

Introduction to the Legal Framework for Mining in Canada

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Introduction

This report is a response to requests from community members, activists and academics in Canada and abroad for information about how Canadian mining laws function. The document provides a non-technical overview of Canadian mining laws, selected ‘lessons learned’ and the outcomes of mining code reform projects. In order to keep the document accessible to a wide audience we have kept it brief but provide links to sources for more detailed information. It is intended to compliment more technical reviews that already exist.¹ We also provide a critical perspective that is lacking in other overviews provided for the industry and our hope is that this information will empower readers with a realistic understanding of the strengths and weaknesses of Canadian mining law and assist the efforts to improve the social and environmental standards of mining laws in Canada and internationally.

The document is organized around the following key questions:

1. How is mining regulated in Canada and who ‘owns’ the resources?
2. How do mining companies gain access to land in Canada?
3. Are there protected areas where mining cannot occur?
4. How are communities and indigenous peoples consulted about mineral developments?
5. How are specific mining projects reviewed before approval?
6. What legislation exists to protect the environment during exploration and mining?
7. How are mining profits distributed between corporations, national/regional governments, indigenous nations and local communities?
8. What happens at the end of a mine operation? Are areas restored?

The document may be updated from time to time to address changes in the legal and policy framework governing mining and to expand the coverage to other topics. Please contact the authors to provide any feedback or recommendations for changes or further issues that should be addressed.

1. How is mining regulated in Canada, and who 'owns' the resources?

In Canada the government or Crown assumes ownership of the majority of mineral resources. This absolute ownership is, however, contested by many indigenous groups who have never ceded their territories and others who have entered treaties yet the question of subsurface ownership remains disputed. Private interests and indigenous peoples own a relatively small amount of the mineral resources in Canada.

Canada has both federal territories and provinces with relatively greater autonomy. In the provinces mining is a provincial jurisdiction according to Canada's founding constitution. In the territories it has been a federal jurisdiction but is in the process of being devolved to territorial governments. In the Yukon this process is completed while in the other two territories, Nunavut and the Northwest Territories (NWT), the federal department of Aboriginal Affairs and Northern Development currently remains the authority. The differences between Canada's Territories is historically and politically specific and unique to each region.

Each of the ten provinces and the Yukon have their own mining acts as well as other laws and policies that apply to the mining sector. Federally the NWT and Nunavut Mining Regulations apply only in those territories while federal laws such as the Fisheries Act, Environmental Assessment Act and Explosives Act apply to the mining sector across the country.

In the majority of Canada, private ownership of land does not include ownership of subsurface rights. This means that private property can be staked and the mineral rights granted to an exploration company. The total area of private land in Canada is relatively small at around 11%² of the country's surface area and only a small portion of this private land is in areas of active mineral exploration (see question 2).

In Canada, where indigenous groups have negotiated land claim agreements, surface and subsurface lands are treated separately. In several cases indigenous groups have negotiated surface rights to land where the subsurface is still owned by the Crown. In other cases, even within the same land claim, indigenous peoples may obtain surface and subsurface title. The Nunavut Land Claim Agreement³ demonstrates this. While the Inuit obtained surface rights to roughly 20% of the territory of Nunavut they obtained full ownership including mineral rights to only 2% the territory. Another example is the Tli'Cho First Nation in the Northwest Territories that settled a land claim with Canada in 2003.⁴ In the Tli'Cho territory the Tli'Cho First Nation owns the majority of sub-surface rights.

A number of indigenous nations and organizations have established their own mining codes and policies (see question 4). Where they have recognized title over surface and sub-surface, and or self-government agreements the authority of these policies is relatively clear. In other cases, where title or self government has not been negotiated with the state, indigenous people are having to fight to have their own protocols recognized and respected by provincial, federal and territorial governments and by industry.

2. How do mining companies gain access to land in Canada?

Companies gain access to land in Canada by 'staking a claim' to sub-surface mineral rights. Historically this involved placing physical markers into the ground to literally 'stake' a claim to the minerals in the land. After a claim is staked, companies have to record their mineral claim with the relevant provincial or territorial agency.

