



## Mining in Mexico

*Mexico is experiencing the biggest boom in its 500 year mining history.*

A REPORT BY GBR FOR E&MJ

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# Mexico in 2008: Smashing the Stereotypes



The Molango mine contains the most important deposits of metallurgical grade manganese ore in North America and one of the largest deposits in the world.

Liberalizing the Mexican economy was a long, difficult and not always brilliantly managed process, the nadir of which was the 1994 devaluation which, though arguably one of the government's bravest decisions, wiped out businesses and savings, hitting the middle class hardest of all. Since then, however, Mexico has had an enviable track record of macroeconomic management that has seen low but steady growth (projected at between 2.8% and 3.2% for 2008), inflation at or below 4%, per capita income become the highest for Latin America, its sovereign debit rated investment grade and 90% of Mexico's trade covered by free trade agreements (mining was fully opened to foreign capital in 1992). In fact, Goldman Sachs predicts that by 2050 Mexico's economy—currently \$1 trillion in terms of PPP—will be the fifth largest in the world (not counting the EU). On the downside, poverty and violence remain a problem in the south and north, respectively.

Mining in 2007 made up 1.6% of GDP. According to Norberto Roque, Mexico's general coordinator of mining, the sector accounted for \$8.1 billion, rising to some \$10.2 billion with the inclusion of metallurgical activities. The first figure represents a 13% increase on 2006 and a whopping 65% increase on the year before that, even though ongoing, illegal strike action has ceased operations at three of Mexico's largest copper mines has scythed off some \$700 million worth of production.

Total investment into the mining sector grew by 70% in 2007 to \$2.16 billion, of

which 53% came from abroad. The total would be higher but for the same strike action resulting in the suspension of a planned investment of \$2.4 billion. Mining employed some 300,000 Mexicans in 2007, a number set to increase with the opening and development of more mines all around the country. These projects form part of the conservative estimate of \$14.8 billion to be invested into mining over the next few years. On the whole, the picture is extremely positive with Mexican mining companies posting record profits, while in the region of 250 to 285 foreign companies are busily exploring, developing and producing. The Fraser Institute has helped nudge things along by awarding the country the top position for geological potential as measured by its CMPI index.

While 70% of the country remains unexplored, current production is already very significant. In 2007, Mexico had the highest percentage increase in gold production, rising some 9.6% to a still modest 39 metric tons (mt). Silver production, on the other hand, dropped by some 4.3% to 2,300 mt of processed silver, still enough to occupy second place in global production after Peru. Despite strike action, Mexico came in 12<sup>th</sup> internationally in copper production with some 323,000 mt, a 1.3% reduction on last year. Mexico produced 417,000 mt of zinc in 2007, a 3.6% diminution on 2006, again the result of strike action at Grupo Mexico, but also lower production figures from Peñoles' Naica, Francisco I. Madero and Sabinas mines.

While precious and base metals are the big story, there is much more to the industry. Iron ore production hit 7.3 million mt in 2007, an 11% increase and Mexican coal production was 11.6 million mt—6.5% increase on 2006—while coke production was 1.53 million mt—a 2.1% reduction. Extraction of crude manganese carbonates increased 12.9% to 597,000 mt and manganese node production was 355,000 mt, a 25.9% increase on the previous year. Production of non-metallic minerals hit a record \$583 million in 2007, the biggest contributors to which were salt, fluorite, silica, sodium sulphide and gypsum.

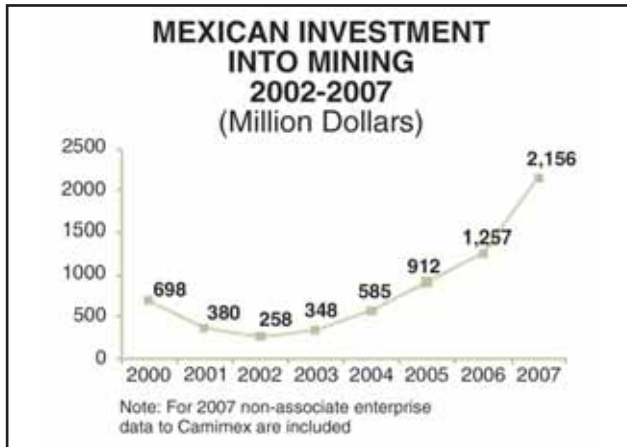
## Mining in Context

Despite the size and vibrancy of mining, many Mexicans are surprised by the international attention the sector is receiving. They associate mining with the past and pretty much every Mexican will tell you that mining in Mexico goes back to before the arrival of the Spanish conquistadores. During the Spanish period, and throughout the first turbulent century of Mexican independence, mining, particularly of silver, represented the bulk of the territory's legitimate and black economies. So dominant a role was given to mining, in fact, that the push of the Mexican state into the furthest reaches of its current territorial boundaries was inspired by the search for silver and gold, more than for souls.

They are equally bemused to see mining being carried out by small and foreign companies. This is because restrictions on foreign investment resulted in mining being carried for the most part by a small group of monolithic 'super' companies, while in the shadow of these behemoths grew a moderately successful sub-industry of *pequeños mineros* or "small miners." Collapsing prices across the metals spectrum in the latter half of the last century, combined with Mexico's general economic volatility largely wiped out the *pequeño mineros*.

The large mining conglomerates, on the other hand, flourished thanks to the lack of competition and the benefits of scale. That said, low prices and intermittent domestic instability led to an understandable focus by most on 'cost' over any other factor, establishing mining in the minds of many Mexicans as a difficult job best avoided. This in turn had the effect of creating a





very close community among mining engineers and geologists that is still evident today.

The global thirst for commodities and the attraction of gold, and now silver, as investments, have revolutionized Mexican mining by heralding the arrival of literally hundreds of international companies. Mexico's geological wealth is a boon that neither its government nor relevant companies can afford to leave unexploited. And there's the rub. While the Fraser Institute awarded Mexico the top position for geological potential, the same survey saw it fall one place to only 24<sup>th</sup> out of 68 for its Policy Potential. This is reflective of significant difficulties regarding unions and the enforceability of laws. There are also questions over Mexico's infrastructure, public security and the quality and availability of its service providers and workers at all levels.

Interest rates and inflation have been well managed, and both corruption and red tape have been reduced, but the petroleum sector and land reform remain wrapped in layer upon layer of Revolutionary hubris and mercenary bickering. Taxation for companies have been dramatically simplified: companies can pay a flat rate of 16.5% on profits as of this year, the top rate of personal income tax is 28%, depreciation allowances can be up to 50% on pollution-control equipment and there are no royalty payments due for miners. But at the same time the social security system is opaque. The services sector has had little time or opportunity to develop thanks to the paucity of available credit and the quality of workers is affected by the appalling quality of much pre-university education. There is also a mini-war going on between the government and a narcotics black economy that is forever threatening to spiral out of control.

