [CONTINUED]: BIODIVERSITY IMPACTS AND RELATED HUMAN RIGHTS IMPACTS - LARGE-SCALE MINING

	BIODIVERSITY IMPACT	ACTIVITIES CAUSING OR CONTRIBUTING TO THE IMPACT	RELATED HUMAN RIGHTS IMPACTS
MINE CLOSURE	Permanent habitat loss	<ul style="list-style-type: none"> • Failure to restore ecosystems and the effective functioning of ecological processes that create habitats for animals as well as plant communities • Failure to reuse parts of the facilities and infrastructure, thus requiring use of new areas to build new facilities and infrastructure • Failure to address acid mine drainage and other sources of contaminants that can have ongoing adverse impacts • Lack of financial provisioning for mine closure 	<p>Right to Housing</p> <ul style="list-style-type: none"> • Land acquisition, especially where this involves the involuntary resettlement of natural-resource dependent communities, and clearance of land that provides important sources of ecosystem services • Flooding or inundation from hydroelectric facilities built to provide energy to mining facilities, including dam bursts, or deforestation affecting regulating services of flood prevention
CUMULATIVE	Habitat damage & loss, species loss	<ul style="list-style-type: none"> • Through the cumulative effects of multiple projects in prospective regions resulting from a combination of exploration activity, the mine sites themselves and, importantly, other infrastructure like roads, towns, pipelines, water supplies and ports required to service them as well as associated in-migration • For a more detailed discussion of cumulative impacts, see the Mining SWIA, Chapter 5 	<p>Right to Security</p> <ul style="list-style-type: none"> • Conflicts between communities and mining companies relating to impacts on ecosystem services (especially water) • Opening up of previously inaccessible areas to illegal logging and wildlife trafficking increases insecurity

TABLE 2: BIODIVERSITY IMPACTS AND RELATED HUMAN RIGHTS IMPACTS - ARTISANAL/ SUBSISTENCE AND SMALL-SCALE MINING

	BIODIVERSITY IMPACT	ACTIVITIES CAUSING OR CONTRIBUTING TO THE IMPACT	RELATED HUMAN RIGHTS IMPACTS
EXPLORATION	Habitat damage, fragmentation and loss Species disturbance and loss	<ul style="list-style-type: none"> Activities conducted in Protected Areas Construction of semi-permanent camps with a lack of waste facilities Progressive land clearance and degradation as operations move from place to place Progressive land clearance and degradation, deforestation from removal of soil and rock Erection of barriers to migration paths, both physical (fences, roads, etc), and operational (noise, light, etc.) Construction of access paths or roads. These can directly result in habitat loss, extraction and indirectly open up previously inaccessible areas to development -- which can have potentially more far-reaching impacts Release of toxic pollutants from use of toxic substances - such as unregulated use of cyanide and mercury in particular and bio accumulation up the food chain Contaminated discharges to soil, air and water, accidental spills, fires and explosions that kill, significantly reduce and contaminate both plant and animal species Increased erosion and runoff of water contaminated with suspended solids, that can be a particular challenge in high rainfall areas Exposure of mineralized rock and subsequent release of acid rock drainage Abstraction of water resources from the use of high power hoses Siltation, sedimentation and contamination due to panning, washing, dredging, altering water courses, dumping wastes and tailings into watercourses, etc. Potential disruption of hydrological or hydrogeological regimes, leading to impacts on terrestrial or aquatic biodiversity due to cumulative diversion of watercourses and blockages of water courses over time Disturbances of animals and plants due to noise, light, dust, etc. 	<p>Right to Food and Adequate Standard of Living</p> <ul style="list-style-type: none"> Reduced or eliminated provisioning services through loss of food stocks, restriction of access due to destruction or degradation of plants and animals, or their habitats <p>Right to Water</p> <ul style="list-style-type: none"> Reduced physical access to water, because of use of watercourses for mining activities Reduced access to potable water due to pollution <p>Right to Health</p> <ul style="list-style-type: none"> Directly, due to consumption of contaminated plants and animals, particularly as a result of mercury and cyanide contamination Indirectly, due to restricted or eliminated access to plant or animal biodiversity with health-restoring properties <p>Cultural Rights</p> <ul style="list-style-type: none"> Reduced or eliminated access to habitats that are culturally significant
	Species loss	<ul style="list-style-type: none"> Hunting and fishing activities of miners, their families and/or local villagers to supply the miners Direct introduction of invasive species or increasing the vulnerability of the ecosystem to invasive species 	<p>Right to Housing</p> <ul style="list-style-type: none"> Displacement from housing of natural-resource dependent communities and clearance of land that provides important sources of ecosystem services
	Habitat damage, fragmentation and loss Overexploitation of resources	<ul style="list-style-type: none"> In-migration of people seeking employment or other economic opportunities and related agricultural conversions and other resource use 	<ul style="list-style-type: none"> Deforestation affecting regulating services of flood prevention

