C6 | EXTRACTIVE INDUSTRIES AND HEALTH

Mining is one of the world's most lucrative industries. In 2011, the forty largest companies in the mining industry (representing 80 per cent of the market) made US$700 billion in revenues (PricewaterhouseCoopers 2012) (See Table C6.1). Impacts of this industry on people's health have generated growing concern and raised important questions about the social and political forces and governance structures underpinning these activities. Mining and drilling are seen as necessary to support 'development'. However, the need to better regulate, contain or even eliminate these activities, in certain cases, is pressing.

The health impact of extractive industries encompasses myriad impacts on social determinants of health, ranging from environmental degradation to income inequality to structural violence and beyond. The frustration of communities in which mining and drilling take place has been so extreme and long lasting that many are taking a radical, anti-mining stance, and slogans such as *leave the oil in the soil* are gaining voices.

This chapter summarizes existing findings related to various aspects of mining and health and delineates major challenges to the health and well-being of the 3.4 billion people who live in countries with significant mining operations.

Image C6.1 Coal mining in the nineteenth century in the USA (Boston Public Library)

TABLE C6.1 Overview of the global extractive industry (major centres)

	South Africa	Russia	Australia	Ukraine	Guinea
Mining as a % of GPD	18	33	10	6	26
Top mining companies	BHP Billiton Anglo American Impala Platinum	Norilsk Nickel Mining Amur Minerals Corp. Anglo American Platinum Ltd	BHP Billiton City Giold	Anika LLC Black Iron Inc.	Newmont Mining Corp. Affinor Resources Inc. Alcoa Inc. Anglo Aluminum Corp.
Mineral reserves	$2.5 trillion	$794 billion (iron ore)	$737 billion	$510 billion (iron ore)	$222 billion (bauxite)
Mined minerals	Coal Cromium Diamond Gold Platinum	Aluminium Bauxite Coal Copper Diamond Gold Iron ore Nickel Steel	Bauxite Diamond Gold Iron ore Uranium Zinc	Aluminium Coal Diamond Gold Iron ore Uranium	Bauxite Diamond Gold Iron ore Uranium

Source: Hydralok n.d.

Impact of extractive industries on health

Health impacts of mining occur during every phase of its life cycle. They start with exploration for exploitable deposits, often preceded by the removal of those who own and/or use the land, followed by the construction of mining infrastructure. Then the 'productive phase' involves the mining of the ore and the extraction and beneficiation of the metal. The final closure of an exhausted mine theoretically includes the rehabilitation of the land, but this rarely occurs.

Direct occupational health effects Historically mining was among the deadliest of occupations owing to 'brown lung disease', fatal explosions and mine collapses. A large-scale study found that underground gold miners in Australia, North America, South America and Africa suffered from 'decreased life expectancy; increased frequency of cancer of the trachea, bronchus, lung, stomach, and liver; increased frequency of pulmonary tuberculosis (PTB), silicosis, and pleural diseases [see Box C6.1]; increased frequency of insect-borne diseases, such as malaria and dengue fever; noise-induced hearing loss; increased prevalence of certain bacterial and viral diseases; and diseases of the blood, skin, and musculoskeletal system' (Eisler 2003).

Underground explosions of methane and other gases trap and kill thousands of miners every year. Owing to poor ventilation in underground shafts, miners are exposed to harmful gases, dust, toxins and heat, leading to silicosis and

Box C6.1 Silicosis, TB and HIV – the 'perfect storm'

Approximately 69,000 miners died in accidents in South Africa in the first ninety-three years of the twentieth century and more than a million were seriously injured. In 1993, out of every 100,000 gold miners, 113 died in accidents, 2,000 suffered a reportable injury, 1,100 developed active tuberculosis and of these 25 died; in 1990 about 500 were identified as having silicosis (TRC 1998).

Biological and social factors combine to create a 'perfect storm' for the interaction among silicosis, TB and HIV. Silicosis substantially increases the risk of TB to a magnitude similar to that of HIV infection. The TB risks of silicosis and HIV infection combine multiplicatively. Consequently, the highest recorded rates of TB worldwide have been reported in South African gold miners. The prevalence of TB in gold miners increased from 806 per 100,000 in 1991 to 3821 in 2004. HIV prevalence rose from less than 1 per cent in 1987 to 27 per cent in 2000 (Nelson et al. 2010).

other lung diseases, heat stroke and cancer. Large numbers of miners sharing limited underground air create conditions for tuberculosis and other respiratory diseases (Ogola et al. 2002). Coal mining causes extremely high occupational mortality. Uranium miners face elevated levels of lung cancer, silicosis and, together with the surrounding population, are exposed to radiation, causing birth defects, immune impairment and cancer. Poorly maintained mines in the former Soviet bloc are among the most dangerous in the world, with hundreds killed in recent years owing to explosions and collapses (Birn et al. 2009). Despite increasing mechanization, these problems continue.

