

BEARING
the
HEAVY
BURDEN
of
COAL MINING



Compensating victims of environmental damage caused by
coal mining in British Columbia

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1. The heavy burden of coal mine pollution

The coal mining industry in British Columbia is almost as old as the province itself. Although this industry has and continues to generate great wealth for the province, it also bears a heavy burden on surrounding ecosystems.¹ This is caused by hazardous substances (including heavy metals released under acidic conditions) that enter the environment due to coal mining activities. As a result, air, water and soil are impacted, and these impacts can cause extensive personal injury or even death to local residents, as well as harming both economic and property interests and other more intangible interests. Concerns about these impacts are particularly pronounced where new coal mines are proposed close to existing communities. For example, the proposed Raven Coal mine on Vancouver Island is located only a short distance upstream of the world renowned Baynes Sound shellfish industry. If approved, pollution from the new coal mine could devastate this thriving industry on which over 500 local residents depend for employment. Further, if these jobs are lost as a result of long-term water pollution, they may only be partially and temporarily replaced by coal mining jobs until the end of the mine life-time. Therefore, adequate victim compensation mechanisms must be in place to protect local residents and businesses in case their lives, property, and other interests are harmed by coal mine pollution.

There are numerous mechanisms available to restore environmental degradation; however these mechanisms have limited applicability for compensating victims of that degradation. Therefore, the focus of this paper is on mechanisms by which coal mine pollution victims could seek compensation for their injuries. To limit the scope, this paper does not delve into compensation for victims on whose property mining activities are carried out (i.e., surface rights compensation).

The first section briefly describes the different types of damages that may be caused by coal mine pollution. This is followed by a discussion of the challenges that coal mine pollution victims may face in bringing a toxic tort action to recover from their injuries. Due to these significant challenges, a statutory victim compensation scheme would likely be more effective at restoring victims to their pre-harm state. Therefore, the third section looks to existing victim compensation schemes in various jurisdictions worldwide, and provides an overview of different approaches to the questions of funding and benefits. Finally, the discussion turns to BC with an evaluation of available statutory compensation mechanisms for victims of coal mine pollution in the province.

2. Victims of coal mine pollution

Since the first coal mines opened on Vancouver Island in the late 19th century, mining technology has advanced considerably. However, the immense scale of today's mining activities, coupled with the prevalence of pyritic geology throughout the province, results in a continued high risk of environmental pollution.² Pollution may be caused by a singular event such as a spill or unexpected occurrence, or it may gradually build-up over time. Regardless of when it occurs, coal mine pollution can detrimentally harm the air (by way of methane gas, carbon dioxide gas and coal dust), water (both surface and groundwater sources), and land (contaminating soil and destroying flora). Everyone and everything in the vicinity of the coal mine may be impacted by these harms.

Mine workers and the local community are at risk from a variety of negative health impacts caused by the toxic and carcinogenic substances present in coal, including mercury, lead, cadmium, arsenic, manganese, beryllium, and chromium.³ Mining activities such as blasting,

crushing, processing, and washing annually release tons of these toxic substances into the air and water.⁴ From there, local residents face exposure by way of inhalation or consumption. The latter may occur by way of drinking water wells supplied by groundwater aquifers, or from fish, wildlife or other food sources. The impacts of coal dust are also widespread, and have been known to cause respiratory illnesses, rare cancers, birth defects, heart disease and other serious health problems.⁵ The challenges of managing this dust were recently recognized by Denis Horgan, general manager of the Westshore Terminals, when he described the new monitoring stations in southern BC's Delta basin. Horgan admitted that: "*I don't think that we could ever get [the dust] down to absolute zero*".⁶

Activities that depend on renewable resources, such as traditional harvesting activities, fisheries and shellfish industries, and ecotourism, also face potentially large losses from coal mine pollution. These include both current and future income losses. In addition, infrastructure such as houses, buildings, utilities, and roads may be damaged by ground subsidence associated with underground mining.⁷ Blasting vibrations and coal dust may further damage infrastructure.⁸ Where these impacts occur, property owners are likely to face losses in their property values.

Finally, where coal is stored in one location for some time, it begins generating methane gas that increases risks of explosions and fires that could harm surrounding properties.⁹ Methane gas is also an important greenhouse gas, contributing to the worldwide effects of global warming. BC recently implemented strict rules requiring coal-fired power plants in the province to be operated with 100% carbon sequestration.¹⁰ However, these requirements do not extend to exported coal, which releases large carbon dioxide emissions when burned. In this way, coal mine pollution affects communities both locally and abroad.

In summary, there are several different types of harms that may be caused by coal mine pollution. The victims often suffer significant financial, property and health-related losses, for which they should be compensated to the maximum extent possible. The following sections delve into various compensation mechanisms for these victims of coal mine pollution.