In the provinces of British Columbia, Newfoundland and Labrador, Ontario and Quebec, physical claim staking has been changed to an online map staking process. This makes the physical act of staking a claim with a post on the land unnecessary. Online staking has raised concerns about the loss of employment generated by physical staking activities, the ease of acquiring large areas of claims and the difficulty it creates for indigenous peoples to monitor staking activity. On the positive side online staking eliminates some potential negative impacts of sending people and equipment onto the land simply to claim the mineral rights.⁵

After the claim is recorded, work must be done on the claim in order to keep it in ‘good standing’ and for the claim to remain active. Without any work done on the claim, mineral claims expire within a particular period of time, typically two years.

Though there are areas where mineral rights cannot be staked (explained further in Question 3) large expanses of Canada are open to mining companies and prospectors to claim under what is referred to as the ‘free-entry’ system. Free-entry provides access to a large area of land, permission to access these lands for prospecting, ability to claim land with no consultation, and with a claim comes the exclusive rights to conduct exploration work and to extract and sell minerals found within the claim. Traditionally there has been very little to stand in the way of mining companies exerting their rights to explore and mine once a claim is registered.

There is nothing within the conventional free-entry system that ensures the rights of indigenous peoples to free prior informed consent (see question 4), or of municipalities and property owners to protect their interests.⁶ The establishment of mineral claims can also create barriers to alternate land use decisions including indigenous land claims and the establishment of protected areas (see also question 3). The free entry system is currently being challenged across Canada.

In Ontario the free-entry principle has been modified such that mining companies are legally required to consult with indigenous peoples prior to exploration activities. This change to Ontario’s mining code was part of a larger overhaul of the Mining Act in 2009 due to pressure placed on the provincial government by indigenous groups and civil society organizations. The Ontario Mining Act “modernization” process also included a restriction of future staking on all private lands in the most populated part of the province and an option for private landowners to request their property be “withdrawn” from the lands available for staking.⁷ In Quebec proposed legislation designates urbanized areas and vacation areas as off limits to exploration⁸. Municipalities and citizens groups have argued that this reform does not go far enough because it still gives precedence to mining activities over any other land use in rural areas (including agriculture).

Several of the land claims in northern Canada have established processes for review of exploration and/or mining projects that provide for greater input of indigenous peoples into the decision making about mineral development activities. These include, for example, Nunatsiavut, James Bay and Northern Quebec Agreement and the Nunavut Land Claim Agreement (also see question 5 for more on review boards).

3. Are there areas where mining is not allowed to occur?

Canada has a number of protected areas that are designated by the federal, provincial and territorial governments for the conservation of natural ecosystems and that are off-limits to mineral exploration and mining.

Canada has a system of National Parks run by the federal government with the goal of protecting representative areas of national significance in each of 39 natural regions across the country. These parks are created under the authority of the National Parks Act.⁹ The system currently covers a land area of almost 300,000 km² or about 2.25% of Canada.¹⁰ Claim staking or any mineral exploration activity and mining are not permitted in National Parks.

The federal government has two other types of protected areas, National Wildlife Areas and Migratory Bird Sanctuaries. These areas are managed for the conservation of specific wildlife species and do not outright prevent mining but require special authorization for it to occur.

Each of the provinces and territories have also created protected areas under their own jurisdiction – most of which do not permit mineral exploration or extraction. These protected area networks vary in the amount of area covered.

Together provincial and federal protected areas make up about 9.4% of Canada’s land area with the large majority (94%) of protected areas not being open to mining.¹¹

In cases where mining is permitted in a protected area it is usually due to the fact that mineral claims were staked prior to the establishment of the protected area. In a number of cases across Canada, creation and expansion of protected areas has been complicated by the existence of mineral rights that were granted before designation of the area as protected. Examples of this challenge include Tombstone Park in the Yukon¹², Nahanni National Park in NWT¹³, the Rivière George Protected area in Quebec and Wolf Lake Forest Reserve in Ontario¹⁴.

