

10 Environmental governance of mining in Burma

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Mining is the extraction of non-renewable resources; as such, it is an inherently unsustainable practice. Even when carefully managed and monitored, mining always has social and environmental costs. This is especially true in developing countries, where environmental governance tends to be weaker than in industrial countries. Burma is an authoritarian state that has been ruled by successive military governments since 1962. The human rights violations and environmental degradation around the mining industry in Burma are similar to those happening in other extractive industries in the country, and they are indicative of the state of environmental governance: unfair and inefficient.

This chapter is an analysis of environmental governance of mining in Burma. I argue that it is a top-down system, devoid of environmental protection and dominated by the elemental purpose of securing revenue. While far short of an exhaustive analysis of the environmental governance of mining in Burma, this chapter provides a discussion of the varieties of mining in Burma, challenges to environmental governance analysis in Burma and the national economic policy and mining laws, illustrated through a case study of the Monywa Copper Project

in Sagaing Division. This project is Burma's largest mine and a joint venture between the Canadian company Ivanhoe Mines Limited and the Myanmar Ministry of Mines under the State Peace and Development Council (SPDC).

This case study considers the structure of the Monywa Copper Project, the methods and processes used at the Monywa mine site, recent developments concerning Ivanhoe Mines' investment in Burma and the highly destructive artisanal mining—called *dohtar* in Burmese—that is widespread around the Monywa mine site. Highlighting the weaknesses and problems with environmental governance and mining in Burma begs questions of how the situation might improve. In the final section, I emphasise areas in need of attention, as well providing a forecast for local participation in fair and effective environmental governance in Burma.

Challenges to environmental governance analysis

Mining in Burma is widespread and conducted in various ways. In 2004, the Ministry of Mines reported 43 large-scale mining permits, 165 small-scale permits and 1,320 subsistence permits (ABARE and Mekong Economics 2005). As of 2005, many of these permits were inactive, which is not to say that the mining industry in Burma is inactive or that the Ministry of Mines' figures are accurate.

For the sake of order, mining in Burma can generally be categorised as large-scale, artisanal and small-scale mining. The latter two types of mining are often grouped together—as 'ASM'—by researchers due to the commonalities between them.

Large-scale mines such as the Monywa Copper Project are enormous operations, and are often financed by foreign investors. They have high recovery and production levels and use technologically advanced methods and equipment, including heavy machinery and complex chemical processes.

Small-scale mines vary in size, are more labour intensive than large-scale mines and may or may not use mechanised equipment. In Burma, small-scale mines are run by the military and non-military alike.

Artisanal mining is characterised by rudimentary, traditional methods, is labour intensive and occurs informally, always as a means of subsistence. ASM is driven by poverty; it requires little or no capital inputs and its accessibility makes it pervasive.

Large and small-scale mines operate in official capacities in Burma with mining permits from the State or a partner of the State, while artisanal miners are viewed as illegal, often working on land without legal title. All types of mining are characterised by their significant impact on the environment (Images Asia and PKDS 2004).

In Burma, these three types of mining are also characterised by difficulties in collecting quantitative and/or qualitative data sets pertaining to them, in turn making questions of environmental governance more challenging, and more pressing. Large-scale mining companies have a global reputation for secrecy around their operations and exploration and, when partnered with the SPDC in a closed society, the documentation of mining and its effects becomes particularly challenging. This is an initial area of concern for environmental governance around large-scale mining in Burma: lack of transparency.

As for ASM in Burma, the initial challenge in terms of environmental governance analysis is less about transparency—because artisanal mining occurs in an unofficial capacity—and more about surmounting the obstacles to data collection. Much of the economic activity around ASM is never reported officially, making any wide documentation of it and its effects particularly challenging, if not impossible, under the current military regime (EarthRights International 2003).

It is estimated that more than 13 million people world-wide depend directly on ASM for survival, and a further 80–100 million people's livelihoods are affected by ASM (Ayers et al. 2002; Hentschel et al. 2003). In Burma, national figures of the number of ASM miners and the environmental and social impacts of their activities are difficult to estimate beyond generalising it as widespread and pervasive. But consider that mining in Burma occurs nation-wide, and the Ministry of Mines officially supports the mining of copper, lead, silver, zinc, refined

tin, tin concentrates and tin-tungsten, gold, iron, steel, coal, and the production of industrial minerals, as well as gems and stones, pearls and salt (Myanmar Ministry of Mines n.d.). Many of these formal mining enterprises have an artisanal shadow: an informal ASM sector working alongside them.

The most formidable challenge to environmental governance analysis in Burma is, essentially, access to information. A lack of access to information pervades Burma's environmental governance system and is perhaps indicative of a system more concerned with generating and securing revenue than with collecting and reporting useful information about the state of Burma's environment. Indeed, to speak of challenges to environmental governance analysis is very different than to speak of challenges to environmental governance, though of course the two are closely interrelated. The following sections explore some political dimensions of the governance problem, starting with Burma's national policy and mining laws.