Mexico is a very large and badly connected country: local issues matter more than one might think. Two fundamental issues that have had a direct and largely negative effect on mining are land rights and labor relations. No Mexican government can or will tackle these without the kind of wide public support that is notably absent. These problems are, however, openly acknowledged and are at least being addressed. Mexicans across the public and private sectors and even some labor unions are busy trying to ensure that business as usual can continue.

Mexico's geological potential speaks for itself. What has changed is that this voice can finally be heard above the din of revolutionary slogans and wails of injustice so characteristic of the country's past. And that voice has now been joined by a chorus made up of service companies touting for business, the government calling out for investors and, if you listen carefully, the satisfied grunt of miners turning that potential into reality.



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# Laying Out the Welcome Mat



Peñoles was the first mining company and remains a leader in recruiting women.

Mexico's government's efforts to promote mining to international capital have, in recent years, proven both sincere and effective. Effective, certainly, if one were to judge by the number of new companies: 285 at the last count. These efforts are coordinated through a ministry-within-a-ministry called the 'General Mining Coordination' (CGM) whose head, Norberto Roque, the coordinator general (C-G), is effectively the mining minister in all but name. The CGM is directly responsible for the system managing concessions and claims, oversees efforts to promote the expansion of investments in Mexican mining and provides the guiding vision behind efforts to expand the involvement of small and medium Mexican enterprises in mining. And the CGM cannot be criticized for lack of activism.

Currently, mining claims and concessions are a patchwork of varying sizes forming a workable hodgepodge that would benefit from rationalization. The technical aspects of this modernization have now been completed through an extended process in which key industry personnel, including Jose Luis Mendoza of Peñoles and Jose Luis Mendez Narez of Grupo Acerero del Norte, were closely involved. The legislation required to implement these changes has likewise been prepared and, according to Director General of Mining Carlos de la Cruz Ledezma, "the

government is only awaiting the opportune time to place the legislation before Congress. Although it would be unwise to predict a problem-free passage of any legislation through Congress, the new system should be uncontroversial given that it will leave Mexico with a mining concessions system world-beating in its simplicity and workability."

In terms of attracting investment into mining, Norberto Roque has been busy taking the pitch to the customer through investment road shows to markets such as Toronto and Sydney. The reward has been steadily growing foreign investment in mining (more than \$1 billion in 2007). Opening up Mexican credit markets, however, to mining opportunities has been markedly less successful. While banks are indeed now offering lines of credit to companies with a heavy involvement in mining, these remain expensive. "To successfully run and expand a business in Mexico I've basically had to teach myself economics and the essentials of an MBA in order to get a credit package for my needs," said Ing. Jorge Hernandez Yanez of hydraulic equipment firm EHG Bombas.

"Business loans are still hard to come by, even when miners themselves sit on the board of the bank in question. I know! I sit on one," said Ramon Davila, COO, First Majestic and general eminence grise of mid-cap Mexican mining. Nevertheless, growing profits have allowed the larger Mexican conglomerates already involved in

mining to increase their investments in Mexico, notably Peñoles/Fresnillo and Grupo Mexico/Southern Copper, although Minera Autlan and Grupo Acerero del Norte have also boosted their activities.

More challenging, admits Norberto Roque, is the effort to get small and medium firms involved in the mining boom. Perhaps bravely, the government has for all intents and purposes cut off the lifeblood of subsidy for all but the most professional and well-managed small mining firms. "If I did not have ambitious plans to build a mill to serve not just my own, but other surrounding small operations, I would not have received the money," said successful grantee Alfredo Lozoya of Grupo Minero Lozoya.

Scarred by the fraud and failures that marked its predecessor body, CGM's SME fund-with-a-difference the Fideicomiso de Fomento (Fifomi), has moved "to balance support to miners with funding for firms seeking capital to service miners. Especially in key areas such as contracting," said Alberto Ortiz Trillo, Fifomi's D-G. This approach has met with modest but marked success, both characteristics appearing to stem from the stringent requirements Fifomi has put in place for companies wishing to receive financing.

While dismissed by some key industry figures, notably president of the influential Miners Association of Sonora and Mexico, Luis Palafox Torres, as "pointless, overly stringent and even anti-mining," this focus on the activity around mining rather than mining itself is defended by Alberto Ortiz Trillo as being in Mexican mining's best long-term interests.

The reasons for this are fleshed out in the model that Norberto Roque has for Mexican mining to follow: Italy. Italy? "While Italy's mining sector may be modest, what it does have is a vibrant SME-dominated metals industry, successfully devoted to the manufacture and processing of the produce of mining," Roque said. "Thus, when the boom ends, the jobs stay."

Given that Mexico's number one position in the Fraser Institute survey was for potential, the current pressure is on ensuring that information relating to Mexico's geological potential is available for those who would exploit it. This responsibility



Norberto Roque, coordinator general of mining.



has been given to a beefed-up Mexican Geological Service (SGM), a body of geologists and mining engineers whose task is to map, log and develop for further exploration concentrations of mineral wealth the length and breadth of the country. The well-funded SGM has a staff of more than 500—of which almost half are fully-qualified earthscience professionals and a quarter IT specialists—spread across seven regional offices, two labs and a pilot plant. The SGM has been very successful in developing a suite of hi-tech mapping and exploration solutions to essentially do potential investors' job for them. All the SGM's information is held in an integrated database accessible via the internet, including all of its maps—geological, geophysical, and geochemical—and 50 years of historical geological and metallurgical data, all searchable across a number of different variables.

"The core task of the SGM is the Mexican Geological Survey, for which they have now completed the entire country at 1:250,000 scale and are in the process of completing 1:50,000," said Rafael Alexandri Rionda, director general, SGM. "The 1:50,000 has been completed for Sonora, most of the north of the country



Rafael Alexandri Rionda, general director of Servicio Geológico Mexicano, located in Pachuca.

and some of Oaxaca, anticipating and prompting the path of exploration in recent years." The SGM is currently developing three maps close to Mexico's southern border, an area that, though currently politically problematic, "could well be Mexican mining's next big thing." The survey aside, the SGM has a department charged with developing and implementing exploration plans for their sites and those of their

clients. A budget of \$2.6 million has been put aside chiefly for quantifying and certifying the reserves of states and of small and medium miners as a first step to getting access to credits or loans, usually from Fifomi.

As noted above, the SGM has its own properties, and these are developed for eventual auction as Federal Mining Claims. These are sites with demonstrable potential for commercial mining for which, once auctioned, the SGM receives a one-off 'finder's fee' and a royalty of between 1% to 3% once in production. Of the properties being auctioned this year, there are El Triunfo del Valle Perdido in Baja California, a gold-silver, lead-zinc property; San Xavier in Sinaloa; Santa Isabel, a lead-zinc site in Zacatecas; Guadalcasa, again gold-silver, lead-zinc property, this one in San Luis Potosi; and Andrea in Michoacan, a potential copper-lead-zinc mine. The SGM's record on such sites is strong and includes Grupo Mexico's La Caridad mine in Sonora, Agnico Eagle's Pinos Altos mine in Chihuahua, First Majestic's Guerrero Negro in Zacatecas, and Peñoles' Francisco y Madeiro and La Tizapa mines.