The provinces of Nova Scotia and New Brunswick have legislation to protect watersheds to ensure the maintenance of water supplies. Mining is restricted or prohibited in these watersheds, which in New Brunswick are designated under the Clean Water Act¹⁵ and in Nova Scotia under the Environmental Act.¹⁶

Canada also has 16 Biosphere Reserves recognised within the international UNESCO network. The designation of a Biosphere Reserve does not prevent mineral exploration or mine development. Biosphere reserves include core protected areas and surrounding lands that are to be managed as buffer or transition zones.¹⁷ In Canada most of the core conservation areas in Biosphere Reserves are provincial and national parks so these areas are not open to mining but other areas of the reserve may be. Exploration activity is currently occurring within at least two Canadian Biosphere Reserves (Clayoquot Sound B.C. and Manicouagan-Uapishka, QC).

4. How are communities and indigenous peoples consulted about mineral developments, and where is consent recognized?

Section 35 of the Canadian Constitution Act (1982) recognizes and affirms existing “Aboriginal and treaty rights” and this section of the Constitution is frequently called on to defend indigenous rights. Important court challenges have been won in support of indigenous rights and it is now firmly entrenched in the case law that governments have a duty to “consult and accommodate” indigenous peoples whenever they take a decision (like recording a mineral claim, permitting mineral exploration or granting a mining lease) that could infringe on their rights. Nevertheless in much of Canada, mineral claims are staked and exploration activities occur with little or no consultation. Development of an actual mine will almost always include consultation but the ability of an indigenous group to substantially alter a mining project or to say no to a mining project is not well respected in most areas of the country.

Free Prior Informed Consent (FPIC) is the right to participate in decision making and the right to say ‘yes’ or ‘no’ to development decisions and activities affecting indigenous peoples lands and resources. FPIC is recognized by the United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP 2007), which Canada endorsed in 2010.¹⁸

Under FPIC, consent must be given without coercion or manipulation and before plans have been approved by governments. To be “informed” consent indigenous people must receive adequate information in order to fully understand the positive and negative consequences of pending decisions such as proposed mining developments. Communities must be able to make decisions following their own processes and traditions. Under FPIC indigenous property rights should be secured in domestic law and consensual and transparent consultation and decision-making processes should be used.¹⁹

Though Canada has endorsed the United Nations Declaration on the Rights of Indigenous Peoples, neither the federal government nor the provincial governments have established clear mechanisms to ensure that the obligations within the Declaration are being met. Industry and the provincial, territorial and federal governments continue to emphasize the more vague concepts of consultation and accommodation over consent. This does not ensure communities the right to say ‘yes’ or ‘no’ to development decisions and activities in their territory.²⁰

The only substantial areas of Canada where consent is required unambiguously are areas covered under some Land Claim Agreements where indigenous land title is recognized. These are specific to each of the negotiated and signed agreements. For example in Nunatsiavut²¹ Inuit title to lands and mineral resources has been recognised, providing the Inuit with decision making authority over these lands. The Nunatsiavut Inuit have developed their own mineral exploration standards that include consent for all exploration activities on their lands.²²

In the Northwest Territories mining companies are encouraged to inform indigenous peoples in areas that land claims have been settled in order to stake claims. This is different from FPIC, in that despite land claim agreements indigenous consent is not always sought.

As much of Canada is not covered by land claim agreements and lacks clear regulations for adequate consultation, many indigenous groups have developed their own protocols for engaging with the mining industry and protecting their lands. Examples include the Taku River Tlingit First Nation²³ and the Kitchenuhmaykoosib Inninuwug.²⁴ These are not officially recognised by provincial or federal governments, though a court case has provided support for their relevance in consultation processes.