National policy and mining laws

A comprehensive analysis of Burma's environmental governance system, for better or worse, is a task well beyond the general scope and specific limits of this chapter. That said, Burma's National Environmental Policy (NEP) and mining laws are two essential indicators of the state of environmental governance and mining in Burma, and are both worthy of a narrow and specific focus.

The National Commission for Environmental Affairs (NCEA) was created in Burma in 1990, followed closely by the drafting of the NEP. The NEP invokes the universally agreed principle of sustainable development, concluding as follows: 'It is the responsibility of the State and every citizen to preserve its natural resources in the interests of present and future generations. Environmental protection should always be the primary objective in seeking development' (NEP cited in Tan 1998). While a noble goal indeed, most of the NEP reads like a mission statement, or a disjointed collection of environmental platitudes. For

example, it reads: ‘The wealth of the nation is its people, its cultural heritage, its environment and its natural resources’, continuing to say that ‘Myanmar’s environmental policy is aimed at achieving harmony and balance’. Considering the well-documented environmental irresponsibility, degradation and destruction happening in connection with Burma’s extractive industries, and the near complete absence of institutional capacity, the policy rings hollow and sounds generalised.

The policy, however, is not without foundations. It does demonstrate an unsurprisingly selective expression of international environmental law, clearly noting the country’s right of permanent sovereignty over its own resources, which is consistent with the SPDC’s general insistence on sovereignty and its contempt for international pressure, which is deemed a threat to that sovereignty. The policy states that: ‘Every nation has the sovereign right to utilize its natural resources in accordance with its environmental policies’, which is taken almost verbatim from Principle 21 of the Stockholm Declaration, which describes nations as having ‘the sovereign right to exploit their own resources pursuant to their own environmental policies’ (UNDP 1972; UNEP 1992). Numerous other expressions of international environmental law beyond state sovereignty exist that would succeed in bringing the NEP in line with international environmental legal standards. However, the real concern with the NEP is less about its content and more about Burma’s institutional capacity, which is unable to give effect to the policy and its stated environmental maxims. Until that capacity is in sight, with democratic preconditions in place, the NEP will continue to merely espouse, as opposed to enable, sustainable development.

While the NEP espouses sustainability and environmental protection as the primary objectives of development, on its web site, the Myanmar Ministry of Mines ostensibly notes its own elemental purpose: ‘It is the policy in the mineral sector to boost up present production, to fulfil the growing domestic demand and to increase foreign exchange earnings.’ The aim of the Ministry of Mines to secure revenue is often wholly at odds with the protection and conservation of the natural environment.

Mining natural resources can be a highly productive economic activity. It is undertaken to generate profit, and as such the stakeholders directly involved in the enterprise are, quite expectedly, economically interested. These economic interests will want to be protected from measures that might render the enterprise less economic, or worse, uneconomic. This puts sound mining laws and regulations on a collision course with the core intent of mining operations, which is maximising profit.

In light of Burma's authoritarian state, it is reasonable to expect that official top-down measures will be taken to ensure that the large-scale mining of non-renewable natural resources remains economic as opposed to uneconomic or less economic. Measures such as keeping regulations voluntary and specific requirements and duties of private companies minimal are the expected norm in Burma for the foreseeable future.

I turn now to consider the weaknesses of Burma's mining laws, which demonstrate an absence of fair and efficient environmental governance as well as a perverse environmental governance strategy: by their weakness and lack of enforcement, the mining laws facilitate economic activity, maximising the wealth of some stakeholders to the detriment of the least advantaged stakeholders: local people and the natural environment.

Burma's mining laws

The Ministry of National Planning and Economic Development dictates national economic policy in Burma. Large-scale mining and the national economy of Burma are related by legislation in that the SPDC controls the flow of all foreign direct investment in Burma and the SPDC is necessarily a partner in all mining investments (either production sharing or profit sharing).

In 1988, three months after the crack-down on the nation-wide pro-democracy uprising, the SPDC's precursor, the State Law and Order Restoration Council (SLORC), passed Law 10/88, which opened Burma's economy to foreign investment in order to promote development of the national economy. In practice, this policy enables

the SPDC to control the flow of foreign direct investment coming into Burma, and shareholding capacity has been reserved for the military and their families (The Burma Campaign [UK] 2004). Since 1988, total foreign investment in Burma is estimated at US\$7.646 billion, with mining investments accounting for US\$534.19 million, most of which comes from the Monywa Copper Project. This makes the mining industry the fifth most lucrative for the SPDC, behind oil and gas, manufacturing, livestock and fisheries, and real estate (*The Irrawaddy* 2005a).