Both in theory and in practice, when it comes to getting started in Mexico, the sys-



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Previously rare, underground mining is becoming increasingly common.

tem could not be more helpful. Of course exploration in and of itself produces no value. Value comes from production and, here the picture is more mixed.

## Mining Law—Theory and Practice

Mexican mining is regulated according to federal laws and implemented according to local realities. The legal system as a whole is friendly to investment and reflective of mining needs. According to Rafael Cereceres of law firm Baker Mackenzie, “The often difficult histories of communities close to mines means that the intentions of companies are often mistrusted.” Enforced through the Secretary of the Economy, mining law is a largely technical code,

whose implementation is generally recognized to be transparent and effective. Land issues—the source of so many problems—do not come under the code and are a more delicate matter in Mexico and can lead one into a bewildering maze of competing rights in which the Mexican constitution and even Aztec law can and sometimes do come into play.

All mining companies in Mexico are, by law, Mexican mining companies, though the capital can be 100% foreign. “The vast majority of international companies working in Mexico entered through acquiring, along with the concession they were interested in, the company that held it,” said Juan Pizarro-Suarez of law firm Pizarro-Suarez & Vazquez. “The process is straightforward and can generally be completed within the space of three months.”

The concession system, as noted elsewhere, is generally well-regarded, the key issue, according to Victor Garcia Jimenez of Garcia Jimenez & Asociados, is ensuring clarity over a given concession’s (which lasts 50 years) actual legal status. “Once established in Mexico, byzantine social security laws and a rather sweet profit-sharing system remain mainstays of business life in Mexico,” said Garcia. “Although the taxation system has been simplified, there are still no stable tax agreements, as is the case in Chile and Peru, and deductibility from taxes is likewise more limited.”

In terms of permitting and environmental regulation more generally, after some early hiccups, the last few years have seen a marked improvement in Mexican civil servants ability to deliver clear decisions promptly. As Enrique Pablo-Dorantes of Environmental consultancy Corporacion Ambiental de Mexico said, “Mexico only got its first law with a focus on environmental health—requiring data provision, soil sampling, etc.—in 1988. General competence among civil servants was only really achieved about a decade later and expertise in applying it to mining took even longer,” Pablo-Dorantes said. “Now, however, in part due to government pressure, they have improved a lot and are much more communicative.”

This is backed up by mining companies who have been pleased with the performance and approach of environmental authorities. Craig Gibson of Exmin was just one among many who strongly advised that companies in the extractive industries “take great care in managing relations with relevant authorities, assigning specific staff and making use of consultants, preferably with working experience of the regulator’s internal processes at all three levels of government.”

The bulk of the attention in legal mining matters is concentrated on issues that cause either union disputes or land disputes. Union issues are currently concentrated on a particular conflict between Grupo Mexico/Southern Copper and the Sindicato Nacional de Trabajadores Mineros, Metalúrgicos y Similares de la República Mexicana (Mexican miner’s union) over the Cananea mine, aggrieved further by an apparent personal enmity between the two men at the head of the two organizations—Grupo Mexico CEO German Larrea Mota-Velasco and Mexican miner’s union boss Napoleon Gomez Irrutia. Whatever the rights and wrongs of the initial dispute—and there is enough juicy gossip to fill a telenovela—the situation has descended into mutual recriminations of gangsterism and murder and has now been taken in by the president’s office.

This instance should not be taken as being reflective of Mexican labor relations in general either in its animosity or, indeed, in its length. The average Mexican is extremely sympathetic to the cause of the unions in general, despite intermittent

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discussions in the press of union abuses. Unions are everywhere in Mexico and seemingly always angry. Their prominence is a product of the post-revolutionary settlement of which the PRI's dominance of formal politics was only one aspect.

Given the substantial workload of the current administration, wholesale labor reform is unlikely and arguably unwise. Therefore, as Mark Mosely-Williams of Fortuna Silver, argues, "the answer to the union issue is the same as the answer to the community issue: You need to work with people, bring them on board and treat them well. The rules of the game are different here in Mexico—play according to them."

On the specifically mining front, the Monterrey-based Sindicato Nacional de Trabajadores de la Exploración, Explotación y Beneficio de Minas de la República Mexicana is a new union that appears to present a more positive and progressive approach to the role of labor and has been winning praise and garnering interest nationwide. Other existing unions may take notice, but just as easily may not. In either case, business in Mexico requires an extremely careful and sympathetic hand when dealing with labor relations generally.

Another area where a careful hand is all important is in the question of community relations, particularly where the community is the legal 'owner' of the land above the concession, usually through a system called "ejido." In such cases, good relations based on mutual benefit are everything and legal agreements can often amount to nothing. There is much frustration that the government does not intervene more forcefully when communities clearly violate agreements, but land rights are an old, old question in Mexico and the spectre of Comandante Marcos ensures that force is simply not an option.

Advice on who and what kind of person within a company is the 'right' person to lead negotiations with ejidos varies widely, as does advice on how. When things do go wrong and seem utterly insoluble one thing that everybody appears to agree on is that the federal government is next to useless: they are reluctant to get involved and when they do get involved, the situation often degenerates further. What can help is a strong relationship with state governments—the Governor of Zacatecas, Amalia Garcia Medina, in particular was widely praised for the assistance she has given in resolving disputes of all sorts—and municipal authorities, who have much more influence with communities. Trade bodies can also help, Luis Palafox Torres, president, Miners' Association of Sonora and Mexico, for example, has been instrumental in resolving disputes both within and beyond the borders of Sonora.

While Mexico-based legal advice can only go so far in resolving differences with ejidatarios and communities, it does assist in setting the parameters for discussion and judging the strength of agreements. It can also be instrumental in dispute resolution in general, procedural requirements and discussions with federal state and local authorities. Strong knowledge of labor law and experience of resolving labor disputes are likewise essential. The problem can be in finding that advice. While some international law firms with mining expertise are present in Mexico, Mexican lawyers with mining knowledge are few and far between. More boutique firms are being created as the demand for mining-related legal advice becomes apparent, but not all are as experienced as they might be. It is however, essential that companies use their lawyers as a resource for more than just form-filling, because law in Mexico is much more than just what appears on the page.

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# Exploring in Mexico: The Dust Clears, but the Rush Goes On

The researchers at the Fraser Institute are not the first to notice Mexico's geological potential. After all, foreign firms first entered Mexico in 1992, essentially as soon as they could. Subsequent low metal and mineral prices, however, rather strangled the nascent 'new' Mexican mining scene almost at birth as many of the reopened or new projects were suddenly closed again just as quickly as capital fled. Mexico's protracted transition from one party rule and a severe devaluation further complicated matters for investors who, on the whole, fled. While some early entrants have remained and prospered, ECU Silver is an example, other early entrants have struggled to turn their early entry to their advantage.