Established legal requirements to consult, accommodate Indigenous peoples have led many companies to enter into agreements with Indigenous peoples during the exploration and development phases. Natural Resources Canada has compiled a listing of these agreements but not conducted a serious review of their contents, successes or failures.²⁵

Exploration agreements may include communication and consultation protocols; capacity funding to engage with a company and conduct independent review of a project; support for training community members to increase their employability in the project; commitments to employee community members; and financial contributions to the community. Pitfalls in such agreements have included loose language around financial commitments, requirements for no interference in the project by all members of the community, the implicit assumption or promotion of exploration agreements as endorsing later phases of the project and the creation of conflict, division and suspicion within communities when decision making processes around the agreements are not transparent.

For agreements made to address accommodation for the operating phase of mining projects see Question 7.

5. How are specific projects reviewed before approval?

Most new mines in Canada will be subject to some degree of environmental assessment (EA) before going into operation. In some regions, particularly the northern territories (Yukon, NWT and Nunavut), exploration activities may also trigger an assessment if an initial screening finds concerns about the potential impacts of the activities.

In the provinces, the recently re-written Canadian Environmental Assessment Act (CEAA 2012)²⁶ applies to most major mining projects, though the new act provides opportunities for provincial review processes to substitute for the federal process.

In the Yukon, NWT and Nunavut federal environmental assessments have by-in large been replaced by regional review process that were developed as part of land claim processes with the indigenous peoples of each territory. In Nunavut there is the Nunavut Impact Review Board, though CEAA may apply in to some projects in Nunavut where there are trans-boundary impacts or “national interests”, in which case a joint process is undertaken. In the NWT, the Mackenzie Valley Review Board is responsible for assessments in most of the territory but CEAA applies within the Inuvialuit (Inuit) Territory and as in Nunavut, if there are trans-boundary issues or national interests. In the Yukon the CEAA process has been replaced with the Yukon Environmental Assessment Board.

A CEAA 2012 assessment requires the proponent to explain potential environmental effects related to narrow areas of federal jurisdiction such as Aboriginal peoples, inter-provincial impacts, fisheries and migratory birds. Projects will undergo an initial screening after which they may or may not be subject of a full review. Projects may be rejected if the review finds a proposed project will have significant negative effects, though a project could be approved if the effects were found to be “justifiable under the circumstances”.

Project proponents are responsible for conducting and compiling the technical research and consultation for the environmental impact statement (EIS) that is made available for review and comment. In some cases an independent review panel may be created to review the EIS and conduct hearings on the project.²⁷ A review panel

assessment is generally considered to be more rigorous and provide a greater degree of public participation. The criteria for a project being reviewed by a panel are the potential for significant environmental effects and / or a high degree of public concern.

One of the purposes of CEAA 2012 is to promote sustainable development, however there is a poor track record of including serious analysis of the sustainability of projects in most assessments. Relatively rigorous sustainability assessments were applied to the Voisey's Bay Nickel, Kemess North Gold-Copper, Whites Point Basalt, and MacKenzie Gas Projects.²⁸ Whites Point, and Kemess North, along with a recent decision to reject the proposed Prosperity Gold-Copper mine are the few occasions where a federal EA has rejected a project.

An important aspect of CEAA has been the allocation of participant funding and indigenous funding that helps groups with an interest in the project to participate effectively in the review process. The new process under CEAA 2012 includes participant funding but those following the changes in law and practice are concerned about very constrained timelines, restrictions on who may participate and decreasing amounts of funding allocated for public and Aboriginal participation.²⁹

Provincial EA processes vary across the country. All the provinces except Ontario automatically review major mining projects (but not exploration activities) while Quebec has a threshold of 7,000 tonnes per day for a provincial EA. Provincial processes have been criticized for their susceptibility to political influence, lack of transparency, lack of respect for indigenous rights, and poor public participation processes. Criticisms of British Columbia's review of the proposed Prosperity Project provide an example of all these concerns.³⁰

Though often fraught with frustration, indigenous peoples are usually active participants in federal, territorial and provincial EA processes. These reviews represent an important opportunity for them to understand and document potential impacts on their rights and Canadian case law requires good-faith participation of indigenous people in consultation processes like EAs. On their own, however, EAs are not adequate to address and resolve issues of indigenous rights and title. This is especially the case, as indigenous peoples mainly participate in those processes as stakeholders as opposed to as "rights" holders.