Loud noise, a ubiquitous hazard across all sectors of the mining industry, can result in significant hearing loss and hypertension (Driscoll 2007; Donoghue 2004). Exposure to vibration due to vehicles and power tools is a risk factor for musculoskeletal conditions, especially lower back and neck injuries (Driscoll 2007). Heat exhaustion can be caused by thermal stress related to surface mines with hot ambient temperatures as well as underground mines with high humidity, geothermal gradients in deep mines and liberation of heat by mining machinery and equipment (Driscoll 2007; Donoghue et al. 2000).

Toxic metals such as mercury are commonly used by miners to amalgamate gold and other precious metals, often with bare hands, leading to occupational exposures as well as environmental exposures once the metals are discarded as waste. A number of studies have found very high levels of mercury in edible fish stocks near mines, which pose particular risks to children (Eisler 2003). Radioactive ores increase the risk of certain cancers (Driscoll 2007).

Effect on the environment Of the thirty most polluted places in the world, as documented by the Blacksmith Institute, six are mining sites. In mining sites, the ecosystem suffers through soil, water and air pollution; soil erosion and deforestation; dumping of hazardous mine waste that contain potentially toxic elements into the environment (Sánchez de la Campa et al. 2011). Common contaminants include mercury and arsenic (used as amalgamates) as well as lead and cadmium, which cause health problems such as malacosteon (causing bones to soften), kidney damage and cancers (Ogola et al. 2002; Zhang et al. 2012). Mining is also increasing desertification and coastal erosion, turning millions into 'environmental refugees' (Hens and Boon 1999). A study found an association between risk of dying due to digestive, respiratory, haematologic and thyroid cancers and proximity to Spanish mining industries (Fernández-Navarro et al. 2012).

Mining operations typically leave behind large open pits; seepage of heavy metals, acids and other toxic by-products into the land and rivers destroy forests and kill nearby wildlife. Restoring vegetation to mining areas is dif-

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Box C6.2 Gold mining in South Africa: a legacy of impacts

Gold has been mined in South Africa for more than 120 years, and for several decades the country was the largest gold producer in the world, with production peaking at about 1,000 tons/year in 1975, later declining to less than 200 tons/year. At the current price of gold (about US$1,700/oz), South Africa's cumulative gold production may be valued at US$2.8 trillion, about seven times South Africa's current annual GDP. What is the legacy of this enormous wealth, extracted by the toil of hundreds of thousands of workers?

Employment in gold mines peaked at 531,000 in 1985 (Short and Radebe 2008) but declined to about 157,000 in 2010. The South African mineworkers are drawn from the rural areas of South Africa as well as surrounding countries, such as Mozambique, Malawi, Lesotho, Zambia, Zimbabwe and Angola. An ex-mineworker is typically unemployed, poor, suffering from one or a combination of mine-related diseases (TB, silicosis, HIV/AIDS and/or physical injuries), and with a shortened lifespan.

The legacy of environmental impacts of mining in the world's largest gold and uranium mining basin includes about 400 km² of mostly unlined mine tailings dams and 6 billion tons of tailings (materials left over after separating the valuable fraction) containing 430,000 tons of low-grade uranium. The government has been singularly ineffectual in holding mines to account for the environmental damage caused (Van Eeden et al. 2009).

Image C6.2 Protests against Australian mining companies in the Philippines (David Legge)

ficult because the mining process causes organic matter, nutrients and water to become either too acidic or too alkaline for plant growth (see Box C6.2).

Social environment and health

Mining Induced Displacement and Resettlement (MIDR) experienced by environmental refugees is accompanied by the 'resettlement effect', defined as the loss of physical and non-physical assets, including homes, communities, productive land, income-earning assets and sources, subsistence, resources, cultural sites, social structures, networks and ties, cultural identity and mutual help mechanisms (Downing 2002).