3. Compensation for victims

“A properly designed system can be fiscally sound if the system remains faithful to its goals—internalizing costs, deterring polluters, and compensating victims.”¹¹

A fair compensation regime strives to restore all victims to their pre-harm position (the *status quo ante*). To ensure fairness, this should be done on a uniform and equal basis. There are various approaches to accomplishing this goal, and these are discussed further below.

3.1 The challenges of a tort action

Where no formal victim compensation scheme exists, tort actions are the most common avenue by which victims can seek compensation for harms caused by coal mine pollution. However, there are several challenges with this approach, most notably proving the causal connection between exposure to a hazardous substance and a specific injury. This proof will be difficult to establish where, for example, the toxicity of a particular substance is uncertain, a combination of different factors caused the injury, or the injury does not become evident until several years after the initial exposure.¹² In addition, contaminant exposure may only occur at low levels; however, when extended over time, this exposure can result in serious injury. This passage of time further complicates the process of establishing causation.¹³ Issues of certainty and remoteness also pose significant challenges to coal mine pollution victims in tort actions.

The lack of coordination in the tort system may also result in dissimilar awards for similarly affected victims.¹⁴ If an award is finally granted, the amount of compensation may still be significantly reduced by legal fees.¹⁵ Further, if the polluter has become insolvent, the victim faces the risk of not receiving any compensation at all for the harm suffered. These challenges suggest that there may ultimately be little benefit to coal mine pollution victims by way of tort actions.

3.2 A statutory response

Recognizing the challenges of tort actions, numerous states have enacted victim compensation laws that negate the need for lengthy and exhaustive civil litigation, and that provide a less complicated, non-adversarial way to compensate victims and their families. New Zealand has moved the farthest away from tort actions by adopting an entirely different system under which the common law right to sue for damages from personal injury is abolished. This system came about in part as a response to the Brunner mine disaster where 67 miners lost their lives.¹⁶ It is based on the fundamental principles of community responsibility, comprehensive entitlement, complete rehabilitation, real compensation, and administrative efficiency.¹⁷ The principles are useful for guiding the implementation of the statutory compensation regime.

In Japan, the tort system's failure to internalize the costs of pollution and to provide adequate compensation to environmental tort victims also prompted the government to take action. It enacted the *Pollution-Related Health Damage Compensation Law* in response to several pollution-related disasters that occurred in the country during its post-World War II industrial drive. This law focused on compensation for widespread harm associated with four specific respiratory diseases.¹⁸ Although these diseases could have been caused by multiple sources, victims were not required to prove that pollution was a "but for" cause in order to receive the

compensation.¹⁹ As such, the victim compensation law forced polluters to internalize costs of toxic risks and provide upfront compensation to the victims. Similarly, the primary decision-maker under the International Oil Pollution Compensation Fund 1992 has broad powers to make provisional compensation payments prior to settling claims based on damages from oil spills. This mitigates further financial hardship for the victim by expediting the compensation payment.²⁰

More locally in Canada, severe and persistent health effects were suffered by Grassy Narrows and Islington Indian Bands as a result of the dumping of mercury from a paper mill into the English-Wabigoon River system in the 1970s.²¹ Following long negotiations, a settlement agreement was ultimately reached between the affected Bands, the Ontario provincial and federal governments, and the responsible corporations.²² This agreement, which received legislative confirmation, resolved the difficult issues of causation by basing victim compensation eligibility flexibly on symptoms, signs or conditions that were “*reasonably consistent with mercury poisoning and capable of significantly impairing the quality of life or limiting the activities of the applicant*”.²³

The following sections provide an overview of potential funding sources for victim compensation funds and the types of benefits that may be covered by these funds. These issues lie at the core of the victim compensation laws, and are important considerations in assessing the overall success of the statutory scheme.

3.2.1 Paying for compensation – available sources of funding

Victim compensation laws generally establish a fund from which victims may be compensated for the damages they have incurred. However, where the public purse is the main source of

funding for these funds, concerns and opposition may be raised by other taxpayers that feel inadequately compensated. For example, the US September 11 Fund, which was established as an uncapped fund and financed by the US Treasury, was initially limited to victims of the September 11 tragedy.²⁴ This led to complaints from victims of other terrorist-actions. Therefore, Congress had to broaden the scope of the fund to include victims of such terrorist actions as the 1993 World Trade Centre bombing and the anthrax attacks in 2001.²⁵ These types of conflicting interests associated with tax-funded programs suggest that a source closer to the cause of the injury is more appropriate. Different approaches include employment levies, production surcharges, pollution taxes, and surcharges on fines.