In addition to approval of the environmental assessment, mining projects must obtain a number of separate specific authorizations for use of lands and water, camp construction, mine closure (see question 8) etc. Such authorizations may result in minor changes to a project but seldom result in any profound changes and are even less likely than an EA to stop a project from proceeding.

6. What does the legislation do to protect the environment during exploration and mining?

Mining can have a range of environmental impacts from the exploration phase through to the development and operation of a mine.³¹ These impacts may be localised or, as in the case of water pollution, quite extensive.

Most provincial, Yukon and Federal Mining Acts do relatively little to protect the environment during exploration and operation; instead environmental controls typically come from other laws such as environmental protection, fish and water-related laws. Some of these laws have federal and provincial versions, though they are often harmonised to reflect similar standards.

In theory the provisions of most environmental protection laws apply to mineral exploration but because exploration activities typically occur in remote regions there is little government oversight and enforcement is very difficult. In Quebec a regulation exempts mineral exploration from important parts of the Environmental Quality Act.³²

British Columbia has a *Health, Safety and Reclamation Code*³³ that applies environmental controls to exploration and mining including provisions for protection of soil and water and the rehabilitation of sites. While generally

positive and comprehensive the standards require risks to be “minimized” rather than setting clear, measurable standards.

In Ontario the “modernized” Mining Act that was passed in 2009 includes provisions for issuing permits for exploration and requiring remediation of exploration sites, but the enabling regulations have still not been written.

As referenced above, the Nunatsiavut (Inuit of Labrador) Government has developed a comprehensive exploration regulation.³⁴ In addition to their provisions for consent, the regulation has provisions for baseline data collection, protection of wildlife and site clean up.

The Prospectors and Developers Association of Canada, an industry organization has developed “E3 Plus” a set of standards and best practices for exploration.³⁵ While these standards represent a reasonable guide they are entirely voluntary in application and are often not respected in the field.

One of the most important federal environmental laws that relates to mining activities is also one of Canada’s oldest - the Fisheries Act.³⁶ Along with the Environmental Assessment Act, the Fisheries Act has undergone significant changes of great concern to Indigenous peoples, environmental advocates, research scientists and public-interest law organizations. The Fisheries Act still prevents putting substances harmful to fish into fish-bearing waters but habitat protections are limited to commercial, recreational and Aboriginal fisheries and to more drastic damages. The changes also increase what was already a substantial discretion for the government to get around protections by passing regulations.

The mining industry has just such a regulation; the Metal Mining Effluent Regulations (MMER) were promulgated in 2002 and allow the disposal of mine effluents into surface water so long as the standards³⁷ for 9 parameters are met. The law also requires toxicity testing of mine effluent and biological monitoring of effects downstream of the mine. This monitoring has shown that, despite relatively consistent compliance with the regulations, mine effluents are having negative effects on down-stream aquatic communities. The MMER also allow natural fish-bearing water bodies to be re-classified as Tailings Impoundment Areas, so they can be used to dispose mine wastes.³⁸

The Canadian Environmental Protection Act (CEPA) includes provisions for the safe transport, storage and disposal of fuels and toxic substances.³⁹ It also includes reporting requirements for emission of toxic substances, and mine sites are required to submit data on the toxics in waste rock, tailings, effluents and air emissions. These data are publicly available in the National Pollutant Release Inventory. For many years the mining industry was exempt from reporting the toxic substances in waste rock and tailings. MiningWatch Canada successfully fought the exemption in Federal Court and the data is now being made available. In a 2011 review of enforcement of the CEPA the Commissioner on the Environment and Sustainable Development found considerable fault with Environment Canada’s enforcement of the act.⁴⁰

The provinces and territories each have different regulations for the discharge of mine effluents, management of solid waste, air emissions and noise. Monitoring and reporting on compliance is largely dependent on the companies themselves. In Ontario, half of the 20 operating metal mines reported exceedences in effluent requirements in 2010. Many of these were relatively minor but several mines had repeated and serious issues including effluent that was acutely lethal to trout and the zooplankton *Daphnia magna*. Most of the exceedences were not penalized with charges or fines but only required operators to develop action plans to improve the situation.⁴¹

7. How are mining profits distributed between corporations, national / regional governments, indigenous nations and local communities?