A burgeoning sex trade is often a result of mining, as men relocate to work at mines, leaving behind families. In some contexts, the impact is devastating. HIV transmission in southern African countries has been linked to mining work, through the sex trade that often arises around mining communities and the loss of family coherence (Corno and de Walque 2012).

Many miners suffer the stress and economic insecurity of poor employment conditions. Many mining companies in South Africa hire migrant workers from other communities rather than locals, even recruiting from other countries including Swaziland and Lesotho. This strategy reduces worker organization and demands, since 'outsiders' generally know few people in the community and often have a lot to lose if they are fired. Often, these workers are particularly vulnerable, as tensions arise with local residents over employment opportunities or social clashes take place. Large mining companies, increasingly, prefer to subcontract the employment process to local businesses, thus legally distancing these companies from responsibilities for health harms or abrogation of rights.

Mining has also been widely linked to violence and conflict, perpetrated by companies and governments. The recent massacre in South Africa of thirty-four protesting platinum miners is a case in point (see Box C6.3).

Health activists in Ecuador are working to free mining protesters and journalists who have become political prisoners (Sagar 2012). Canadian-owned

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Box C6.3 Structural violence and mining

We must remember the history of mining in South Africa, of cheap black labour, racism and exploitation. This is the model for the rest of Africa too. If we look at Marikana as a microcosm of South Africa and really of mining in Africa, we witness growing discontent, growing inequalities, a widening gap between rich and poor, and all the resultant problems of poverty. The LONMIN workers are victims of structural violence in our society. This is informed by low wages, very bad living conditions, bad nutrition, health and safety problems, HIV and AIDS and no hope for a better life.

Reverend Dr Jo Seoka, 30 October 2012, after the massacre of thirty-four mineworkers in Marikana (South Africa)

Barrick Gold, the world's largest gold-mining company, was linked to the repression of dozens of alluvial miners (small-scale diggers) and anti-mining critics in Papua New Guinea, Tanzania and Peru, as well as to thousands of forced evictions of small-scale miners and residents. Since 1997 the world's deadliest conflict has been raging in eastern and southern Congo (killing over 3.9 million people) linked to local and international companies fighting over control of lucrative gold, diamonds and coltan deposits. The Mindanao islands in the Philippines have seen militarization increase with the entry of multinational companies (see Box C6.4).

Economic benefits: questioning claims

Mining is often defended on the ground of the economic benefits that accrue to local communities. These claims are not borne out by actual experience. Poverty (people living on less than $1/day) rose from 61 per cent in 1981 to 82 per cent in 1999 in mineral-exporting countries (Langman 2003), and these countries were among the poorest economic performers between 1960 and 1993 (Auty 1998).

The gap between promise and delivery is seen in high-income countries too. Around 80 per cent of the profits from Australian mining leave the country. The mining companies pay an average of 13.9 per cent in corporate taxes, compared to the national 30 per cent personal tax burden, and received substantial taxpayer-funded subsidies (Richardson and Denniss 2011). This illustrates that the burden of coal mining falls disproportionately on society, while the bulk of the benefits accrue to industry owners, executives and investors (Morrice and Colagiuri 2012), often located far away from the site of mining. Most industry-sponsored reports on coal mining overemphasize perceived economic benefits and ignore negative social consequences, with

Box C6.4 Mining and militarization in Mindanao, Philippines

Since 2005, the Swiss mining company Xstrada Plc and its local counter-part Sagittarius Mines Incorporated (SMI) has been operating in the DS Soccsksargen region on the island of Mindanao in the Philippines. Below is a local resident's testimony:

Since the establishment of SMI–Xstrada in our region, living conditions in our village, Barangay Malawanit, have deteriorated. The mining activity generates environmental damage with impact on our health. Butour community has now come to know a worse enemy: fear. The entire territory has been militarized to prevent our people from revolting. The Tampakan massacre happened in October 2012 in Sitio Alyong, Barangay Kimlawis, Kiblawan, a community close to ours. Juvy Capion, 27 years and a few months pregnant, was killed by the military along with her two sons, while her daughter was injured. We knew her because she was a relative of Daguil Capion, a prominent anti-mining activist. A few months later, Kitari Capion, Juvy's brother-in-law, was also murdered.