As well as the lifting of legal restrictions and Mexico's notable internal advances (including a peaceful resolution to the tight elections of 2006), steadily rising metal prices and a looser credit market with a developing taste for off-key investments, combined to create what Jomargo's CEO Jose Martinez Gomez describes as: "An almost wild west atmosphere of gold rush as 'gringos' appeared all over Mexico, buying up concessions that had been closed for as long as centuries or as little as a few years." The reputation of the new entrants was originally somewhat marred by the odd bad apple, but the sheer weight of numbers, vastly improved 'policy and practice' by juniors, means that "the Canadians" are now an established and recognized presence in Mexican mining.

Of course, the increase in exploration is far from being a Mexican phenomenon, as a quick glance at global exploration figures show. According to the Metals Economics Group's (MEG) 2008 survey of global nonferrous exploration, allocations totaled an estimated \$10.5 billion: a 40% increase over 2006 and 450% on 2002. Of course, increases in allocations do not translate into proportionate increases in actual exploration activity, as juniors routinely utilize less than their allocation. Further to this, rising costs and the weakening dollar mean that money devoted to exploration goes nowhere near as far as might immediately be assumed, as Craig

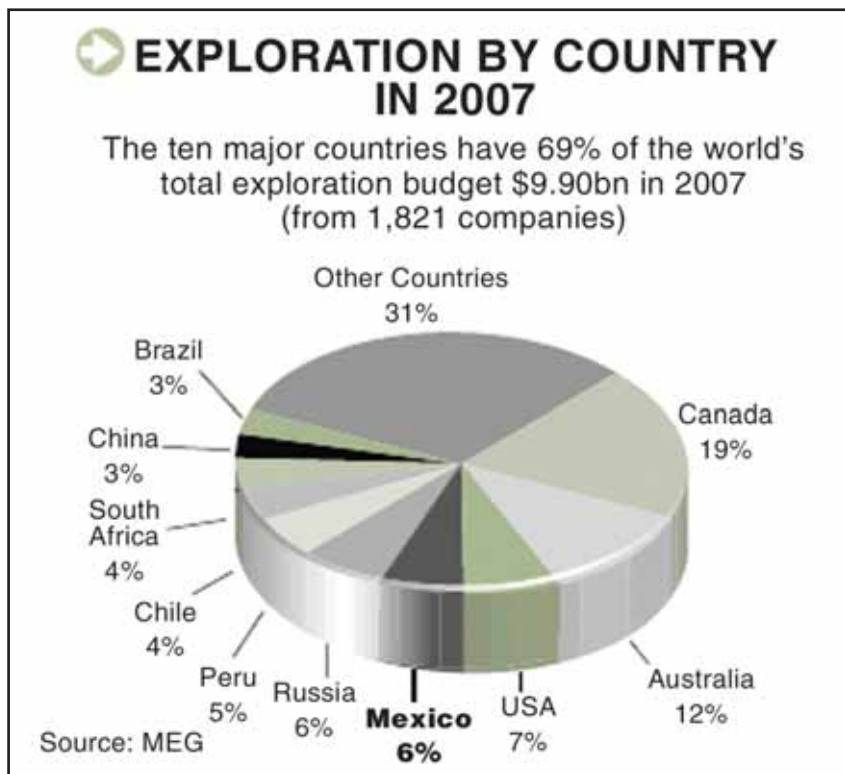
Gibson of Exmin said: "Everything from steel to sulphuric acid is going up and up in price."

The rising price for commodities is one aspect, but services have also seen a huge increase in demand with resultant price increases. Drilling and assaying are particular culprits in the eating away of exploration budgets. MEG quotes an estimate for increases between 2004 and 2007 for drilling rates of 35% and assaying of 27%. Thomas Utter of Zaruma Resources quoted similar figures for 2007/08 year-on-year increases alone. "Rates are rising, but what is all the more frustrating, is that you cannot even get them to work for you in the first place," said Utter. Another global issue has been the search for talent, with even traditionally low-labor cost countries seeing exponential wage increases for skilled labor.

Overall, however, exploration has increased, and successfully so. MEG shows that Mexico has been a particular beneficiary, coming in fifth, just behind Russia, in global allocations for exploration with a reported figure of \$600 mil-

lion. According to government figures, there are 600 exploration projects in the region, 75% of which are funded by Canadian capital. Such a hive of activity in exploration is new for Mexico, where even the majors had largely given up on exploration and gone to seek pastures new.

The leading state for exploration was, and is, Sonora, though activity is now picking up strongly in the adjoining states of Chihuahua, Sinaloa and Durango (particularly Chihuahua) as well as in the historical mining districts of Zacatecas, Jalisco and San Luis Potosi. The prime reasons for the Northwest's attractiveness are clear: the area's mining history, its geology and its proximity to the U.S. border. As Porfirio Padilla of exploration contractor Cascabel (Called Imdex in its American incarnation) noted, "The best place to look for metals is where someone else has already been successful and a general and documented awareness of historic mining areas in Sonora has certainly contributed to our ability to pinpoint such a wealth of 'new' deposits in such a short time."





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\* México, current mineral potential. The Fraser Institute Report



Surface works at El Sabinal, Ascencion, Northern State of Chihuahua.

Michel Roy of ECU Silver has personally benefited from this. "Work on our Velardena property in Durango will be immensely assisted with the finalization of a project to input all extant data into IT form, allowing for a fuller analysis of exactly what our resource base is and where they should be exploring," Roy said.

Geologically, the Sierra Madre Occidental is essentially a long mineralized rise, rich in silver, gold and base metals. The region covers some 800,000 km<sup>2</sup>, the two upper-most strata of which are tertiary and cretaceous, which comprise upper and lower volcanic sequences. Older marine and continental sediments

are found throughout the belt. Starting from the border with Arizona, the area extends down from Chihuahua and Sonora through Sinaloa, western Durango, western Zacatecas and part of Jalisco states. From there the belt overlaps with the Trans-Mexican volcanic belt, leading to yet more riches along the Guerrero Goldbelt.

Exploration has generally followed this line, especially as many mining companies have been loath to move further south due to that area's difficult reputation as regards community issues and lawlessness. Large parts of the north, on the other hand, and Sonora, Durango and Zacatecas in particular, are very much mining country, both in the awareness levels of the inhabitants and in the low population density of the area. As director general of explosives firm Austin Bacis, Ricardo Moreno, pointed out, "Not only is it easier to find workers with experience in mining [in the Northwest], it is also easier to gain acceptance for a given project."

"Sonora is so mining-friendly that we are the only state in Mexico to have a mining law of its own, particularly designed to both ease the entry of foreign capital into mining and to help support those companies in any disputes that might arise



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downstream,” said Guillermo Salas of Sonora’s State Economy Ministry.