Mining royalties and mineral taxes are levied on mine production by provincial, territorial or federal governments whichever has jurisdiction. Each province, the Yukon, and the Northwest Territories and Nunavut have distinct laws that govern the royalty rate. Resource royalties are by in large dependent on 'defined mining profits' rather than a gross value of production.⁴²

As of 2010 in Nunavut and the Northwest Territories royalties are applied on a sliding scale. If the value of the mine's output is up to 5 million dollars, then the royalty rate is 5%. With an output of 5-10 million dollars the royalty rate increases to 6%, with an increase of 1% percent per each additional million dollars of output. This increases to a maximum of 14%.⁴³ Other jurisdictions apply royalties from 5% (Ontario Mining Tax on remote mines) to 17% (Manitoba Mining Tax).⁴⁴ Because royalties are based on profits, and companies are able to apply considerable deductions in the calculation of profits. The value of mineral production that is retained in royalties is much lower than the tax rates suggest and averages less than 4 % of the value of production.⁴⁵

In addition to royalties that are meant to compensate for the taking of a public resource, mining companies must pay provincial corporate income taxes that range from 8.25 % to 15% and federal income tax of 18%. As with royalties, the ability to write of significant costs of production and exploration means that mining companies can substantially reduce the taxes they pay and may avoid paying any income tax at all.⁴⁶

Malcolm Taggart examined the average annual mining fees, royalties, and administration costs in Canada's territorial north between 1992-97 for the Canadian Arctic Resource Committee. He concluded that during that period the fees and royalties levied on the mineral industry did not cover the costs of administering, subsidizing, and promoting the industry.⁴⁷ Taggart also suggests that territorial governments gain the most in terms of resource revenues, due to the amounts of income tax levied from personal income tax on mine workers wages. Similar findings came from a joint study by MiningWatch and Pembina Institute published in 2002.⁴⁸

The signing of some land claim agreements has led to revenue sharing for mining projects with Indigenous peoples that are signatories of the agreement. The Nunavut Land Claim Agreement (NLCA) requires the federal government to pay a percentage of the royalties received (50% of the first \$2,000,000 and 5% of any additional royalty) into a trust for the Inuit and gives the Inuit the right to directly receive the full royalty payments on lands where they own the mineral rights. The NLCA also requires signing of an "Inuit Impact Benefit Agreement" (IIBA) between one of three regional Inuit organizations and a mining company. The IIBA will detail other potential benefits to be provided to the Inuit in recognition of and as compensation for potential impacts of a project. Employment, training, business opportunities, environmental protection and monitoring, protection of cultural sites and practices, housing, and health and safety may be considered within an IIBA.

Though Nunavut is one of the few jurisdictions in Canada where an Impact Benefit Agreement (IBA) is legally required, there are many examples where such agreements have been signed by companies as a means of accommodating impacts on indigenous peoples and of gaining and demonstrating the social acceptability of a project (even though the duty to consult technically lies with provincial, territorial and federal governments). The IBA Community Toolkit is an excellent resource developed by the Gordon Foundation that explains some of the complexities of negotiating IBAs.⁴⁹

Because most IBAs are negotiated outside of legal requirements revenue sharing and other benefits are left to community and company negotiators to agree on. They may include payment of fixed amounts, a percentage of profits, equity in the company or a combination of these. In addition to monetary payments IBAs typically include provisions for training and hiring targets for members of the signatory community. An emerging best practice in IBAs is the inclusion of provisions for robust and independent monitoring of the companies operations, and mechanisms for ongoing dialogue and dispute resolution.