Military sometimes occupy our homes for more than a week, loot and destroy our villages claiming they are searching for rebels. They sometimes pose as rebels and if we cooperate with them, they throw us in jail. Others were forced to join the army. We are also facing a food blockade. Out of fear that we might feed the rebels, we need a special permit to go get rice at the farms and we receive only 3–4 kilos at a time. This ration is too low to feed a family for several days. If you venture into the fields at night, you might get killed by the army. By protecting the economic interests of the mine rather than those of the community, the military violates the rights of our people.

By enacting the 1995 Mining Act, the government gave a green light to all companies and foreign multinationals to come plunder our natural resources. The amount of taxes collected by the Philippine government from mining represents only 0.61% of the total in 2011. Despite this low amount, the state continues to encourage foreign investment because it enriches a small local elite. In the name of economic development the State promotes and protects mining multinationals instead of protecting the Filipino people.

Source: M3M (2013)

some placing the responsibility for the lack of benefits on the communities themselves (ibid.). For instance, while recognizing 'acute social impacts' of a coal mine in Australia, a study attributes this situation to the 'failure' of the community to capture positive benefits (Lockie et al. 2009).

Canada: a 'safe haven' for mining companies

Canada stands out as a 'safe haven' for a majority of the world's mining companies, which benefit from a loose fiscal, legislative and cultural regime that favours mining interests both domestically and globally (Deneault and Sacher 2012). The historical and contemporary relationship to mining of this country, where two-thirds of the world's mining companies are based, is instructive in demonstrating a seemingly acceptable practice of governance that is content with private profits, if not profiteering, over wide-scale human rights abuses and the human suffering that follows.

The booming period of exploration coincided with the period when the major treaties governing relations between indigenous nations and the Canadian state were signed (Cranstone 2001). This process was accompanied by dispossession of indigenous lands and severe political and cultural repression, a process still taking place today (see Box C6.5). The wealth generated by mining was, from the early twentieth century, used to finance military adventures and support the nuclear arms race, sealing the alliance between successive Canadian governments and the industry (ibid.). On the other hand, Canadian universities support extractive industries through research and education, as

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Box C6.5 Rights abuses in Canada

The 'Ring of Fire' refers to a cluster of some 30,000 mining claims in northern Ontario, in an area of approximately 10,000 square kilometres. Copper, nickel, diamonds and other minerals have been found, together with one of the world's largest deposits of chromite (an essential ingredient in stainless steel). The situation of indigenous peoples here is one of extreme poverty, high suicide rates, lower life expectancy and continuing systemic racism (MiningWatch Canada 2011).

At a De Beers mine in Attawapiskat, conditions are appalling. Indigenous people living near the mine declared a state of emergency in the winter of 2012 as they were living in harsh sub-zero conditions in substandard housing, including tents, trailers and rotting houses. The Red Cross stepped in when the Canadian government refused to act. Many felt that, in the interest of De Beers' profits, the government was not only reneging on its responsibility to its citizens, but allowing inhuman exploitation within its own borders, and even genocide of the indigenous population (ibid.).

A year later, the chief of Attawapiskat, Teresa Spence, went on a hunger strike, in protest at the conditions in which indigenous peoples live on their own land. It led to the creation of the 'Idle No More' movement. The struggle of 'Idle No More' continues.

well as receiving philanthropic donations which threaten academic freedom (McQuaig and Brooks 2010).

The mining industry has received special attention in Canada, in recent years, after the decline of the manufacturing base since the 1980s. Measures to facilitate the work of mining companies include curbs on the bargaining power of workers (Ontario Ministry of Labour 2012) and changes in environmental law without public consultations (Scoffield 2012). The Canadian government is also utilizing international development aid to mitigate negative consequences of mining on communities affected by the activities of Canadian mining companies (The Current 2012) (see Box C6.6). While Canadian diplomacy is used to support mining companies, Canadian state officials have stepped up attacks on environmentalists. The latter are accused of being influenced by foreign agendas and of working against national interests (Ljunggren 2012).

Box C6.6 Canadian aid follows its mining companies

The restructuring of the Canadian International Development Agency (CIDA) and its integration into the Department of Foreign Affairs, Trade, and Development (DFATD) in April 2013 raises significant concerns. The merger of CIDA with DFATD represents a noticeable shift in Canada's approach to foreign aid.