The Myanmar Ministry of Mines directs the formal mining sector in Burma, and all mining contracts must be approved by the State. This gives an air of cohesion and legislative structure to the national layer of governance. The SPDC maintains that ‘all naturally occurring minerals found either on or under the soil of any land on the continental shelf are deemed to be owned by the state’. The Ministry of Mines comprises various branches tasked with granting mining concessions and investigating potential mineral deposits, but as a matter of policy the SPDC has affirmed to refrain from making new mining investments on its own, instead looking to encourage foreign and local investment.¹

In turn, foreign and local investment in the mineral sector is enabled only by mining concessions awarded by the Ministry of Mines or by close partners who have been given concession authority.² Since 1988, when the government acted decisively to ‘develop [the] national economy’, almost nothing is known about the many official and unofficial mining concessions granted to local and Chinese companies, many of which are owned by or closely tied to armed groups throughout the country (MacLean 2004).

The SPDC has attempted to make foreign investment in Burma attractive, ensuring potential investors that it would not nationalise the industry or the investment for the life of the contract (SLORC 1988). Chapter VI, Article 22 of the Myanmar Foreign Investment Law states that ‘[the] Government guarantees that an economic enterprise formed under a permit shall not be nationalised during the term of the contract or during an extended term, if so extended’ (SLORC 1988). The last article of the same law, however—Chapter XV, Article 32—adds a

question to that assurance, stating that for ‘the purpose of carrying out the provisions of this Law the Government may prescribe such procedures as may be necessary, and the Commission may issue such orders and directives as may be necessary’ (SLORC 1988).

Burma’s mining laws are vague and incoherent. They consist largely of general statements lacking the clarity and cogency normally expected of well-written laws. They have been described as ‘among the least developed, or sound, of any in the world’ (Moody 1999:12, footnote 73 in Chapter IV). Some laws conflict with one another; others are simply redundant (Moody 1999; SLORC 1994). In regard to land rights, Chapter V, Article 15 of the 1994 Mines Law gives legal go-ahead for the government’s standard practice of land confiscation, citing ‘the interest of the State’: ‘If, in the interest of the State, it is necessary to acquire the land where mineral production could be undertaken on [a] commercial scale, the Ministry shall co-ordinate with the relevant Ministry for the acquisition of such land in accordance with the existing Law.’

This law in effect means that if you happen to be living in the wrong place—that is, above a mineral deposit—your land is subject to seizure. There is no provision for compensation or even a vague resettlement plan.

Environmental impact assessments (EIAs) are in one way or another becoming standard practice in the international mining industry. They are meant to maximise the potential for environmentally sound and sustainable development by integrating environmental issues into development planning (Hunter et al. 1998; Jain et al. 1993; Knox 2002; Van Dyke 1993; Robinson 1992). Often included in an acceptable EIA model is a social impact assessment (SIA), which is defined as ‘the process of assessing or estimating, in advance, the social consequences that are likely to follow from specific policy actions or project development’ (Burdge and Vanclay 1996:1). SIAs are meant to cover ‘all social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally cope as members of society’ (Burdge and Vanclay 1996:1). Furthermore, ‘cultural impacts involve changes to the norms, values, and beliefs of

individuals that guide and rationalize their cognition of themselves and their societies' (Burdge and Vanclay 1996:1). In the 1994 mining law, there are no specific measures calling for an EIA or SIA by the holder of the mining permit, let alone an independent third party, and there is no provision for public participation and public disclosure. To date, meaningful and thorough EIAs are not a part of the mining industry in Burma; they require a discursive democratic participation.

As Tun Myint (2003:292) has stated in relation to Burma, 'environmental governance is an inherently political process'. Many writers note that environmental permitting—meaning the decision to proceed with a project—is a political choice resulting from societal values and expectations (Joyce and Macfarlane 2001). By today's global standards, this political choice is meant to include local and possibly dissenting voices, which has been reflected, at least in part, through the implementation of fair and efficient EIAs and SIAs.

This is an area of concern for fair and effective environmental governance in Burma's formal mining sector: the local voice is not factored into development planning, let alone through fair and efficient impact assessments. If a governance regime does not fully consider the issues and interests of all layers—local, national and transnational—'then that particular regime is less likely to achieve stated goals by means of fair and efficient governance process' (Myint 2002:109).

Furthermore, it is telling that there is effectively nothing legally explicit and precise in the mining laws beyond a statement of the requirement for a permit and detailing the rents and royalties that must be paid to the SPDC. Aside from direct percentage quotes (for example, copper calls for a 3–4 per cent royalty to be paid to the Ministry of Mines, the exact amount to be determined by the SPDC), there is little substantive or procedural content to the Myanmar Mining Law of 1994 that would constitute a basis for sound environmental governance. By its total exclusion of social and environmental considerations, and its sole emphasis on securing revenues, the Myanmar Mining Law's structure reveals its elemental purpose: economic governance, devoid of environmental and social measures.

