

# The Labour Impact of Canadian Mining in Latin America

A popular perception of mining is that of an enclave industry with few lasting effects on local economies, in part due to its negligible employment impact. Another is that most mining jobs go to foreigners or non-locals because they require highly specialized skills. Analysis of a database of 66 mines in operation under Canadian ownership partially corroborates those views. Overall, these are responsible for approximately 63,000 jobs across the region in an industry that over all employs less than 1 per cent of the labour force in the host countries. Almost all labour in those mines, however, is done by nationals or locals earning high wages and the skills required for most positions are similar to those used in construction, mechanical manufacturing, and metal manufacturing.

This policy brief focuses on the labour outcomes of Canadian mining investments in Latin America. It is part of an ongoing project at The North-South Institute that looks at the economic impacts of Canadian mining in Latin America. This project is supported by funding provided by the International Development Research Centre (IDRC).

The notion that modern large-scale mining, as currently done by Canadian companies in Latin America, provides few gains for workers in developing countries, which typically have an abundance of unskilled labour, is based on the assumption that mining is a capital-intensive industry which uses advanced technology. Evidence collected from all Canadian mines in operation in 2011–12 demonstrates that most Latin American countries have sufficiently skilled workers who take most of the jobs, often with minimal new training. While compensation is high—often 1.5 to 2 times higher than national averages—working conditions are harsh. Extended shifts, overbearing monitoring, and work sites in remote locations are particularly problematic.

Large-scale mining is similar to other natural resources-based exporting industries, such as oil and natural gas, and its limited labour impact is comparable to that of large-scale palm oil, soybean, and wheat production for export markets. One major difference is that those other industries have comprehensive taxation regimes, which play a key role in spreading economic benefits to producing countries. Mining companies operating in Latin America pay relatively lower taxes, which means the employment impact of mining by default becomes a larger share of the industry's overall economic benefit accruing to producing countries.

# Nature of Employment

To better understand it, employment in Canadian-owned mining projects in Latin America must be unpacked. First of all, mining is a well-paying industry in which salaries are one and one-half to two times higher than those in other industries once education, gender, and age are taken into account. Second, mining is capital-intensive, but no more so than car manufacturing, which has traditionally been seen as a harbinger of economic growth and good jobs in that region. Lastly, while technological innovations in the mining industry have led to fewer people being employed, those that are employed are hired from local populations.

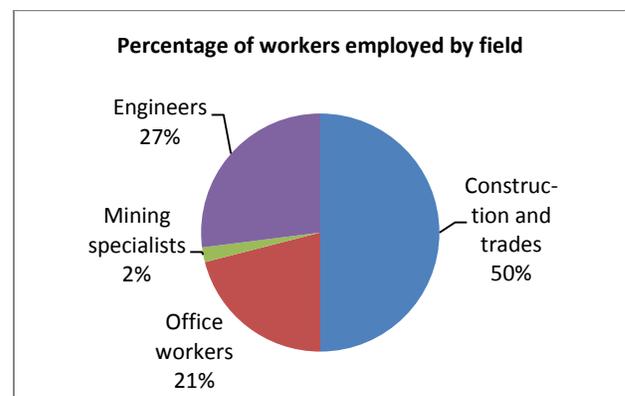
Employment by Canadian-owned mines in Latin America in 2011 was distributed as follows:

Country	Workforce
Argentina	6,040
Bolivia	961
Brazil	7,124
Chile	11,622
Colombia	3,774
Cuba	1,277
Dominican Republic	1,325
Guatemala	2,030
Honduras	364
Mexico	16,285
Nicaragua	1,160
Panama	456
Peru	10,306
Venezuela	759
<b>Total</b>	<b>63,483</b>

Employment by Canadian-owned mines ranges from a few hundred workers in smaller mines to a workforce of approximately 2,600 on the largest projects. The number of workers on projects roughly corresponds with

the size of the companies involved. Major mining companies have the largest mines, mainly in South America, while smaller initiatives belong to smaller firms operating primarily in Mexico and Chile.

Jobs in the mining industry are many and varied. Extrapolation from Canada's Mining Industry Human Resources Council's recent report (see MiHR 2011), shown in Figure 1, suggests that approximately half of the workers would be from the construction trades (e.g., truck drivers, crane, bulldozer, and other heavy machinery operators). Twenty-one per cent would be office administrators, financial clerks, cooks, dispatchers, and other less-skilled individuals. Electrical, industrial, mechanical, and civil engineers are needed in large numbers. Only 2 per cent of the total workforce required to operate large, modern mines are geologists and geophysicists. Still, training geologists and geophysicists is an important consideration in countries with little history in mining and few or no educational institutions educating students in associated subjects.



This extrapolation illustrates that it is not overly difficult for Canadian mining companies to tap into local populations for their human resources needs. Most technically skilled and less-skilled workers are available for hire in

the construction, manufacturing, and technical services industries.

The preliminary and closing stages of a mine require highly skilled workers, but these stages demand only a very small percentage of total workers needed during a project. The average Canadian-owned mining project involves the following four stages and estimated number of workers:

- Exploration, feasibility studies, and mine design (this stage usually takes two to four years): 100–200 workers, mostly highly skilled workers.
- Development and construction (one to three years, depending on the amount of earth that needs to be moved in order to reach mineral veins): 1,000–3,000 workers, mostly semi-skilled construction workers and heavy machinery operators.
- Production or operation (10 to 20 years, depending on amount of minerals to be extracted): 700–1,500 workers, primarily semi-skilled construction workers, heavy machinery operators, and mining professionals.
- Closure or winding down (usually one to three years, depending on regulatory demands and company's sustainability standards): 100–500, mostly highly skilled workers.