Larry Segerstrom, COO, Paramount Gold and Silver, claims that Mexico is the easiest place he has worked, even taking drawbacks such as infrastructure and social problems into account. This may be influenced by the fairly easy time the company has had of it on its property in the San Miguel district of Chihuahua, on the border with Sonora, as much as by his Mexican birth. Paramount’s property is flagged due to its similarity to much of the exploration work being done in Mexico. It was originally explored by a first generation junior company from whom Paramount acquired initially 70% and then, as further work produced positive results, 100% of the property. The ore bodies that they are discovering are, in value terms, an even mixture of gold and silver, creating all the headaches that such a mix brings when it comes to eventual exploitation. Additionally, some of the potentially richest areas were initially inaccessible due to the perceived risk of water, necessitating sourcing an alternative water supply for the nearby community before they could even think about exploring. Operationally, Paramount is



Underground works at El Sabinal, Ascencion, Northern State of Chihuahua.

largely staffed by skilled senior foreign engineers, though several of its most senior executives come from a purely financial background, and it is as careful with its relations with the stock market as it is with those with the local communities. Despite this, their relations with the stock market have not been smooth—trading in their shares was temporarily frozen after

reporting errors. Indeed for many juniors, the stock market is proving as much of a liability as a boon for many companies, especially in the post-credit crunch world.

Carlos Gomez Luna of service provider Citland International de Mexico is one of many who are aware that. “While excellent prospects remain in the north, the easy ones are gone,” said Gomez. “Those com-

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panies lacking the financial and human resources to exploit more technically challenging projects have therefore been moving south, where technical difficulties are reduced but where external factors are often exacerbated." These areas include Guerrero, Oaxaca and even Chiapas.

Geology is never a problem in Mexico and while the Sierra Madre Occidental may be "taken," as it were, the Western edge of Mexico boasts a series of epithermal deposits all the way to the southern border. Two things increase as one moves south in Mexico: flora and poverty. Guerrero, Chiapas and Oaxaca compete for the title of poorest state in Mexico. And while Chiapas may have Comandante Marcos as resident social revolutionary on its list of unique characteristics, Oaxaca can counter with having the largest number of ejidos in Mexico.

Discoveries in these areas have been notable, and Goldcorp's belief that—alongside the massive Peñasquito mine in Zacatecas—Guerrero is to be its bread basket for many years to come, shows that it is not impossible to work in these areas effectively. Salvador Garcia, vice president-Mexico, Goldcorp, expresses genuine joy at the result of their explo-



Alfonso "Poncho" Martinez Vera, technical director, Servicio Geologico Mexicano and former president of the Association of Engineers, Metallurgists and Geologists of Mexico.

ration work here. Likewise, Fortuna Silver's success in Oaxaca and Farallon's G9 property in Guerrero show that mid-size companies with a strong Mexican presence can also progress. That said many a company has run into severe trouble after a bright start.

"Lots of people told us to stay well away from Guerrero, arguing that it's a

very difficult state, communities-wise," said Garcia. "Well, we listened, but we entered Guerrero anyway and the truth is...it's a very difficult state. But we are finding our way with communities thanks to our experience and approach and it's now going well." If a company with the resources of Goldcorp encounters strong difficulties, the likelihood of smaller companies making a go of it seems small.

Due to the attention it gets, it often seems that 'community' is the overriding issue for explorers in Mexico, but the reality is that exploration often never even touches on communities. In fact it is cash issues that are the most important. Although Mexico offers many relative advantages, exploration remains an expensive and inherently risky business. And while the price of gold and silver will likely remain buoyant, and almost certainly high enough to ensure that the great bulk of current projects remain economic, costs for all aspects of mining related activity are soaring. Now this is a worldwide phenomenon, but a potential mark against Mexico, specifically, is the lack of fiscal incentives to support mining, and in particular exploration. "In fiscal terms, Mexico does nothing to make exploration

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less risky financially," said David Euresti, vice president-corporate affairs, Aurea Mining. "This stands in stark contrast to places like Peru and Chile where you get attractive tax breaks. Given that energy costs there are also cheaper, I don't think the fact that Mexico doesn't charge royalties is enough, frankly."

While Mexico does present specific challenges, it is about external factors such as the financial markets that explorers complain the most. It is there that an ill-advised hedge can sink a company and where investors sometimes stubbornly refuse to acknowledge positive results. It is truer now than ever that mining companies need real business people to effectively grow, develop and sell their projects. The business end of the industry is easily as interesting, sophisticated and complex as the most challenging geology and, as with mining proper, doing things correctly does not always guarantee success.

Although failure, like success, has no template, there is a general feeling in the industry that some companies were too enthusiastic in trying to run before they could walk. There do appear to be some ground rules, though, that, barring disaster and incompetence, can be taken as a kind of juniors' charter. First, explorers should make sure that what is above does not impede exploitation of what's below. Second, they should make it official: do a pre-feasibility study and get a 43-101. If things go wrong, having all of the company's ducks lined up in a row can point the way to a handy escape route. Third, financing should be completed first.

While those tips may be seen as common sense, it does not cover for unexpected events. Primary amongst these events at present is the pan-national credit crunch. Increased scarcity of credit means that even the best companies are being forced to navigate some pretty choppy financial waters, even as they log excellent, verifiable results on 100% owned properties. This would suggest that even though one might be counseled to walk before one can run, the reality is that many companies now feel that they need their own revenue stream, something best achieved by producing as it explores. Now, while many juniors were criticized for being originally drawn to Mexico by the prospect of a quick path to producer status, it appears after all that this is the way go—certainly if one is judging by results.

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# Emerging Mid-Caps: Mexico's Newest Producers

Most would look at a mountain range and see a pretty view. Then there are those for whom those rocks are but the first layer of a sophisticated puzzle. Exploring for minerals, if one is that way inclined, is immensely good fun. The puzzle, after all, is not circumscribed to a sheet of paper or packaged in a cardboard box. Instead, it is written into the very soil and rocks and requires not just careful thought and analysis, but equipment that would be more at home on the USS Enterprise than a game room. Where the two, exploring and puzzle-solving, again come together is that, few can be genuinely called experts and, those that can, often get addicted.

The last few years have been fantastic for such people. Demand for new projects was high, the cash for finding them plentiful though expertise was rare. Geologists who had spent careers working for others saw the opportunity to work for themselves and turn a tidy profit in so doing. But, if it ever really was true, the image of a two-man shop operating on nothing but a hunch and risk capital is outdated. The reality is that most successful explorers are sophisticated enterprises based in real offices with teams of people working across several sites, as conscious of how their discoveries are communicated to the market as they are of the discoveries themselves. Exploration is becoming an ever more difficult business as those who would provide the capital for exploration become increasingly critical and demanding observers of their investments.

In such an environment, autonomous revenue streams are vital. This is becoming ever more apparent in Mexico where the only juniors whose smiles are entirely genuine are those whose activities are leveraged by income from production. Tight credit markets, risk-averse investors and fall-out from past unprofessionalism mean that those with no revenue stream are hostages to fortune.