The Monywa Copper Project

Part of the attraction to Burma for a company such as Ivanhoe Mines—aside from the plentiful mineral deposits—is the regulatory freedom with which the company can work, essentially having little to no responsibility to abide by domestic regulations (since none exist), and little to no procedural or corrective justice that might hold it accountable for any wrongs committed. The Mining Law of 1994 actually protects mining companies from liability, prosecution or fines (Gutter 2001:9). In virtue of these laws, and its location in Burma, Ivanhoe Mines' Monywa Copper Project is completely isolated from the outside world, and its activities are protected from scrutiny. A close consideration of the Monywa Copper Project example helps reveal the nexus formed by this type of irresponsible foreign investment, environmental degradation and Burma's economic-driven authoritarian governance.

The Monywa Copper Project is Burma's largest mine, located in central Burma, Sagaing Division, and comprises four sulfide-copper deposits named Sabetaung, Sabetaung South, Kyisintaung and Letpadaung. The first three (referred to collectively as S&K) are adjacent and because of that they have been developed as one project, while Letpadaung is approximately 10 kilometres southeast of S&K and is currently undeveloped.

The Monywa Copper Project is operated by the Myanmar Ivanhoe Copper Company Limited (MICCL), which is a company created by the 13-year-old 50–50 joint-venture agreement between Ivanhoe Mines and Number One Mining Enterprise (ME1). ME1 is a state-owned company and one of five companies that were created under the Ministry of Mines when General Ne Win seized power in 1962.³ Ivanhoe Mines, the Canadian half of the joint venture, is listed on the Toronto and New York stock exchanges and the NASDAQ. The Monywa project started commercial production in 1999 with an annual production of 27,000 tonnes of copper cathode. The copper cathode produced at Monywa is certified with the London Metals Exchange, the global authority in copper trade, and it is sold to Marubeni Corporation, Japan's fifth

largest trading company. Marubeni Corporation also financed the development of the Monywa mine through a US\$90 million loan, which Ivanhoe Mines Limited repaid in full in August 2005 (Ivanhoe Mines Limited 2006a).

Methods and processes at Monywa

The acid used at MICC is very strong and hurts my eyes, especially near the acid pond. Many of my friends work at the acid ponds and they told me how hard it is. They try to take care of the acid but it's not easy⁴ (A miner at the Monywa Copper Project)

Copper extraction is notoriously messy and a potentially disastrous process anywhere, even when the most advanced methods are used (Ayres et al. 2002). At Monywa, the large-scale extraction of copper from the earth is an involved, technologically complex and multi-stage process. Though there can be some general similarities between disparate copper-mining operations throughout the world, 'there is no such thing as an "ordinary mining operation"' (Ripley et al. 1996:5). Mineral production and processing depends on a number of factors, such as terrain, geology and mineralogy, and is always unique from site to site.

MICCL uses an advanced process called the solvent extraction-electro winning (SX-EW) method. In basic terms, copper ore is mined, crushed and stacked on an allegedly 'impermeable' liner. The ore is then sprayed with a leaching solution containing sulphuric acid, which dissolves the copper. The resulting copper-rich solution is then treated with an organic solvent and an electrical current, with an end product of 45-kilogram sheets of 99.999 per cent pure copper. The process creates a toxic waste referred to as tailings, and these tailings, through a process known as acid mine drainage (AMD) or acid rock drainage (ARD), can contribute to environmental degradation of rivers, ground water and soil. The tailings can also find their way into the hands of locals, who attempt to extract the little copper that remains in the waste by using an environmentally destructive process of artisanal mining called *dohtar* in Burmese.

Monywa is an open-pit mine, which is the first choice of mining companies as this is the most economical form of mining. They are also the most devastating to the landscape. Open-pit mines account for the largest human-made holes on the planet, holes that can impact only irreversibly on the ecosystems they displace.

Copper ore contains only a small percentage of the desired metal, so vast amounts of it must be dug up for a comparatively small amount of copper. Industry standards currently hold that mining copper ore is worthwhile—that is, profitable—when there are at least 2kg of copper for every 1,000kg of ore, but of course this standard fluctuates with technological advancement, so that as technological efficiency improves it will theoretically become progressively easier to extract smaller percentages of copper to ore.

Leaching, as mentioned above, is a chemical process that involves administering toxic acid over the heaps of ore, which dissolves the metal out of the ore. At Monywa, sulphuric acid is the active acid in the leaching solution. The leach pads on which the giant heaps of ore sit are commonly referred to as impermeable, suggesting, misleadingly, that the toxic chemicals administered to the ore are safely trapped. Heap leach pads are, however, tragically prone to toxic leaks and spills—more likely without fair and efficient environmental governance.