Canadian development cooperation has long focused on the African continent, with a long list of countries in sub-Saharan Africa being selected based on levels of poverty and resource needs, and with Canada acting as a key donor for health programmes. However, since early on in the Harper administration, Latin America and the Caribbean have been 'rediscovered' as an area of foreign policy focus, linked to the growing importance of the region for Canadian trade and foreign direct investments (FDI), especially for extractive industries and the mining sector. The new country focus list includes only seven African countries, down from fourteen, and excludes some of the continent's poorest countries, five Asian countries and six countries in the Americas (adding Peru and Colombia and including the entire Caribbean region). In particular, the inclusion of Peru and Colombia, both middle-income countries with which Canada has signed FTAs, signals a shift away from an emphasis on the needs of the poorest towards a focus on building relationships with countries that will benefit Canada's commercial interests (Berthiaume 2009).

Aid to support CSR of mining companies This geographical shift co-incided with a topical repositioning of Canadian aid in the direction of the promotion of the private sector and corporate social responsibility

(CSR). In 2009, CIDA formally adopted a CSR strategy for the Canadian international extractive sector, with the objective of increasing the competitive advantage of Canadian international extractive sector companies by enhancing their ability to manage social and environmental risks in developing countries (DFATD 2009). The CSR strategy is based on four pillars: to support initiatives to enhance the capacities of developing countries to manage the development of minerals, oil, and gas, and to use the benefits from these resources to reduce poverty; to promote the widely recognized international CSR performance guidelines; to set up the Office of the Extractive Sector CSR Counsellor; and to support the establishment of a CSR Centre of Excellence in Canada (ibid.). According to the government, the overall goal of private sector engagement through CSR is fostering the sustainable development of the extractive/natural resource sector to benefit all segments of the population and increasing government capacity to reduce social conflicts (CIDA 2011).

The case of Peru Peru's case is instructive in this context. Canada has strong mining interests in Peru, with Goldcorp, Barrick Gold, Candente Copper Corp and various smaller companies operating in the Latin American country. In 2009, as part of CIDA's aid effectiveness agenda, Peru was selected as one of twenty focus countries for Canadian aid efforts despite its status as an upper-middle-income country. This was followed by a rapid expansion of ODA flows to Peru, from less than Can$15 million in 2009 to close to Can$30 million by 2012. The programming focus of Canada's engagement with Peru historically lay in the areas of education and sustainable economic growth, but has recently shifted towards private sector development and CSR promotion. Indeed, a quick scan of DFATD's project browser reveals that six out of eight projects approved in 2012 and 2013 are focused on private sector development and CSR promotion in the mining sector (DFATD 2013).

As part of a broader CSR pilot project in Peru to promote partnerships between civil society organizations (CSOs) and Canadian mining companies, DFATD is currently investing in building a partnership between World Vision and Barrick Gold. The programme focuses on increasing the income and raising the standard of living of 1,000 families affected by mining operations in the mining community of Quirulvilca, Peru. According to World Vision, the programme will help residents of Quirulvilca, especially women, youths and people with disabilities, become more involved and influential in their own community planning.

In addition to providing loans for people to start small businesses, there will be capacity-building for local leaders to ensure that Quirulvilca follows a path of sustainable development in the long term (World Vision, cited in DFATD 2011).

Putting a positive spin on the mining industry However, the real question is whether CSR projects are actually about ensuring better development outcomes for vulnerable populations, as claimed by their proponents; or whether such activities help the Canadian mining industry to put a positive spin on its negative environment and human rights records in Latin America (Carin 2012).

It is also noteworthy that the Canadian mining industry has intensely lobbied the Canadian government to fund CSR projects at mine sites, and is now praising DFATD for doing so (MiningWatch Canada 2012). MiningWatch Canada notes, 'There is reason to believe that CIDA's funding of CSR projects at mine sites is a poorly articulated attempt by the Government of Canada to help mining companies appear to offset the development deficits they are creating at local and national levels' (ibid.: 8). Others see CSR initiatives as evidence of an ongoing trend that has deepened under the Harper administration, towards aggressively advancing the interests of Canadian multinationals in the global South and as a recipe for more violence and social conflict (Gordon 2012).

Image C6.3 Indigenous people's rally in Guatemala, 2008 (Surizar)

Global structures favour transnational corporations over human rights and the environment and existing legal instruments have generally proved to be toothless. For instance, the Vancouver-based Pacific Rim successfully challenged the El Salvador government at a World Bank tribunal in its decision to prevent further operations at its El Dorado site (Gray 2012). In 2012, the UN Special Rapporteur on the Rights of Indigenous People and other international bodies recommended suspension of operations and land acquisition by the Canadian mining company Goldcorp at Marlin Mine, in Guatemala, until local communities were adequately consulted (see Box C6.7). However, there is no system to enforce this recommendation and there is no sign that it is seriously taken into consideration.