Employment levies are generally limited to compensation objectives for injured workers. At coal mines, the miners themselves are generally exposed to the highest concentrations of contaminants. In BC, an accident fund is established under the *Workers Compensation Act* which provides compensation to injured workers including miners.²⁶ Under the Act, injuries explicitly include “*disablement resulting from exposure to contamination*”, and thus injuries caused by coal mine pollution are also covered.²⁷ This is imperative because, amongst other health hazards, miners are often exposed to poisonous contaminants such as carbon dioxide gas that accumulates in the air of underground mines (coined “afterdamp” by miners).²⁸

Employer payroll levies are the main contributions to the *Workers Compensation Act* accident fund.²⁹ Additional payments into the fund may be required where an employer is found to have acted with gross negligence, failed to comply with legal requirements, or failed to adopt reasonable means to prevent injuries.³⁰ Compensation from the accident fund is available to mine workers, and also extends to some other persons that may be present at a mine, but not employed

there as “workers”. These include persons taking a course in mine rescue work or persons (including volunteers) attempting to rescue life or protect property at the mine.³¹

Similarly to the Japan *Pollution-Related Health Damage Compensation Law*, the BC *Workers Compensation Act* provides special provisions for diseases that have been recognized as specific to a particular industry. For coal miners, this provision applies to workers that have been injured from silicosis, a respiratory disease caused by the inhalation of silica dust.³² The need for special compensation for injured coal mine workers was also recognized by the US Federal government through the enactment of the *Black Lung Benefits Act*. This Act establishes a compensation fund for certain kinds of respiratory diseases associated with exposure to coal dust.³³ Access to this fund has been simplified by a US Supreme Court ruling that held that all three eligibility criteria (claimant is totally disabled, disability is caused by pneumoconiosis, and disability arose from coal mine employment) were presumed if the claimant worked as a coal miner for at least ten years and met one of the four medical requirements.³⁴

Production charges are another useful source of funding that eliminates the heavy burden that a one-time payment would impose on a company. This approach is based on the amount of production, and therefore fluctuates depending on the level of commercial or industrial activity. Applied to coal mining, this approach would entail a surcharge on every tonne of ore mined which is set aside in a victim compensation fund. An example of the production surcharge approach is the International Oil Pollution Compensation Fund 1992. This fund is an intergovernmental organisation set-up and governed by States. It is financed by companies in the Member States (including Canada) that receive certain types of oil carried by sea.³⁵ The fund is intended to provide rapid compensation for reasonable clean-up costs and for financial or commercial losses incurred by victims of oil pollution. These costs also include preventive

measures, defined as “any reasonable measures taken by any person after an incident has occurred to prevent or minimize pollution damage.”³⁶ Canada’s commitments with respect to this fund are incorporated into the federal *Marine Liability Act*.³⁷

The US federal *Black Lung Benefits Act* has also adopted a production surcharge approach. The Black Lung Disability Trust Fund established under this Act provides compensation for certain kinds of respiratory diseases associated with exposure to coal dust.³⁸ Initially limited by funding from general revenues, the Fund is now funded by revenues derived from an excise tax imposed on the coal industry.³⁹

Surcharges on fines are another avenue by which to accrue funds for victim compensation. This type of approach is common in legislation purposed to compensating victims of crime, and has been adopted to varying degrees by all Canadian provincial and territorial governments.⁴⁰ For example, in both the Northwest Territories and Nunavut statutory provisions provide for surcharges upwards of 20% on fine penalties to be paid into established Victims Assistance Funds.⁴¹ These funds are used to assist victim-related projects and to supply victim service workers to remote regions.⁴² In Manitoba, a Victims’ Assistance Fund is established under the *Victims’ Bill of Rights* which is funded by the 15% victim surcharge added to all provincial statute fines, including highway traffic offences.⁴³ In Ontario, the *Victims’ Bill of Rights* mandates that fine surcharges for victim compensation be calculated on a graduated scale according to the amount of the fine.⁴⁴

Finally, in some jurisdictions victim compensation funds are financed by a type of pollution tax. The Japan *Pollution-Related Health Damage Compensation Law* is one example where the administrative compensation program is primarily financed by way of taxes on sulphur oxide

emissions from industry.⁴⁵ Unfortunately, the program has been criticized for its lack of attention with regards to other contributory toxins of respiratory diseases (most notably nitrogen oxides and carbon monoxide).⁴⁶ Nevertheless, financing by way of pollution taxes has an appealing basis in the polluter-pays principle and could have applications to coal mining by way of a tax on annual waste generation (such as tailing and waste rock volumes). In BC mining companies must maintain an inventory of material that may cause acid rock drainage, and these inventories could be the basis on which such a pollution tax could be imposed.⁴⁷

In summary, several funding approaches are available for victim compensation funds. However, pollution taxes and fine surcharges have the added benefit of achieving both the goals of compensation and of deterrence. With these types of funding, attempts should be made to include all relevant sources of contributory toxins to ensure fair allocation of pollution responsibility.

3.2.2 Types of benefits for victims

The second area that requires significant consideration with respect to statutory victim compensation schemes is the type and range of benefits for which compensation is available. Benefits may be focused on remedying pecuniary damages arising from financial losses such as lost income, future earning capacity, cost of care, and expenses incurred as a result of the injury. In addition, some schemes cover non-pecuniary damages that are intended to provide consolation for intangible losses such as pain and suffering and loss of enjoyment of life.