Furthermore, the SX-EW process is theoretically meant to recycle the sulphuric acid, so that the acid administered in the SX process is recovered in the EW process, and is used again. Additional acid, however, is required of the process, as demonstrated in part by MICCL's importing of sulphuric acid and plans to construct an on-site acid factory. Side effects of this process pose considerable threats to surface and ground water. Copper-mining experts commissioned in part by the World Business Council for Sustainable Development refer to the process as follows

The heap leaching (SX) process is another source of waste, seldom discussed. Large amounts of sulphuric acid (a smelter by-product) are used for this purpose...In principle the sulfur in the system is simply recycled as sulfuric acid and returned to the leaching operation. On

the other hand...it seems clear that much more sulfuric acid is used for leaching than is recovered at the EW stage. The residue presumably reacts with other materials in the ore or concentrate. Since most sulfates are somewhat soluble, they presumably find their way into surface waters or ground water. The literature does not discuss this point. (Ayres et al. 2002:28)

Lastly, the method used at Monywa requires a large amount of energy and water, which is an environmental and economic concern anywhere, let alone in a country such as Burma with weak infrastructure and poor resource management.

Environmental management system

Ivanhoe Mines Limited boasts that MICCL operates according to international standards, including ISO 14001, which is an environmental management system (EMS) developed by a Geneva-based non-governmental organisation (NGO). The inherent weakness of this EMS is that it is voluntary, and the extent of the application of ISO 14001 is decided entirely by the company itself. That is, companies design product and process-specific standards and establish their own objectives and goals to achieve these standards.

While the growth of international standards throughout the world has some observers enthusiastic, local people in mining communities world-wide fail to see or experience noteworthy social and environmental improvements from the management system. Despite Ivanhoe Mines Limited boasting of MICCL's environmental integrity and social stewardship (Ivanhoe Mines 2004a), a less enthusiastic local voice can be found at Monywa. As one miner at the MICCL mine notes, 'The forest and trees are gone from the area where MICCL is located. Trees are unable to grow in this area any more. I think it is because there is a lot of acid in the soil surrounding the mine site.'⁵

It has also been argued that voluntary agreements such as ISO 14001 can actually complicate rather than facilitate governance. Bruce Paton surveyed empirical and political economy studies of negotiated, voluntary,

regulatory frameworks and found that ‘negotiated agreements...often reduce transparency—the ability of outside parties to observe both the process and the outcomes of a policy—relative to regulations’. He found that ‘empirical studies document that negotiated agreements have permitted significantly less community and non-governmental organization participants than previous regulatory policies’ and that ‘the political economy studies argue that both industry and regulatory agencies have favored voluntary approaches precisely because they reduce the influence of both legislative bodies and environmental groups on policy outcomes’ (Paton 1999:1, 26).

This corresponds with Ivanhoe Mines’ recent statement that NGOs and local people were a nuisance to mining, and were to be avoided. Robert Friedland, founder and Executive Chairman of Ivanhoe Mines Limited, recently noted at a Global Resources conference that ‘you want [your mine] to be near the market, but you don’t want people around your mine because people near your mining project are a real nightmare’. In reference to Ivanhoe Mines’ Oyu Tolgoi Copper Project in the Gobi Desert in Mongolia, he explained that ‘the nice thing about this [is], there’s no people around, the land is flat, there’s no tropical jungle, there’s [*sic*] no NGOs’. Continuing, quite candidly, he added that ‘the nice thing about the Gobi is, there’s no railroad tracks in the way, there are no people in the way, there are no houses in the way’ (Friedland 2005). This rather crude attitude communicates the view that local people and NGOs are a hindrance and obstacle rather than a critical component and equal partner to fair and efficient environmental governance.

Recent developments

Ivanhoe Mines Limited continues to seek international finance for a US\$400 million expansion of the Monywa Copper Project, which would potentially double the size of the Monywa operation (*The Irrawaddy* 2005b). This involves the development of the Letpadaung ore deposit, which will make Monywa one of the largest copper mines in Asia in terms of recovery rates and annual production.

The company began ‘reviewing strategic alternatives’ to its investment in Monywa as early as March 2004 (Ivanhoe Mines 2004b). At the time of writing, the company was seeking to sell a 25 per cent stake in the Monywa Copper Project to a South Korean consortium that included Daewoo International, a company with an already large and controversial investment in vast natural gas deposits off the Arakan (Rakhine) coast in western Burma, referred to as the Shwe gas project.⁷ The rest of the possible South Korean consortium includes Korean Resources Corporation and Taihan Electric Wire. A memorandum of understanding was purportedly signed in January 2006 and the official deal was supposed to be finalised in July 2006, pending a due-diligence project analysis (*The Korean Herald* 2006).

As a joint partner with the military through the Myanmar Ministry of Mines, Ivanhoe Mines Limited is obligated to keep an amicable relationship with the SPDC if it expects to continue the business relationship. Ivanhoe Mines Executive Chairman, Robert Friedland, has empathised with the regime, attesting to its integrity by saying, ‘they really love their country’ (Moody 1999:52). He went on to explain Ivanhoe Mines’ ethical bottom line, stating that if the military started ‘killing students en masse, we would have to re-evaluate our involvement in Myanmar’ (Moody 1999).