Happily, with Mexico's geological wealth and long mining history, it's one of the best places in the world for com-

panies to make the leap to producer status. The country boasts a wealth of examples of companies who started life as exploration, but are now producing, or on the cusp of producing, and can thus counterbalance the pressure on their purse strings with the increasing weight of the purse itself.

Such a company is Excellon Resources. Excellon's Platosa mine in Durango began life as an exploration project, though the property had a production history as a 'mom and pop' operation going back some 20 years. "We grasped the importance of being in production sooner than others and rushed to get Platosa up and running as quickly as possible, eschewing formal pre-feasibility and feasibility studies in favor of doing what needed to be done," said John Sullivan, vice president-exploration, Excellon Resources.

Rock was first moved on the project in 2004 and production started in 2005. The 43-101 that they did deign to complete ended up being quite a pleasant surprise. "What we they thought was 300,000 metric tons (mt) now looks like 400,000 mt, though the real figure could indeed be much larger, as while the consultants were doing the estimate, we were adding to it almost daily from ongoing drilling," said Sullivan.

Excellon has benefited from the quality of its ore and the location of the site. As they sit on the main Panamerican highway, it is directly on the way to Peñoles' huge MetMex processing plant. This has resulted in being able to use the empty trucks returning to Peñoles' Naica mine to take their ore with them, allowing for the transportation of unprocessed ore 300 km at a reasonable price. That said, they obviously loses out on the recoveries and are therefore looking forward to increasing Excellon bargaining power and profits with a mill of their own.

Equally rapid has been Capital Gold Corp. with the gold mine El Chanate based in Sonora. Rather than do the work themselves, as was the case with Excellon, Capital elected to contract

engineering firm M3 to do all of the engineering for El Chanate, which opened on July 31, 2007.

Marco Antonio Galindo, El Chanate's Mine Manager, said that the speed of the startup is down to a number of factors." Firstly is M3's competence," Antonio said. "Secondly, practically everybody working on the site is from the area, knows each other and has heap-leaching experience. Also, the project is compact: 3,000 hectares on private land with no ejidos and a handy hour and half from the Panamerican highway. Electricity comes from the nearby town's supply and they've purchased the rights to enough groundwater for their needs. Average production is going to be in the region of 4,000 to 5,000 oz per month from a proven base of 840,000 oz (a figure that represents a doubling in one year) and resources of more than 2 million oz. That makes for about 12 years of mine life on costs of \$220/oz.

Different in complexity and scale is Baja Mining's El Boleo project, which begins production early next year following the securing of financing in challenging circumstances from the Korea Resource Corp. El Boleo is a mammoth copper-cobalt-zinc-manganese deposit that, according to Tawn Albinson, director general, Baja Mining, will eventually produce an annual average of 50,000 mt copper cathodes, 1,600 mt cobalt cathodes and 30,000 mt zinc sulphate over an expected lifetime of some 25 years. The project sits within the buffer zone of the largest naturally protected area in Mexico, the Vizcaino Biosphere, which required an extremely rigorous environmental mitigation in the plans, made all the more complex due to the project's need to construct its own power plant. Despite all the challenges, Baja Mining has been able to steer the project through and aim to be producing from 2010.

Complexity of a different nature is to be found in the case of Zaruma Resources. Zaruma exists thanks to a senior geologist's desire to run his own mining company, in this case Dr.



Thomas Utter. Having acquired a listed company, Zaruma immediately began looking for small-scale late-term projects that could provide the ballast for the company's global exploration plans. After an initial abortive foray into Venezuela, Utter rather half-heartedly looked into the holdings of his 'shadow company' for anything in Mexico that we could get into production quickly. He found San Antonio, a property with a small 300,000 oz gold mine just waiting to be built. The size, however, created a problem. "So I returned again to 'the attic' and after some looking emerged grasping a feasibility study for a small copper property nearby the gold mine. The potential richness of the area—there are outcrops with copper staining on the wall, evidence bolstered by geophysical and geochemical analysis—was enough to secure from Glencore for 85% of the money needed to construct the mine," said Utter. Called Luz del Cobre, all of the big capital items have now been secured and with the mine on the cusp of production Zaruma can now turn to the task of exploring the 10,000 acre district around it, whose exploration potential has secured its actual production and vice versa, including developing the gold mine into something that can be financed.

Baja is not alone in taking on a large project. Fortuna Silver and Minefinders are just two companies in Mexico that have taken on very big projects. Fortuna is already producing and earning from their existing mine in Peru, Caylloma, and aim to have their Mexican mine in production by the first quarter of 2010. "San Jose is a high-grade silver- and gold-bearing epithermal vein system located in the state of Oaxaca in southern Mexico with indicated resources of some 17.7 million oz silver-equivalent ounces and the inferred resources are estimated at 49.1 million oz silver-equivalent," said Mark Moseley-Williams, vice president-project development, Fortuna. "The aim is to process ore at a rate of 1,500 mt per day (mt/d) to 2,000 mt/d for 10 years."

Having only recently purchased their partners in the project, Continuum, outright, they have successfully managed a budget of some \$23 million for exploration and engineering on the project, all the while maintaining healthy com-



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munity relations. "Construction is under way and progressing well," said Mosely-Williams. "An early emphasis on getting our community relations right has led to the project being able to boast excellent community relations despite Oaxaca's rebellious reputation."

Not every project in Mexico is a success, however, and no article on juniors making the transition to production would be complete without an examination of one of Mexico's horror stories. The experience of Minefinders in Dolores in Chihuahua is a good illustration. Originally scheduled to do its first pour last year, Dolores would be a fantastic heap leach project that would last 15 years producing 200,000 oz/ly silver, thus leveraging the company's exploitation of what is a tremendous land position across Sonora and Chihuahua, as well as others further afield. If only they could manage to bring it to production.

Community issues have halted operations several times and there have been construction issues with the fill as the geography in general is extremely complicated. In the meantime, the company is in the process of relocating an entire town. On the community side,

many spoken to are adamant that the problems have everything to do with unsavory individuals in the community itself. The company originally gave townspeople \$39 million, or about \$170,000 per household, to use their land. But this has not proved enough and some residents are now using specious arguments about the effect of the cyanide used in the leaching on their farm land to demand further compensation. Careful financing means that Minefinders is unlikely to be dragged under by the project, but there is only so long that such a block can be allowed to drag on.


But, Dolores is the exception. Also in Chihuahua, also out of the way, also heap-leach and also sizeable is Gammon Gold's Ocampo mine which started production this year. Ocampo has proven and probable reserves of 33.6 million mt grading 1.25 g/mt gold and 52 g/mt silver, or 1.3 million oz. gold and 56.2 million oz. silver. About 67% of the reserve's ounces are in the open-pit area, with the remainder found underground in the Northeast.