In New Zealand, the *Accident Compensation Act 2001* seeks to restore “to the maximum practicable extent a claimant's health, independence, and participation”.⁴⁸ To achieve this goal, entitlements include full medical costs, partial earnings-related compensation, permanent disability benefits, and funeral costs.⁴⁹ Similarly, the Japan *Pollution-Related Health Damage*

Compensation Law provides compensation for disability, medical care, funeral expenses, and payments to survivors.⁵⁰ The US September 11 Victim Compensation Fund also provides these types of benefits. In addition, this Fund compensates economic losses from business or employment opportunities, and recognizes non-pecuniary damages by distributing lump sum payments for pain and suffering of children of deceased victims.⁵¹ The International Oil Pollution Compensation Fund 1992 offers some additional benefits that pertain specifically to costs incurred from environmental harms. These include the reasonable costs for:

- the capture, cleaning and rehabilitation of wildlife;⁵²
- cleaning, repairing or replacing property that has been contaminated by oil;⁵³
- loss of earnings by owners of property contaminated by oil as a result of a spill;⁵⁴
- in certain circumstances, pure economic loss from loss of earnings, even where that person's property has not been polluted;⁵⁵
- marketing campaigns intended to prevent or reduce economic losses;⁵⁶
- reinstatement measures aimed at accelerating natural recovery of environmental damage, including post-spill studies;⁵⁷
- advisers to assist in presenting claims for compensation;⁵⁸
- costs of repairs to roads, piers and embankments if caused by clean-up measures; and⁵⁹
- infrastructure replacement costs where they are irreplaceable (account is taken of the age of the property and its expected durability).⁶⁰

Ghana also recently revised its mining laws to provide robust compensation provisions in case of deprivation of land use, damage to property, or lost income from destroyed crops.⁶¹ These

provisions are further strengthened by the Constitutional requirement that compensation be fair and adequate, and be promptly paid.⁶²

In summary, a wide range of benefits may be covered under victim compensation statutes. These cover both pecuniary and non-pecuniary damages and aim to restore victims to pre-injury status.

3.3 Compensating coal mine pollution victims in BC

Coal mining in BC is regulated under several statutes, most notably the *Coal Act* and the *Mines Act*.⁶³ The *Coal Act* outlines provisions for compensation to surface land owners who suffer losses from mining activities carried out on their property.⁶⁴ Interestingly, at the end of the 19th Century, the BC *Mineral Act* took it one step further by requiring that any free miner who entered upon lands already occupied for purposes other than mining should, before entry, post adequate security to compensate for any loss or damage he may cause.⁶⁵ This provision is gone today, although mines are still required to post security to cover mine reclamation and to provide for protection of watercourse and cultural heritage resources affected by the mine.⁶⁶ However, there are no specific compensation provisions in either the *Coal Act* or the *Mines Act* to compensate victims from coal mine pollution-related injuries that occur beyond the mine site boundaries. As discussed previously, miners have access to work-injury compensation under the *Workers Compensation Act* accident fund; however, this coverage is limited to mine workers and their dependants and does not extend to non-employees in the surrounding affected communities.

There are other statutes in BC that provide some level of compensation for harm suffered from coal mine pollution. For example, although the *Environmental Management Act* does not provide any specific victim compensation provisions, it does empower the court to impose additional sentencing orders under certain circumstances.⁶⁷ These additional orders include the power to

direct the offender to pay money into the Habitat Conservation Trust that is established under the provincial *Wildlife Act*.⁶⁸ The use of these funds is intended for the conservation or enhancement of biological diversity, fish or fish habitat, and wildlife or wildlife habitat.⁶⁹ As such, the funds are again not directly available for victims of coal mine pollution, but may lead to environmental remediation that reduces the overall detrimental impact on the pollution victims.⁷⁰ Similarly, the provincial *Fish Protection Act* sets out requirements to enhance fish or fish habitat elsewhere to fully compensate for proposals that are likely to have significant adverse impacts on fish or fish habitat.⁷¹ Although this statute demands a certain level of compensation where environmental harm is envisioned, it does not offer any specific compensation for victims of the environmental harm. In addition, the compensation only applies to sensitive streams, and currently only fifteen streams have been designated as such in BC.⁷²

Compensation is also available under the BC *Emergency Program Act*.⁷³ However, as the name suggests, this Act is limited to emergencies or disasters. It would therefore only apply in the case of extreme incidents, such as large spills at coal mines, and would not cover environmental harm caused by extended exposure to low levels of contamination (which is often the more common cause of harm from coal mine pollution). In addition, compensation under this Act is limited to the recovery of costs for lost real or personal property due to government acts taken to prevent, respond to or alleviate the effects of an emergency or a disaster.⁷⁴ As such, any injuries not caused to property, such as health impacts or non-pecuniary damages, are not compensable under this statute.