With an ultimate concern for keeping copper production high and production costs low, the MICCL was relatively successful in Burma, with an operating profit from the first nine months of 2005 of a reported US\$29.1 million, a 62 per cent increase from the previous year. Ivanhoe Mines also reported a 52 per cent increase in revenue for MICCL, due mostly to the fluctuating price of copper (Ivanhoe Mines Limited 2005).

Recently, however, Ivanhoe Mines reported difficulties with the Monywa Copper Project. There are at least four reasons for this. First, the company’s insurance broker and offshore bank terminated its relationship with MICCL (Ivanhoe Mines Limited 2006c). Ivanhoe Mines claims this termination was a result of sanctions imposed on

Burma by the US government, but it would not have been sanctions *per se* preventing the business relationship from continuing. Regardless, this caused the mine site to close down for March 2006 because of an inability to cover basic operating costs and related insurance risks. Second, the company reported a steady decrease in mine production during 2005 and 2006, due in part to a drop in copper grades at the mine site (Ivanhoe Mines Limited 2006c). Second-quarter results released by the company in August 2006 reflected these problems. While production restarted on 2 April 2006, the company faced a loss of 44 per cent compared with the same quarter in 2005 (Ivanhoe Mines Limited 2006d).

Third, making the situation even more difficult for Ivanhoe Mines, the military regime has refused to issue import permits for much needed mining equipment (Ivanhoe Mines Limited 2006a). Without this equipment, the S&K mine cannot be developed, posing a significant obstacle to current and future profitability. Ivanhoe Mines has acknowledged that this 'could result in significant decreases in copper production for 2006 and subsequent years' (Ivanhoe Mines Limited 2006a). Fourth, since 2005, Ivanhoe Mines has been engaged in a dispute with Burma's tax authorities, which imposed an 8 per cent tax on all export sales (Ivanhoe Mines Limited 2006a). This tax was imposed retroactively from 1 January 2003 and is understandably opposed by the company, which has filed a complaint. Ivanhoe Mines estimates this will cost it approximately US\$11 million (Ivanhoe Mines Limited 2006a).

This is all particularly difficult for the company considering that the price of copper on the London Metals Exchange recently skyrocketed to nearly double the price it was in December 2005 (UNIRIN 2006). Furthermore, the difficult negotiations recently undertaken with the government do not bode well for the expansion plans or the sale of its interests to the Korean consortium. An official deal to be signed with the Koreans in July 2006 had not materialised, leading some to speculate that the investment environment had soured considerably (McClean 2006).

Artisanal mining at Monywa

Artisanal mining or *dohtar* drives a cycle of poverty and environmental degradation, and in Burma there is, to date, no effective environmental governance to address this widespread practice. At Monywa, individuals enter into artisanal mining because of poverty and sometimes because pre-existing environmental degradation rendered subsistence farming difficult or impossible. In turn, the practice perpetuates the poverty and environmental degradation that ushered them to artisanal mining in the first place.

Local people at Monywa have complained that they can no longer farm their land due to high levels of sulphuric acid in the soil,⁷ pushing some to artisanal mining, which only adds to the degradation that adversely impacted them in the first place.⁸ This phenomenon has created a local economic shift—which has occurred elsewhere in Burma—from a subsistence-based to a cash-based economy. This shift increases inflation, which increases the difficulty of purchasing goods for survival, such as cooking oil, fuel, clean water, medicine and so on (EarthRights International 2004). Informal artisanal mining is not economically sustainable, requiring no capital inputs and thus no added return on inputs; it is a vehicle for the perpetuation of poverty.

Artisanal mining has been enabled by the larger Monywa Copper Project operation. It is fairly simple and highly toxic, involving the manual extraction of small amounts of copper from the tailings waste of the Monywa mine site. In some cases, the waste is carried manually from the larger mine site or its immediate vicinity and placed in small pools of water. Sulphur is added, then the mixture is boiled. Next, tin milk cans are added, causing a chemical reaction, and the resulting acid slowly dissolves the cans. The process takes approximately 10 days and, when complete, leaves copper ore in a highly toxic pool of water. The copper is removed by hand with little or no safety precautions, and sold to local and Chinese businessmen. There is no clean-up. Since 2005, EarthRights International has recorded the deaths of at least three artisanal miners on the property of the Monywa Copper Project. To

date, there has been no real response and no proposed environmental governance plan to address the widespread artisanal mining, despite the fact that the practice occurs in plain view and in the immediate vicinity of the MICCL operation.