Community issues have not been a problem at Ocampo—there basically

isn't anyone in that area—and availability problems with equipment have been dealt with by long-term contracts, holding stock and clever networking. Gammon has a further two operating mines in Guadalupe y Calvo, which won't be on-line until 2011 and El Cubo in Guanajuato. Both are running smoothly and set for exploration and expansion with about a dozen rigs having been secured for a campaign through the first six months of 2009.

Ocampo, however, is where the excitement is, as is evident from Russell Tremayne, Gammon's ebullient COO who has also been managing the project. "If you saw our orebody...it's like Pandora's box," said Tremayne. "There's so much down there. It is such a thing that it makes you hesitate and think carefully about the best direction. So we're agonizing now about things like how big do you make the mill, deepening the mine, that kind of thing."

Agonizing over what do with a large project is certainly something that executives at Alamos Gold can relate to, if under slightly different circumstances given the problems encountered on their Mulatos project. Fortunately, the solu-



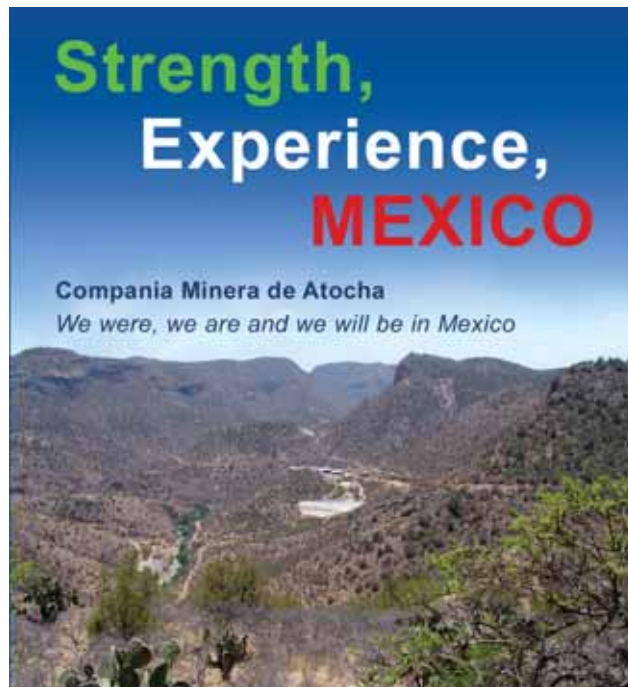
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tions to all of them appear to have been brought by the arrival of Manley Guarducci, Alamos' charismatic COO. The major issue was a problematic relationship with the local community, but there were also technical issues with the mine, according to Guarducci, that were the product of the haste with which we brought it into production, QA and QC issues being sacrificed in favor of speed. "These were mostly minor, detail issues—sampling methods in the pit, lack of proper maintenance on the crushing circuit, an incomplete stacking system—but compounded, it had a snowball effect that created significant recovery issues throughout the last two years," said Guarducci. This distracted Alamos away from exploration of the property whose potential Guarducci succinctly describes as "Yanacochoa" like. Key, however, to Alamos' ability to explore and then exploit that potential is their independence from the stock market. Because heap leaching is relatively new in Mexico, Alamos has worked chiefly with international firms. In fact, Guarducci goes as far as to say that the lack of available expertise in Mexico makes it one of the toughest countries



Manley Guarducci, vice president and COO, Alamos Gold, Inc.

he has worked in. "And, I was kidnapped in Honduras!," Guarducci said.

As well as skills issues, ejidos have been a problem on Mulatos. To resolve the issue Alamos brought in ResCan, the community consultants, to advise them on what to do. "Following that,

we've put in place a special community relations team and worked hard to build a good relationship with state and municipal authorities," said Guarducci.

On the whole, then, it would appear that mining in Mexico presents specific challenges that can make or break a project. Chief amongst these are ejido issues and the willingness of Mexican people to take part in direct action and the unwillingness of the state to take action against them when they do so. Coming a very close second is a perceived dearth of qualified people in Mexico suited to modern mining techniques. Little can be done on community land issues other than face the problem head on and really work with the people in the community themselves to create a sense of ownership and participation in the project. The lack of companies that are able to support mining companies by providing the skills and equipment needed is genuinely surprising given the highly developed nature of related sectors such as construction or indeed energy. Overall, however, Mexico is a market maturing quickly and companies are beginning to develop solutions specific to the challenges of mining in Mexico.



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# Mexico's Miners: Giants Prosper Amidst a Wave of New Companies

One would be forgiven for thinking that truly Mexican mining companies (certainly in non-ferrous mining) were limited to just three giants: Grupo Mexico/Southern Copper, Peñoles/Fresnillo, and Grupo Frisco. This is by no means the case as the recent boom has, despite statements to the contrary managed to foster the bit of a number of new Mexican firms.

That said the giants dominate. Looking first at Frisco, although it has been mining for some 80 years, concrete information about its activities is extremely difficult to source. What can be said is that it has been extracting both base and precious metals and that (at least in 2006) export figures represented 21% of sales and the company claimed 800,000 hectares worth of mining properties. Far more open, despite its difficulties, is Grupo Mexico. Previously divided into several different companies, its non-ferrous operations now come under "Southern Copper," though Grupo Mexico remains the most used soubriquet. Impressive profits aside, Grupo Mexico is most discussed for a fatal accident at the coal mine Pasta de Conchos in which 45 miners died and an ongoing union dispute that has shut down Cananea, its largest mine, and two other properties for two years, suspending a planned \$2.4 billion investment into Mexico.

These issues should not distract attention from the company's recovery from a protracted financial crisis between 2002 and 2004 that almost destroyed it. Precipitated by a failure to stick to the terms of what Daniel Chavez, COO, Grupo Mexico, stresses were "'junky,' not 'junk'" bonds, the company was forced to survive on 50% of their normal revenue. "We hunkered down and tried as best we could do to survive, cannibalizing equipment and taking other cost-cutting measures...by 2003, we had dropped to 50% off our peak production. Luckily, we were saved by the beginning of the amazing rally in copper prices," said Chavez.

Although copper prices mean the company is in healthy profit, the Cananea, San Martin and Taxco stoppages do, however, represent a major blow, as they together represent 35% of its total operations. "Mexican labor laws are very protective of

workers, which is great, but unscrupulous union leaders can take advantage of this to push for surreal demands," said Chavez.

The union in question used to represent 100% of Mexico's miners, but the last few years have seen the formation of a few independent unions. One in particular, the Monterrey-based Sindicato Nacional de Trabajadores de la Exploración, Explotación y Beneficio de Minas de la República Mexicana (SNTEEBMRM), now represents all of Grupo Mexico's non-striking workforce. "Labor law reform will not happen, so what we've done is adapt to the existing rules but with more trustworthy partners," said Chavez. "[SNTEEBMRM] belongs to a federation of 4 million workers across many sectors, and has a modern view and orientation that emphasizes improving workers' conditions, yes, but in return for improved productivity." Grupo Mexico is confident that it will eventually be investing around \$2 billion into Mexico. The money will largely be spent on doubling capacity at Cananea, and developing El Arco—a world-class copper deposit in Baja California. They also intend to build a 500- to 600-mw coal-fired power plant in Sonora that will provide power for all of its operations.