As mentioned previously, provincial and territorial governments across Canada have implemented statutes that mandate a victim surcharge on fines for offences. BC is no exception, and the *Victims of Crime Act* establishes a Victims Surcharge Special Account that holds the

revenue gained from the 15% provincial surcharge, as well as revenue gained from federal surcharges.⁷⁵ Under the Act, the victim surcharge applies to all fines imposed under a prescribed enactment of BC.⁷⁶ Prescribed enactments are defined in the associated regulation as “*every enactment of British Columbia under which a fine is imposed by a court*”.⁷⁷ No specific penalty is set-out under the *Coal Act*; conversely, under the *Mines Act*, a miner who commits an offence is liable for a fine and possible imprisonment.⁷⁸ Therefore, the *Mines Act* is a prescribed enactment for the purposes of the *Victims of Crime Act*, and a victim surcharge would attach to a fine ordered under the *Mines Act*. However, a review of legal databases returned no cases of environmental harm considered under the *Victims of Crime Act*, or any cases where this type of surcharge has been imposed on fines made under the *Mines Act*. Rather, the case law indicates that fines imposed under the *Mines Act* may be allocated to specific environmental restoration funds, but not directly to alleviate the harm suffered by coal mine pollution victims.⁷⁹ In addition, the *Victims of Crime Act* explicitly prohibits any use of the special account funds for direct compensation to individual victims.⁸⁰ As such, this statute offers little, if any, provision for compensation to coal mine pollution victims.

In summary, the existing statutory provisions in BC offer little if any provision of victim compensation from environmental harm generally, or coal mine pollution more specifically. Existing compensation provisions are limited to direct property damage or criminal activity, neither of which offers adequate compensation to victims of coal mine pollution.

Although a review of victim compensation under federal statutes is beyond the scope of this paper, a brief comment is made on the most applicable federal laws pertaining to environmental damage at coal mines; namely, the *Fisheries Act* and the *Canadian Environmental Protection Act, 1999*.⁸¹ Under the *Fisheries Act*, provision is made for the court to order offenders to pay

government monetary compensation for remedial or preventive actions carried out as a result of the offence.⁸² However, this provision does not extend to costs incurred by victims of the environmental harm. The associated *Fisheries (General) Regulations*, does mandate that one-half of any fine imposed for an offence under the *Fisheries Act* be awarded to private informants.⁸³ However, this fine-splitting approach does not guarantee adequate compensation, nor offer a fair and equal method of compensation for all affected victims.

Somewhat broader provisions are provided under the *Canadian Environmental Protection Act, 1999*.⁸⁴ Under this statute, the court may order that an offender pay costs for loss or damage of property of another suffered as a result of the offence.⁸⁵ However, similar to the provincial statutes discussed above, this provision relies on damage to property, and is therefore not available where the harm caused extends beyond damage to property.

4. Vulnerable communities in BC

The fundamental principle underlying victim compensation is to restore the victim to his or her pre-incident situation (*restitution in integrum*). However, the significant challenges of proving causation, coupled with lengthy and expensive trials, make toxic tort actions relatively ineffective in achieving this goal. Victim compensation statutory schemes offer procedural provisions that reduce this difficult burden of establishing causation. In addition, they offer greater certainty, consistency in benefits, and a simpler and speedier process for restoring victims to the maximum extent possible. In developing these schemes, it is imperative that a stable source of funding be secured so that a broad range of benefits can be provided for victim compensation. A funding arrangement based on industrial pollution generation serves as an

effective deterrent and financial incentive for companies to take greater care and reduce environmental impacts from their operations.

Unfortunately, there is no victim compensation scheme currently in place for coal mine pollution victims in BC. The sole compensation provisions in the available mining legislation focus on benefits for existing mining interest holders that have lost their interests as a result of government action, such as park creation.⁸⁶ Environmental remediation requirements are also outlined in some statutes, but these offer no avenue for compensation to coal mine pollution victims. As such, there is an increasing trend towards the negotiation of Natural Resource Damage Assessments that aim to compensate the public for lost services due to contamination of natural resources. However, this approach does not generally occur until after the fact, leaving impacted communities in an extremely vulnerable situation. In addition, compared to pollution taxes, these agreements offer little incentive for mining companies to reduce contamination progressively during operations.

In summary, the experiences in other jurisdictions suggest that government-administered victim compensation schemes are a useful method of compensation for various types of injuries, including those caused by coal mine pollution. A statutory approach offers greater certainty and scope of benefits than a traditional toxic tort action. Unfortunately, no such statutory regime is currently in place in BC. This lack of citizen protection must be addressed before new coal mines, such as the controversial Raven Coal mine on Vancouver Island, are approved and local communities and thriving industries are placed at risk from severe coal mine pollution impacts.