The ability of miners and locals to effect change or voice concerns about practices at Monywa is limited. The security situation at the copper project is unique but, in effect, no different than the standard practices in Burma. Ivanhoe Mines has claimed publicly that it did not make arrangements to have the mine site at Monywa secured by the *Tatmadaw* (military).⁹ One local miner told EarthRights International that there were ‘military personnel to maintain security for the mine site. But they do not wear uniforms so it is difficult to tell who they are around the mine site.’ Some miners are unsurprisingly hesitant to speak honestly within the limited privacy of their own living quarters: ‘I don’t want to complain too much about the government because the walls in my room are thin and many people living next to me can hear me right now. I do not want them to report my words to the government’.¹⁰

The precautionary principle and a shift in power

Highlighting weaknesses and problems with environmental governance and mining in Burma begs questions of how the situation could improve. What would fair and effective environmental governance of mining in Burma look like? How could advances be achieved? These questions are immense in scope and beyond the limits of this chapter, but it is worth highlighting a few key areas relevant to a positive future of environmental governance of mining in Burma.

This section discusses the ‘precautionary principle’ and the emerging requirements of companies for responsible mining, highlighting specific areas in need of improvement at Monywa. This is followed by a section on local participation in environmental governance at Monywa, which highlights Burma’s unique tradition of relying on ‘respected insiders’ for conflict resolution.

The precautionary principle is a well-recognised principle of international law codified in the Rio Declaration (UNEP 1992) and other international environmental instruments.¹¹ The principle requires states to take proactive precautionary measures ‘where there are threats of serious or irreversible [environmental] damage’ (Principle 15, Rio Declaration on Environment and Development). This applies likewise to private corporate actors, and some such measures are expected to be undertaken by an objective third party, for example, as with an EIA.

Scholars have noted that the real gravity of the precautionary principle is that it has shifted the burden of proof from local communities and NGOs, for example, to companies and governments undertaking the practice in question. In effect, it is what Robert Durant has referred to as ‘the obverse of traditional regulatory approaches’, traditional approaches that naively assumed safety until proven harmful (Durant and Boodphetcharat 2004:105). There is a certain corporate distaste for this shift. That is, mining companies do not appreciate the added responsibility that comes with the burden of proof regarding environmental safety, and generally they are quite forthright about that sentiment, as it is an expensive burden indeed.

Despite that, this shift has emerged simultaneously with what EarthRights International refers to as earth rights—namely, environmental and human rights. In short, the shift reflects the nascent, emerging environmental duties of corporate actors, while simultaneously reflecting the emerging conceptualisations of environmental and human rights (Center for Economic and Social Rights 1994), legal mechanisms to uphold those rights, and more frequent and widespread empowerment of local communities. From a broad perspective, the precautionary principle represents a somewhat revolutionary shift in power, albeit a revolution unrealised and still in motion. Alas, in this context, many local communities truly have nothing to lose.

At Monywa, the emergence of fair and effective environmental governance would reflect that shift in power in numerous ways. It would involve objective third-party impact assessments and environmental monitoring, as well as measures aimed to enfranchise the local

population in the process of environmental governance. Ideally, the mine would be opened up to at least minimal public scrutiny, including transparency in payments. Regarding the latter, the Extractive Industries Transparency Initiative (EITI) calls on governments to disclose how payments from extractive industries are distributed for national and regional priorities, and they are becoming increasingly successful in achieving greater financial transparency, and thus better governance (see www.eitransparency.org). There has been no reporting of the amounts paid to the SPDC or where that money has been spent.

Fair and effective environmental governance will also include continuing community environmental education initiatives, and culturally relevant measures for environmental conflict resolution, including culturally relevant interpretations of citizen-based and group-based participatory processes (see below). This will provide mechanisms for corporate accountability, it will empower local actors and ideally offer redress when appropriate.

Ivanhoe Mines Limited¹² and MICCL should also go beyond their current environmental and social reporting practices, which can be found on Ivanhoe Mines' web site, where the most recent available health and environmental report is from 2004 (Ivanhoe Mines Limited 2004a). The glaring inadequacy of Ivanhoe Mines' current reporting on achieving safety, health and environmental goals at Monywa is that it is completely unverifiable. The company should therefore participate in reporting through specific and measurable indicators that can be verified independently, as recommended by the Global Reporting Initiative's *Sustainability Reporting Guidelines* (GRI 2002). As mentioned previously, ISO 14001, which Ivanhoe employs, is an inadequate system for environmental monitoring.

It is widely regarded that artisanal and small-scale mining (ASM) holds considerable potential for reducing poverty in countries such as Burma (see 'Artisanal Mining for Sustainable Livelihoods' 1999). There is a certain corporate distaste for this, demonstrated by Ivanhoe Mines' repeatedly flat references to artisanal miners as 'illegal miners' and the company's failure to facilitate responsible artisanal mining in the area.

A clear environmental governance plan should be developed to engage Monywa's artisanal mining community in a way that will benefit that community—a plan that involves more than simply clearing out the artisanal miners.

Conclusion: local participation and respected insiders

If there is one certainty of fair and effective local participation in environmental governance, it is that there is no universal monolithic system of rules, regulations and processes simply awaiting implementation and practice. Just as disparate copper-mining operations can differ vastly, so too do local potentialities for environmental governance participation (Medowcroft 2004; and, for a contrasting account, Leone and Giannini 2005). There are, however, two consistent features of effective local participation in environmental governance: it must involve local people and have, to some degree, cooperation and support from relevant institutions and stakeholders. That is, it's a multi-stakeholder affair, and moreover one that presupposes the recognition of the right to organise.