Box C6.7 The Marlin Mine, Guatemala

In 2006, the Canadian mining company Goldcorp bought the Marlin open-pit gold mine, in Guatemala. The mine has been a source of public concern and concrete issues include: (a) water demand from the mine will deny access to communities; (b) the mine will use unsafe processing methods that will contaminate the environment and the water supplies used by downstream people; (c) the rights of indigenous people have been violated as a result of failure by the project to consult with them about its environmental and social impacts; and (d) the presence of the mine is resulting in social conflict, violence and insecurity. Consequently, a protest movement has emerged, encompassing local communities and activists in Canada and Latin American countries.

After several years of struggle, the UN Special Rapporteur on the Rights of Indigenous People, as well as the Inter-American Commission on Human Rights and the International Labour Organization's Committee of Experts, recommended suspension of mining operations and land acquisition until local communities were adequately consulted. However, the Guatemalan president ignored these recommendations and refused to issue any new directives. The Canadian government did not take any steps either.

Within six months of taking office in January 2012, President Molina approved 68 new exploration licences, adding to 387 mining concessions and another 734 pending, many on indigenous lands. Over seventy municipalities have held referendums in which nearly a million people voted against mining in their territories, but these results have not been respected. Meanwhile, targeted attacks against those opposed to mining have intensified (CPO et al. 2012).

Image C6.4 Keep the oil in the soil (Louis Reynolds)

Moreover, fiscal measures in Canada are used to support mining companies. Canada now has one of the lower corporate tax rates in the developed world (Canadian Press 2012). In addition, it is one of the few jurisdictions that taxes profits (rather than what is actually produced) while also allowing mining companies to legally carry over annual losses to bring their net profit in any given year to zero, and thus pay no tax.[1] Most of the world's mining companies are traded on the Toronto Stock Exchange, and this provides additional benefits to shareholders of mining companies in the form of tax concessions. Further, public pension funds are heavily invested in mining companies (Deneault and Sacher 2012).

Conclusions: mining justice and better health are possible

The mining sector externalizes the health and environmental costs of its industries to the public sector, workers and communities. The evidence demonstrating the causal relationship between exposure to mining hazards and adverse health outcomes is denied and suppressed by industry advocates. The same is true of the huge contribution of the mining industry to a high burden of disease.

The Occupational Health and Safety Programmes of both the World Health Organization and the International Labour Organization have been systematically starved of adequate resources. Strengthening these programmes will contribute to the achievement of international standards on occupational health and environmental safety.

Human Rights legislation, monitored and effectively enforced, is urgently needed to curb systematic violations of rights by mining companies and country governments that facilitate them. An international criminal court that actively persecutes crimes perpetrated by mining companies (and governments that collude with them) would act as a deterrent for such crimes. At the same time, it is essential that 'mining havens', such as Canada, are eliminated.

Current global governance structures are grossly inadequate in the face of the tremendous power imbalances that exist between communities and mining companies. Mining justice movements exist in many parts of the world to address the tremendous socio-economic and environmental harms that are imposed by mining companies. These movements must be included in the formal and informal governance structures.

Health status is compromised in most communities in which mining activities occur owing partly to pre-existing hierarchies and inequalities and partly to the impact of mining. A comprehensive political, social, economic and environmental approach to solving these problems is urgently required.

Note

1 See Natural Resources Canada, 'Mining taxation in Canada', 2011, www.nrcan.gc.ca/minerals-metals/business-market/2946.

References

Auty, R. M. (1998) 'Resource abundance and economic development: improving the performance of resource-rich countries', *Research for Action*, 44, Helsinki: UNU/WIDNER.

Berthiaume, L. (2009) 'CIDA confirms shift to Americas, fewer countries', *Embassy*, 25 February, www.embassynews.ca/news/2009/02/25/cida-confirms-shift-to-americas-fewer-countries/37287?absolute=1, accessed 6 May 2014.

Birn, A., Y. Pillay and T. H. Holtz (2009) *Textbook of International Health: Global Health in a Dynamic World*, Oxford University Press.

Canadian Press (2012) 'Canada's political power shifts westward with population', *CBC News*, www.cbc.ca/news/politics/story/2012/02/08/pol-census-politics-west.html, accessed 6 May 2014.