The main reason Canadian companies are able to easily hire locals is that most of Latin America is made up of middle-income countries. Therefore, populations generally have higher literacy rates. Significant percentages of working adults have attained high school degrees and technical certificates and engineering graduates are typically available. Furthermore, they can often be recruited in provincial towns in the same regions as remotely located mines, and most semi-skilled and skilled workers have prior

direct knowledge involving heavy machinery, which is comparable to the knowledge needed to work in the mining industry.

Filling positions related to geology and mining, which demand advanced skills, can however be challenging. Full-fledged mining schools or colleges exist in all countries considered for this brief, except Guatemala, yet both the quantity and quality of graduates in advanced programs related to mining remain wanting, especially across Central America. In the whole of Latin America, approximate annual enrolment in university programs where the main subjects are mining-related is 8,000 students at the undergraduate level and 1,000 at the graduate level. Chile and Peru have developed the strongest programs in the region, though Argentina, Brazil, Cuba, and Mexico have roughly comparable institutions (Cedrón, 2009).

## Corporate Social Responsibility and the Employment Multiplier

The top five Canadian companies operating in Latin America ranked by size of local workforce extensively detail their commitments to corporate social responsibility (CSR) on their websites. They frame their employment strategies very much in CSR terms, as when they emphasize their choice to hire workers from local populations. This is best illustrated by a quote from Yamana Gold's CSR report: "It is our policy to give preference in hiring to applicants from the communities near our operations, in an effort to contribute actively to local development. Today, over 75% of our new employees come from the communities in which we operate

directly or indirectly” (Yamana Gold 2012, p. 24). Another large employer, Goldcorp, claims that 81 per cent of its employees working on projects in Latin America come from local or regional areas (Deisley, 2011).

Employment in Latin America in 2011 by Canadian mining firm was as follows:

Company	Workforce
Pan American Silver	9,028
Goldcorp	6,088
Yamana Gold	5,447
Barrick	5,446
Gran Colombia Gold	3,474
Kinross	3,047
Aura Minerals	2,655
Teck	1,868
First Majestic	1,496
Others	24,938
<b>Total</b>	<b>63,483</b>

Canadian companies also emphasize ongoing training of local workers. For instance, Pan American Silver’s CSR report reads: “Our new Training Centres at the Morococha and Huarón mines will help improve and upgrade the skills of our current workers. At the same time new recruits and prospective workers from the local communities will gain the necessary training and the tools to succeed in the underground mining industry” (Pan American Silver Corp. 2009).

Evidence obtained through fieldwork on Canadian companies’ Andean and Patagonian mine sites indicates that these companies hire and train locals because that is the most economically profitable strategy. Local workers are already relatively skilled, they have fewer commuting costs, and local hiring solidifies support in immediate communities for mining projects. Besides,

companies really do not have that much of a choice, particularly on the more remote and climate-challenged sites.

Apart from employment on sites, mines create a number of jobs in immediate communities and, broadly, in the countries where mining companies operate. The ratio between the number of jobs created directly and those created indirectly is known as an employment multiplier.

Estimates for this multiplier in the case of Canadian mining projects in Latin America range between 2 and 5, depending on existing conditions, public policies, and corporate practices. Most mining companies’ CSR statements include how the companies foster local firms to start or direct businesses with a given mine project. Construction, transportation, catering, energy, and security are the largest subjects of such contracting. Indirect labour impact is important to consider because the aggregate demand from local workers in a community increases, since higher wages increase local purchasing power, and that community and others with whom its population engages can also derive development benefits.

Evidence collected from regions with Canadian mines in Chile, Peru, and Argentina corroborates that economic activity has increased but whether the indirect labour impact is large is unclear. Even recent reporting by companies accepts that the impact might be on the lower side of the previously mentioned range. It appears that countries with higher prior levels of economic development accrue more indirect jobs. One significant insight is that once there is a concentration of mining projects in a country, such as in Peru, Chile, and more recently in Argentina and Brazil, wages increase significantly in mining jobs, as companies

begin to compete for the best workers, and accordingly in indirectly created jobs. Conversely, countries with lower levels of economic development and one or two mines, especially when those mines are large and complex operations, receive much lower labour gains, regardless of claimed CSR efforts.

## References

Aragon, Fernando M., and Juan Pablo Rud. 2013. "Natural Resources and Local Communities: Evidence from a Peruvian Gold Mine" (forthcoming) *American Economic Journal: Economic Policy*.

Cedron, Mario. "Mining Education in Latin America." 2009. Presentation, Pontificia Universidad Católica del Perú, Lima.

Deisley, David L. 2011. "CSR Challenges of Project Development in Developing Countries: The Goldcorp Perspective." Presentation to the Prospectors & Developers Association of Canada, March 7, Toronto.

MiHR (Mining Industry Human Resources Council). *Canadian Mining Industry Employment and Hiring Forecasts 2011: A Mining Industry Workforce Information Network Report*. Kanata: MiHR.

Pan American Silver Corp. 2009. *Corporate Social Responsibility Report*. Vancouver: Pan American Silver Corp.

Rozenwurcel, Guillermo, and Sebastián Katz. 2012. "The Political Economy of Natural Resources in South America." *Integration and Trade* 16 (35): 17-33.

Yamana Gold. 2012. *2011 CSR Report: Breaking Boundaries* Toronto: Yamana Gold.