TABLE 2 [CONTINUED]: BIODIVERSITY IMPACTS AND RELATED HUMAN RIGHTS IMPACTS - ARTISANAL/ SUBSISTENCE AND SMALL-SCALE MINING

	BIODIVERSITY IMPACT	ACTIVITIES CAUSING OR CONTRIBUTING TO THE IMPACT	RELATED HUMAN RIGHTS IMPACTS
MINE CLOSURE	Habitat damage & loss, species loss	<ul style="list-style-type: none"> Complete absence of closure and rehabilitation actions resulting in 'moonscapes' and stagnant pools of water 	Right to Security <ul style="list-style-type: none"> Opening up of previously inaccessible areas to illegal logging and wildlife trafficking increases insecurity
CUMULATIVE	Habitat damage & loss, species loss	<ul style="list-style-type: none"> Even though each ASM project in itself typically has a very small footprint, the cumulative effect, particularly as a result of the absence of environmental controls, can result in significant impacts For a more detailed discussion of cumulative impacts, see the Mining SWIA, Chapter 5 	

- IUCN Red List of Threatened Species and Ecosystems
- Protected Areas and Proposed Protected Areas, Important Bird Areas, Key Biodiversity Areas, Endemic Bird Areas, Ramsar Sites, Conservation Corridors, WWF Eco-Regions
- World Heritage Sites and Proposed World Heritage Sites, UNESCO Man and the Biosphere Reserves
- Global Tiger Recovery Initiative & Global Tiger Recovery Programme

Recommendations for Companies

The [Briefing Paper](#) makes general recommendations on biodiversity conservation for all companies. Specific suggestions for companies in the mining sector are:

Essential

- Respect legally Protected Areas
- Incorporate biodiversity considerations at each stage (screening, scoping, assessment, management, monitoring and reporting) of the EIA process, so that impacts on biodiversity can be avoided where possible and mitigated as part of the application of the mitigation hierarchy
- Prepare a **Biodiversity Action Plan** as part of the Environmental Management Plan
- Publish on the company **website all draft EIAs** (and EMPs) once submitted to MONREC for consideration, in line with the legal requirement in the EIA Procedure
- Publish all subsequent **monitoring reports** submitted to MONREC

Desirable

- Commit to not mine or explore in World Heritage properties, where these are identified in Myanmar
- Develop an informed and proactive approach to managing and protecting biodiversity by applying relevant **guidance for the mining sector** such as:

- » Department of Environmental Affairs et al. (2013). [Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector](#). Pretoria
- » Morton, S. et al. (2014). [Biodiversity: science and solutions for Australia](#). FFI: CSIRO, Australia [see Chapter 11 on Mining and Biodiversity]
- » ICMM (2006). [Good Practice Guidance for Mining and Biodiversity](#). International Council on Mining and Metals, London
- » CSBI (2015). [A cross-sector guide for implementing the Mitigation Hierarchy](#). ICMM, IPIECA and the Equator Principles, London
- » Gullison, R. et al. (2015). [Good Practices for the Collection of Biodiversity Baseline Data](#). Prepared for the Multilateral Financing Institutions Biodiversity Working Group & Cross-Sector Biodiversity Initiative

- Given the low capacity of the Myanmar Government to collect biodiversity data collaborate with MONREC and environmental NGOs to share relevant biodiversity data including through platforms such as:
 - » [Myanmar Biodiversity Clearing House Mechanism](#)
 - » [Myanmar Alliance for Conservation](#)
 - » [One Map Myanmar \(OMM\)](#)
 - » Collaborate with government, academic and NGO partners to build their capacity to understand and regulate the impacts of the mining sector on biodiversity

Endnotes

- 1 EIA Procedure (2015), Article 25.
- 2 For further concerns about the EIA requirements under the Mining Rules and the EIA Procedures, see: MCRB, "[Sector Wide Impact Assessment of the Limestone, Gold and Tin Mining in Myanmar](#)," (2018), Chapter 3, Legal and Policy Framework.
- 3 As of May 2018, ECD received 2752 EIA/IEE/EMP documents, 77% of them mining related. See [Consultation on Draft EIA Guidelines for the Mining Sector](#). ESIA's conducted for large-scale mining operations that have been disclosed to the public include: Supplementary [ESIA for Shwe Taung Cement](#) (April 2017), [EMP for Lonkin/Hptankt Gems Tract](#) (2017); Revised [ESIA for Letpadaung Copper Project](#) (2015)

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