Carin, B. (2012) 'CIDA, NGOs and mining companies: the good, the bad and the ugly', *iPolitics*, 8 May, www.ipolitics.ca/2012/05/08/barry-carin-cida-ngos-and-mining-companies-the-good-the-bad-and-the-ugly/, accessed 6 May 2014.

CIDA (Canadian International Development Agency) (2011) *Peru: CIDA Report*, www.acdi-cida.gc.ca/INET/IMAGES.NSF/vLUImages/Countries-of-Focus/$file/10-054-Perou-E.pdf, accessed 6 May 2014.

Corno, L. and D. de Walque (2012) 'Mines, migration and HIV/AIDS in southern Africa', *Journal of African Economies*, 21(3): 465–98.

CPO (Western Peoples Council), CIEL (Center for International Environmental Law) and MiningWatch Canada (2012) 'Guatemala's highest court to hear landmark indigenous challenge against mining law', Washington, DC and Guatemala City, 20 July.

Cranstone, D. A. (2001) 'A history of mining and mineral exploration in Canada and outlook for the future', Ottawa: Minister of Public Works and Government Services.

Deneault, A. and W. Sacher (2012) *Imperial Canada Inc.: Legal Haven of Choice for the World's Mining Industries*, Canada: Talonbooks.

DFATD (Department of Foreign Affairs, Trade and Development) (2009) *Building the Canadian Advantage: A Corporate Social Responsibility (CSR) Strategy for the Canadian International Extractive Sector*, Ottawa, www.international.gc.ca/trade-agreements-accords-commerciaux/topics-domaines/other-autre/csr-strat-rse.aspx, accessed 6 May 2014.

— (2011) 'Minister Oda announces initiatives to increase the benefits of natural resource management for peoples in Africa and South America', Ottawa, www.acdi-cida. gc.ca/acdi-cida/acdi-cida.nsf/eng/CAR-929105317-KGD, accessed 6 May 2014.

— (2013) 'Peru – international development projects', International Development Project Browser, www.acdi-cida.gc.ca/cidaweb/cpo.nsf/fWebCSAZEn?ReadForm&idx=01&CC=PE, accessed 6 May 2014.

Donoghue, A. M. (2004) 'Occupational health hazards in mining: an overview', *Occupational Medicine*, 54(5): 283–9.

Donoghue, A. M., M. J. Sinclair and G. P. Bates (2000) 'Heat exhaustion in a deep underground metalliferous mine', *Occupational and Environmental Medicine*, 57(3): 165–74.

Downing, T. E. (2002) *Avoiding New Poverty: Mining-induced Displacement and Resettlement*, London: International Institute for Environment and Development and World Business Council for Sustainable Development.

Driscoll, T. (2007) *Summary Literature Review of Health Issues Related to NSW Mining: Report for the Mines Safety Performance Branch NSW Department of Primary Industries*, ELMATOM Pty Ltd, September.

Eisler, R. (2003) 'Health risks of gold miners: a synoptic review', *Environmental Geochemistry and Health*, 25(3): 325–45.

Fernández-Navarro, P., J. García-Pérez, R. Ramis et al. (2012) 'Proximity to mining industry and cancer mortality', *Science of the Total Environment*, 1(435/436): 66–73.

Gordon, T. (2012) 'Canadian development aid takes on corporate coloring', *Toronto Star*, 29 November.

Gray, J. (2012) 'Pacific Rim Mining locked in closely watched fight with El Salvador', *Globe and Mail*.

Hens, L. and E. N. Boon (1999) 'Institutional, legal, and economic instruments in Ghana's environmental policy', *Environmental Management*, 24(3): 337–51.

Hydralok (n.d.) 'Top five mining companies in the world and their GDP', www.hydralok. net/top-five-mining-countries-in-the-world-and-their-gdp/, accessed 23 June 2014.

Langman, J. (2003) 'Investing in destruction: the impacts of a WTO investment agreement on extractive industries in developing countries', Oxfam America Briefing Paper 1, June, www.jimmylangman.com/uploads/7/1/2/1/7121467/oa-investing_destruction.pdf, accessed 6 May 2014.

Ljunggren, D. (2012) 'Canada blasts foreign "radicals" opposing pipeline', Reuters, www.reuters.com/article/2012/01/09/us-pipeline-idUSTRE8082DN20120109, accessed 6 May 2014.