In British Columbia (BC), the provincial government has signed agreements with two indigenous communities to share a percentage of the mining royalty of projects within their territories.⁵⁰ Details have not been released but one

source reports that one of the agreements is for 1/3 of the profit-based royalty.⁵¹ The BC government has stated a preference for negotiating more agreements mine by mine rather than addressing fundamental issues of indigenous rights and title.⁵²

8. What happens at the end of a mine operation? Are areas restored?

The legacy of Canada's long mining history includes destroyed landscapes, polluted waterways and physical hazards left in the wake of mining operations. Fortunately, since the 1980s regulations have been put in place across Canada to require mining companies to rehabilitate mine sites once they have finished with them. Concerns remain, however, about whether the laws are truly adequate to deal with worst-case scenarios, the extent to which mine sites can be rehabilitated and the need for long-term or "perpetual" care of closed mining sites.

The key aspects of the preventative regulations are requirements for an operator to develop a closure plan and provide financial assurances so that if it goes bankrupt or abandons the site, the government has access to funds to pay for the necessary rehabilitation. The specifics of laws and policies requiring closure plans and financial assurances vary across Canada and are reviewed extensively in a 2006 report by Joseph Castrilli for the National Orphaned and Abandoned Mining Initiative.⁵³

One area of concern is the fact that amounts and types of assurances that companies provide are not always disclosed to public scrutiny. Reviews in the US have repeatedly shown that assurances posted by operators for mine rehabilitation are below independently assessed costs.⁵⁴ The Mount Nansen Gold Mine in the Yukon, Cantung Mine in NWT and Jericho Diamond Mine in Nunavut are recent Canadian examples of mines that have gone bankrupt without sufficient financial assurances.⁵⁵

Typically, financial assurances are a bond or letter of credit though some jurisdictions, such as Ontario, also allow "self assurance". The latter approach assumes that if a company has a good enough credit rating they can be relied on to make the necessary funds available when it comes time to rehabilitate a site. A credit rating is not, however a sensitive indicator of a company's solvency and self assurance does nothing to protect the public from a company walking away from a site.

A mine closure plan and its successful implementation will not return a mine site to a pre-disturbance state and the extent of post mining changes to the landscape varies considerably depending on the mine. For all mines, rehabilitation will include removal buildings and equipment and securing any potential physical hazards such as open shafts, and minimizing ongoing environmental risks. Ontario has one of the more detailed and prescriptive mine rehabilitation standards in Canada.⁵⁶

Smaller underground mines that put wastes into the mined out areas (backfilling) may leave a relatively small physical footprint. Larger underground and open pit mines, however, will physically alter the landscape in dramatic ways. Rehabilitation will entail sculpting waste piles to increase stability, possibly capping them with engineered covers and re-vegetating them. Native species are commonly used for revegetation but the original vegetation community is rarely established during the closure phase. For protection of engineered covers it may even be important to try and prevent the re-establishment of native vegetation with potential to grow deep roots that could break up the upper layers of an engineered soil barrier.

Once the activities in a closure plan have been completed most Canadian jurisdictions allow for the return of mining lands to government control and authority, potentially absolving the company of future liability. Though possible, few provincial jurisdictions outside of Quebec and Saskatchewan have taken back mining lands into government hands, in large part due to the lack of clear policy guidance and financial mechanisms.⁵⁷ When Manitoba took back closed mine sites the province found there were significant unanticipated additional costs for maintaining the sites. Ontario refused Barrick Gold's application to relinquish the Renabie Mine, a site that has ongoing problems including cyanide leaching from the tailings.

Long-term water management is the most serious issue at closed mine sites. While waste areas may be re-sculpted and the surfaces replanted with impressive meadows of green grasses - what is really important is how the wastes may react to water flowing under the surface. Where wastes are stored under water to reduce risks of acid mine drainage and metal leaching, the impoundments walls, the water supply spillways and other engineered features must be monitored and maintained in perpetuity. This presents a substantial legal, financial and ethical challenge for the industry, regulators and affected communities.⁵⁸ Where active water treatment is likely to be required, long-term costs and management requirements must be considered ahead of project approval.

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