5. Summary Recommendations

Based on the research conducted for this paper, the following recommendations are made for a statutory compensation scheme to compensate victims of coal mine pollution in BC:

- Guiding Principles: A victim compensation law should be guided by the fundamental principles of community responsibility, comprehensive entitlement, complete rehabilitation, real compensation, and administrative efficiency (*New Zealand*).
- Provisional Compensation: To alleviate the burden on the victim, the governing body should have broad powers to award provisional compensation payments prior to settling claims (*International Oil Pollution Compensation Fund 1992*).
- Victim Compensation Eligibility: The law should provide for victim compensation eligibility that is more flexible than the proof requirements demanded under common law tort actions (*Grassy Narrows and Islington Indian Bands Mercury Pollution Claims Settlement Act*). Presumptions of eligibility should be provided where long-term exposure is proven (*US Black Lung Benefits Act*).
- Funding Sources: The law should provide for funding based on the polluter-pay principle (*Japan Pollution-Related Health Damage Compensation Law*) with additional payments for gross negligence (*BC Workers Compensation Act*). Alternatively, companies should be required to provide bonds that cover costs of damage or injury (*BC Minerals Act, 1891*).
- Adequate Benefits: Benefits should cover both pecuniary (i.e., lost income, disability benefits, property and infrastructure repair or replacement costs) and non-pecuniary losses (ex. pain and suffering). These benefits should be provided as promptly as possible (*Ghana Constitution*).

Endnotes

- ¹PricewaterhouseCoopers, *Rock On: The Mining Industry in British Columbia 2009* (Vancouver: PricewaterhouseCoopers, 2010) at 10 (coal is the most significant commodity currently produced in BC, with sales from the nine existing coal mines representing 51% of the total net provincial revenues in 2009).
- ² Pyritic geology has high-sulphur content. When this material is exposed to air and crushed into smaller pieces during mining, acid is generated which causes leaching of heavy metals from the rock into the surrounding environment. This is referred to as Acid Rock Drainage (ARD) and Metal Leaching (ML).
- ³ Paul Epstein et al., "Full cost accounting for the life cycle of coal" (2011) 1219 *Annals of the New York Academy of Sciences* 73 at 74.
- ⁴ Epstein, *supra* note 3 at 74.
- ⁵ M Hendryx, "Mortality from heart, respiratory, and kidney disease in coal mining areas of Appalachia" (2009) 82 *Int Arch Occup Environ Health* 243;
M Hendryx & M Ahern "Relations between health indicators and residential proximity to coal mining in West Virginia" (2008) 98 *Am J of Public Health* 669;
M Hendryx, K O'Donnell & K Horn "Lung cancer mortality is elevated in coal-mining areas of Appalachia" (2008) 62 *Lung Cancer* 1;
Melissa Ahern et al, "Residence in coal-mining areas and low-birth-weight-outcomes" (2010) 14 *Maternal and Child Health Journal* 1;
M Hendryx & KJ Zullig "Higher coronary heart disease and heart attack morbidity in Appalachian coal mining regions" (2009) 49 *Preven Med* 355.
- ⁶ Erik Olson, "Westshore provides glimpse of Longview's potential future with coal" *The Daily News* (12 February, 2011), online: *The Daily News Online* < http://tdn.com/news/local/article_35ad9c0c-3634-11e0-8eea-001cc4c03286.html> (the Westshore Terminal is located in the Strait of Georgia and is the largest coal export facility on the Pacific Coast).
- ⁷ Martha Keating, *Cradle to Grave: The Environmental Impacts from Coal* (Boston: Clean Air Task Force, 2001) at 2.
- ⁸ Epstein, *supra* note 3 at 77.
- ⁹ Epstein, *supra* note 3 at 77.
- ¹⁰ Vancouver Sun, "Province announces major "green" initiatives in Throne Speech" *Vancouver Sun* (13 February 2007) online: <<http://www.canada.com/vancouvernews/story.html?id=874b856c-dd98-41cb-be4f-24c929be289a&k=74036>>.
- ¹¹ Albert Lin, "Beyond Tort: Compensating victims of environmental toxic injury" (2005) 78 *Southern California Law Review* 1439 at 1510 (<http://www.law.ucdavis.edu/faculty/Lin/files/Beyond-Tort-Compensating-Victims-of-Environmental-Toxic-Injury.pdf>).
- ¹² Lin, *supra* note 11 at 1441 to 1443.
- ¹³ Lin, *supra* note 11 at 1446.
- ¹⁴ Lin, *supra* note 11 at 1456.
- ¹⁵ Lin, *supra* note 11 at 1455.
- ¹⁶ *The Laws of New Zealand*, Accident Compensation (31 December 2010), para 1.
- ¹⁷ New Zealand Royal Commission to Inquire into and Report upon Workers Compensation, *Compensation for personal injury in New Zealand - Report of the Royal Commission of Inquiry* (Wellington: Government Printer, 1967) at 20.
- ¹⁸ Kōgai Kenkō Higai Hoshō Hō [Pollution-Related Health Damage Compensation Law], Law No. 111 of 1973; Lin, *supra* note 11 at 1494.
- ¹⁹ Julian Gresser, Koichiro Fujikura & Akio Morishima, *Environmental Law in Japan* (Cambridge, Massachusetts: MIT Press, 1981) at 293.
- ²⁰ International Oil Pollution Compensation Funds, *Report on the Activities of the International Oil Pollution Compensation Funds in 2008* (Canterbury, Kent: Impact PR & Design Limited, 2008) at 48.
- ²¹ Jamie Benidickson, "Environmental Law Survey (1980-92), Part I" (1992) 24 *Ottawa L Rev* 733 at 783; Grassy Narrows and Islington Indian Bands Mercury Pollution Claims Settlement Act, SC 1986, c 23; *English and Wabigoon River Systems Mercury Containment Settlement Agreement Act, 1986*, SO 1986, c 23.