Lockie, S., M. Franettovich, V. Petkova-Timmer et al. (2009) 'Coal mining and the resource community cycle: a longitudinal assessment of the social impacts of the Coppabella coal mine', *Environmental Impact Assessment Review*, 29(5): 330–9.

M3M (Médecine pour le Tiers Monde) (2013) 'Philippines: à Mindanao la solidarité internationale avec les communautés', 17 July, m3m.be/blog/philippines-%C3%Ao-mindanao-la-solidarit%C3%A9-internationale-avec-les-communaut%C3%A9s, accessed 6 May 2014.

McQuaig, L. and N. Brooks (2010) 'Excerpt: the trouble with billionaires by Linda McQuaig and Neil Brooks', *The Star*, 10 September.

MiningWatch Canada (2011) 'Diamonds and development: Attawapiskat and the victor diamond mine', 15 December, www.miningwatch.ca/article/diamonds-and-development-attawapiskat-and-victor-diamond-mine, accessed 6 May 2014.

— (2012) 'CIDA's partnership with mining companies fails to acknowledge and address the role of mining in the creation of development deficits', Ottawa: Mines Alert, www.miningwatch.ca/sites/www.miningwatch.ca/files/Mining_and_Development_FAAE_2012.pdf, accessed 6 May 2014.

Morrice, E. and R. Colagiuri (2012) 'Coal mining, social injustice and health: a universal conflict of power and priorities', *Health Place*, 19: 74–9.

Nelson, G., B. Girdler-Brown, N. Ndlovu et al. (2010) 'Three decades of silicosis: disease trends at autopsy in South African gold miners', *Environmental Health Perspectives*, 118(3): 421–6.

Ogola, J. S., W. V. Mitullah and M. A. Omulo (2002) 'Impact of gold mining on the environment and human health: a case study in the Migori gold belt, Kenya', *Environmental Geochemistry and Health*, 24(2): 141–57.

Ontario Ministry of Labour (2012) 'Minister Jeffrey expresses concern regarding bill c-377 to members of the senate of Canada', Toronto, 19 December, www.labour.gov.on.ca/english/news/2012/ms_20121219.php, accessed 6 May 2014.

PricewaterhouseCoopers (2012) *Mine: The Growing Disconnect*, www.pwc.ch/user_content/editor/files/publ_energy/pwc_mine_the_growing_disconnect_e.pdf, accessed 6 May 2014.

Richardson, D. and R. Denniss (2011) *Mining the Truth: The Rhetoric and Reality of the Commodities Boom*, Canberra: Australia Institute.

Sagar, S. (2012) 'The political prisoners of Rafael Correa', *Countercurrents*, 13 December, www.countercurrents.org/sagar131212.htm, accessed 6 May 2014.

Sánchez de la Campa, A. M., J. D. de la Rosa, J. C. Fernández-Caliani et al. (2011) 'Impact of abandoned mine waste on atmospheric respirable particulate matter in the historic mining district of Rio Tinto (Iberian Pyrite Belt)', *Environmental Research*, 111(8): 1018–23.

Scoffield, H. (2012) 'Omnibus bill only the latest move in profound changes for environment, natives', *Maclean's*, 21 October, www2.macleans.ca/2012/10/21/omnibus-bill-only-the-latest-move-in-profound-changes-for-environment-natives/, accessed 6 May 2014.

Short, R. and B. Radebe (2008) *Gold in South Africa 2007*, AngloGold Ashanti, Goldfields, www.goldinsouthafrica.com/images/Gold_in_SA_2007.pdf, accessed 6 May 2014.

The Current (2012) 'CIDA partnerships', CBC Radio, 26 January, www.cbc.ca/thecurrent/episode/2012/01/26/cida-partnerships/, accessed 6 May 2014.

TRC (Truth and Reconciliation Commission of South Africa) (1998) *Volume 4: Truth and Reconciliation Commission of South Africa Report*, 29 October, submission by Laurie Flynn, p. 35.

Van Eeden, E. S., M. Liefferink and J. F. Durand (2009) 'Legal issues concerning mine closure and social responsibility on the West Rand', *Journal for Trans-disciplinary Research in Southern Africa*, 5(1): 51–71.

Zhang, X., L. Yang, Y. Li et al. (2012) 'Impacts of lead/zinc mining and smelting on the environment and human health in China', *Environmental Monitoring and Assessment*, 184(4): 2261–73.