Environmental conflict resolution is a tool for recourse and 'for building common purpose' between stakeholders (O'Leary et al. 2004:324). Scholars note the importance of understanding the many varieties of environmental conflict resolution interventions 'as complex systems embedded in even larger complex systems' (O'Leary et al. 2004:324). In other words, the wider spatial, temporal, economic, social, cultural and political contexts of the specific environmental conflict resolution are relevant for building common purpose between stakeholders. In Burma, conflict resolution is undertaken quite differently from dominant Western models. EarthRights International conducted research for five years on traditional methods of conflict resolution and its relationship to resource-based conflict at the local level in Burma. That research resulted in *Traditions of Conflict Resolution in Burma* (Leone and Giannini 2005), which argues that conflict resolution in Burma is based more on interpersonal respect

and a tradition of local 'respected insiders' than on assumptions of the objectivity of 'third-party outsiders'. Whereas official administrative and court-based proceedings provide a level of comfort and trust to the Western sensibility, these are the very institutions and processes that might cause local villagers in Burma to feel uncomfortable and distrustful. The report contends that 'the prospects for peace and earth rights protection' hinge on this respected insider model, adding that such respected insider 'practices may serve as models for community-based natural resource management' (Leone and Giannini 2005:1–2). Effective local participation in environmental governance in Burma will necessarily involve a unique tradition-based paradigm developed by local Burmese themselves.

While third-party outsiders are less likely to gain genuine traction in communities in Burma, this is not meant to undermine the need for objective third-party EIAs and environmental monitoring at large-scale mining operations such as Monywa. Rather, it simply indicates the unique needs that must be considered for fair and effective local participation in environmental governance of mining in Burma. While administrative and judicial proceedings can make the average Burmese villager uncomfortable, the same cannot be said for the rule of law and justice (which are largely absent in Burma), which will be accepted wholly by the average Burmese, particularly by those whose human rights have been violated.

As Tun Myint (2003) has suggested, the successes and failures of environmental governance are determined largely by how natural resources are used and managed at the local level. This chapter approached a genuine inquiry into the state of environmental governance of mining in Burma motivated by a genuine concern for the natural environment and the people of Burma who depend on it. It interpreted current environmental governance of mining natural resources in Burma as largely inadequate, weak and ostensibly favourable to corporate interests over the public interest and the natural environment. Burma's economic, social, cultural, political and environmental future depends on changing this.

Notes

- 1 In 1962, separate companies were created to handle specific minerals, including investment in those minerals and concessions granted. The companies are Number One Myanmar Enterprise (ME1), Number Two Myanmar Enterprise (ME2), Number Three Myanmar Enterprise (ME3), Myanmar Gems Enterprise (MGE), Myanmar Pearl Enterprise (MPE) and Myanmar Salt and Marine Chemical Enterprise. See <http://mining.com.mn/Mines/pltim.asp>
- 2 Though concessions are awarded expressly by the government, Northern Star, a Chinese mining company, has control of all concessions granted in Kachin State, reflecting its close relationship with the SPDC and a general shift in power over concessions.
- 3 See Note 2.
- 4 EarthRights International interview No.038, on file with author.
- 5 EarthRights International interview No.038, on file with author.
- 6 Daewoo International is the largest stakeholder in the Shwe gas project, which involves the exploration and development of vast natural gas deposits worth upwards of US\$80 billion, located off the Arakan coast in western Myanmar. This mega-development project will adversely affect more people than any other project in Myanmar's history, and will be the SPDC's largest source of revenue, generating up to US\$17 billion in the course of 30 years, according to *Supply and Command*, a recent report by the Shwe Gas Movement. Available from <http://shwe.org>
- 7 EarthRights International interviews, on file with author.
- 8 EarthRights International interviews, on file with author
- 9 Letter available at <http://www.amnesty.ca>
- 10 EarthRights International interview No.038, on file with author.
- 11 See, for example, the European Union's Registration, Evaluation, and Authorisation of Chemicals (2003), the Cartagena Protocol on Biosafety (2003) and the Stockholm Convention on Persistent Organic Pollutants (2004). The principle specific to environmental legislation is also appearing in national legislation in, for example, France and the United States (San Francisco, CA) cites the precautionary principle in Article one of the city's 2003 environmental legislation. Thanks to Carl Byers for clarification on this point.
- 12 On March 30, 2007 Ivanhoe Mines reported that due to requirements of its partnership with Rio Tinto in Mongolia, the company transferred all of its assets in Burma to an independent trust. This means the company does not have control over the sale of the assets, but until the assets are sold the company continues to collect revenues and continues to operate the mine in partnership with the Ministry of Mines and the military regime in Burma.

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