- ²² Indian and Northern Affairs Canada (INAC), “Fact Sheet: English-Wabigoon River Mercury Compensation” INAC (December 2005), online: INAC <<http://www.ainc-inac.gc.ca/ai/mr/is/ewr-eng.asp>>.
- ²³ *English and Wabigoon River Systems Mercury Containment Settlement Agreement Act, 1986*, SO 1986, c 23, s 1.
- ²⁴ Linda Mullenix & Kristen Stewart, “The September 11th Victim Compensation Fund: Fund approaches to resolving mass tort litigation” (2002-2003) 9 Conn Ins L J 121 at 127.
- ²⁵ *Ibid*, at 128.
- ²⁶ *Workers Compensation Act*, RSBC 1996, c 492, ss 5(1), 36.
- ²⁷ *Ibid*, at s 1.
- ²⁸ Ron Venzi, *The Hillcrest Mine Disaster*, online: Coal Miners Memorial <<http://coalminersmemorial.tripod.com/hillcrestminedisaster.html>>.
- ²⁹ *Workers Compensation Act*, *supra* note 26 at s 39(1).
- ³⁰ *Workers Compensation Act*, *supra* note 26 at s 73(1).
- ³¹ *Workers Compensation Act*, *supra* note 26 at s 1 (definition of worker).
- ³² *Workers Compensation Act*, *supra* note 26 at s 6(8).
- ³³ *Black Lung Benefits Act*, 30 USC tit IV § 901-962 (2000); Robert E Litan, Peter Swire & Clifford Winston, “The U.S. Liability System: Background and Trends” in Robert E Litan & Clifford Winston, eds, *Liability: Perspectives and Policy* (Washington: The Brookings Institution, 1988) 1 at 14.
- ³⁴ *Mullins Coal Co. v Dir. Office of Workers’ Comp Programs*, 484 US 135 at 141-43 (1987).
- ³⁵ International Oil Pollution Compensation Fund 1992, *Claims Manual* December 2008 ed (Canterbury, Kent: Impact PR and Design Limited, 2008) at 9.
- ³⁶ *Ibid*, at 12.
- ³⁷ *Marine Liability Act*, R.S.C. 2001, c 6, s 53(1)(a).
- ³⁸ *Supra* note 33.
- ³⁹ *Black Lung Benefits Revenue Act of 1977*, Pub L No 95-227, 92 Stat 11; W Kip Viscusi, “Liability for Occupational Accidents and Illnesses” in Robert E Litan & Clifford Winston, eds, *Liability: Perspectives and Policy* (Washington: The Brookings Institution, 1988) 155 at 180 (by late 1980, there was a deficit of almost a billion dollars, so the tax was doubled under the *Black Lung Benefits Amendments of 1981*, Pub L No 97-119, title II, 95, Stat 1635).
- ⁴⁰ Department of Justice Canada, *An overview of victim services across Canada*, online: Department of Justice Canada <<http://www.justice.gc.ca/eng/pi/pcvi-cpcv/vsd-rsv/over-aper.html>>.
- ⁴¹ *Victims of Crime Act*, RSNWT 1988, c 9, ss 11(1), 12(1)(a); Northwest Territories Justice, *Victim Services*, online: Northwest Territories Justice <www.justice.gov.nt.ca/VictimServices/index.shtml>; *Victims of Crime Act*, RSNWT(Nu) 1988, c 9, ss 11(1), 12(1)(a).
- ⁴² *Victims of Crime Act*, RSNWT 1988, c 9, s 14(1); *Victims of Crime Act*, RSNWT(Nu) 1988, c 9, s 14(1).
- ⁴³ *Victims’ Bill of Rights*, CCSM, c V55, s 40.
- ⁴⁴ *Victims’ Bill of Rights*, SO 1995, c 6, s 5(2); *Supra* note 40.
- ⁴⁵ Gresser, *supra* note 19 at 288 to 300; Pollution-Related Health Damage Compensation Law, *supra* note 18 at arts 49-62.
- ⁴⁶ Lin, *supra* note 11 at 1497.
- ⁴⁷ Ministry of Energy, Mines and Petroleum Resources, Mining and Minerals Division, *Health, Safety and Reclamation Code for Mines in British Columbia* (Victoria: Government of British Columbia, 2008) at 10.5.7.
- ⁴⁸ *New Zealand Accident Compensation Act 2001*, Public Act 2001 No 49, s.3(c)
- ⁴⁹ *Ibid* at ss 3, Schedule 1, cl 56(1), 56(3), 56(4).
- ⁵⁰ Gresser, *supra* note 19 at 293 to 295.
- ⁵¹ *Air Transportation Safety and System Stabilization Act*, Pub L No 107-42 §§ 402-409, 115 Stat 230 (2001).
- ⁵² International Oil Pollution Compensation Fund 1992, *supra* note 35 at 12.
- ⁵³ International Oil Pollution Compensation Fund 1992, *supra* note 35 at 12.
- ⁵⁴ International Oil Pollution Compensation Fund 1992, *supra* note 35 at 12.

- ⁵⁵ International Oil Pollution Compensation Fund 1992, *supra* note 35 at 13.
- ⁵⁶ International Oil Pollution Compensation Fund 1992, *supra* note 35 at 13.
- ⁵⁷ International Oil Pollution Compensation Fund 1992, *supra* note 35 at 13.
- ⁵⁸ International Oil Pollution Compensation Fund 1992, *supra* note 35 at 13.
- ⁵⁹ International Oil Pollution Compensation Fund 1992, *supra* note 35 at 23.
- ⁶⁰ International Oil Pollution Compensation Fund 1992, *supra* note 35 at 27 to 28.
- ⁶¹ *Mining and Minerals Act, 2006*, Ghana Act 703, § 74(1).
- ⁶² *Mining and Minerals Act, 2006*, Ghana Act 703, § 74(2);
The Constitution of the Republic of Ghana, 1992, art 20(2)(a).
- ⁶³ *Coal Act*, SBC 2004, c 15; *Mines Act*, RSBC 1996, c 293.
- ⁶⁴ *Coal Act*, SBC 2004, c 15, s 3(2).
- ⁶⁵ *Mineral Act, 1891*, SBC 1891, c 25, s 10.
- ⁶⁶ *Mines Act*, RSBC 1996, c 293, s 10(4).
- ⁶⁷ *Environmental Management Act*, SBC 2003, c.53, s 127(1).
- ⁶⁸ *Environmental Management Act*, SBC 2003, c.53, s 127(1)(e);
Wildlife Act, RSBC 1996, c 488, s 119(1).
- ⁶⁹ *Wildlife Act*, RSBC 1996, c 488, s 122(1).
- ⁷⁰ A recent mining case brought under this provision was *R. v. Teck Cominco Metals Ltd.*, 2010 BCPC 454. In this case, Teck Cominco was charged for a spill of unlawful amounts of lead, particulate, and acid into the Columbia River on May 28th, 2008. Based on this offence, Teck was charged \$110,000; \$55,000 of which was paid to the Columbia River Integrated Monitoring Program, and the remaining \$55,000 paid to the White Sturgeon Recovery Initiative Technical Working Group Program (*R. v. Teck Cominco Metals Ltd.*, 2010 BCPC 454 at 33).
- ⁷¹ *Fish Protection Act*, SBC 1997, c 21, s 6(8).
- ⁷² Sensitive Streams Designation and Licensing Regulation, BC Reg 89/2000, Schedule.
- ⁷³ *Emergency Program Act*, RSBC 1996, c 111.
- ⁷⁴ *Emergency Program Act*, RSBC 1996, c 111, ss 19(1), 19(2);
Compensation and Disaster Financial Assistance Regulation, BC Reg 124/95, s.2.
- ⁷⁵ *Victims of Crime Act*, RSBC 1996, c 478, s 8.1(1); *Victim Surcharge Levy Regulation*, BC Reg 214/97, s 2(1)(b).
- ⁷⁶ *Victims of Crime Act*, RSBC 1996, c 478, s 8.1(1).
- ⁷⁷ *Victim Surcharge Levy Regulation*, BC Reg 214/97, s 2(1)(a).
- ⁷⁸ *Mines Act*, RSBC 1996, c 293, s 37(3) (maximum penalty is fine of \$100,000 and one year imprisonment).
- ⁷⁹ *Supra* note 70 (*R v Teck Cominco Metals Ltd*) at 33.
- ⁸⁰ *Victims of Crime Act*, RSBC 1996, c 478, s 9(6).
- ⁸¹ *Fisheries Act*, RSC, 1985, c F-14; *Canadian Environmental Protection Act, 1999*, SC 1999, c 33.
- ⁸² *Fisheries Act*, RSC, 1985, c F-14, s 79.2(d).
- ⁸³ *Fishery (General) Regulations*, SOR 93/53, s 62(1).
- ⁸⁴ *Canadian Environmental Protection Act, 1999*, SC 1999, c 33.
- ⁸⁵ *Canadian Environmental Protection Act, 1999*, SC 1999, c 33, s 292(1).
- ⁸⁶ *Coal Act*, SBC 2004, c 15, s 4(1).