While Grupo Mexico must challenge the negative publicity arising from Pasta

and Cananea, people speak about Mexico's other main mining company, Peñoles/Fresnillo, with something bordering on reverence. What distinguishes Peñoles/Fresnillo is a reputation for always investing in the best and newest technology and equipment, an excellent record on community relations, generous staff benefits, environmental stewardship and excellent training. "Peñoles [Fresnillo] is kind of like Mexico's mining academy," said Victor Tapia, head of CMT for Atlas Copco Mexico. "You'd be surprised by quite how many of the sector's best people come from them." Interestingly, fully 10% of Peñoles/Fresnillo's combined workforce is made up of second and even third generation workers. Peñoles/Fresnillo was also the first company in Mexico to put women to work on heavy equipment in mines, at La Herradura, something of which they are immensely proud.

They are the company that every other company aspires to be and on May 14, 2008, listed its new precious metals arm, Fresnillo plc, on the London Stock Exchange in an IPO that raised \$1.8 billion and created shock waves worldwide. "The new structure is to allow us at Fresnillo plc to focus exclusively on silver and gold," said Jaime Lomelin, CEO, Fresnillo. "We are currently the biggest primary silver producer in the world and



Jaime Lomelin, CEO, Fresnillo.



Fernando Alanis, CEO, Industrias Peñoles.



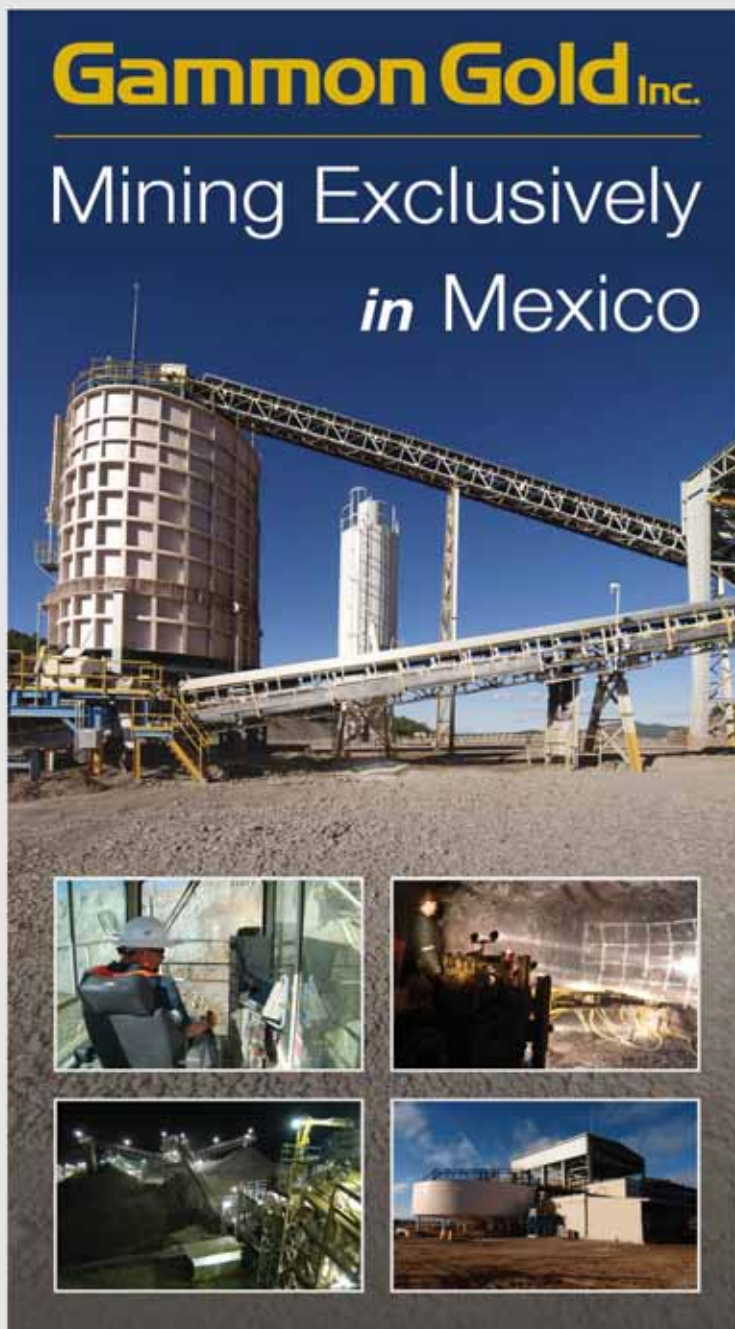
second most important producer of gold in Mexico. We will cooperate for the time being on exploration, but that will also soon change."

While the creation of Fresnillo plc has not resulted in changes to any operational staff, there have been some changes in upper management. "Along with the silver and the gold go our CEO, our CFO, our COO and our head of exploration," said new Peñoles CEO Fernando Alanis. "It would be fair to say that I am a reasonably busy man at present." In terms of operational staff, Fresnillo plc's mines will account for about 1,800 employees while Peñoles now has 7,800 spread across Naica, the largest lead producing mine in Mexico, and Francisco I. Madero, Mexico's largest zinc mine, as well as Met-Mex, the world's fourth largest metallurgical complex, and Química del Rey, the world's largest sodium sulfate producing plant.

For its part, Fresnillo plc's mines include the world's largest silver mine, Fresnillo, as well as La Ciénaga in Durango and La Herradura in Sonora (a joint venture with Newmont and the company's only open-pit operation). "Fresnillo plc aims within its first 18 months include maintaining production at 34 million oz of silver and gold production of 280,000 oz, making only minor improvements to its operations as it allows the new structure to bed down," said Lomelin. "Once we are properly bedded down in our new form, we will be opening Fresnillo 2 and expanding at La Herradura, as well as launching a new mine, Soledad y Polos, a neighbor to La Herradura currently at the engineering stage."

Lomelin would not discuss numbers for Fresnillo 2 but figures for Soledad y Polos will be equivalent to those at La Herradura, which in 2007 produced 195,000 oz gold. Other properties soon to come online include San Juan a gold-silver property in Durango and Arecibo in Chihuahua (gold). Taken together these properties will double their current production within 10 years. Nearly 90% of Fresnillo plc's exploration is in Mexico and expenditure is in the region of \$50 million.

Set to give Fresnillo a run for their money in the precious metals stake is the rising giant that is Goldcorp—the company that took over Luismin, previously Mexico's principal gold producer. Goldcorp's Peñasquito is the project that everyone is talking about—a multibillion dollar monster that is eating up materials and services the length and breadth of Mexico



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La Herradura is an open-pit, heap-leach mine located 250 miles (400 km) southeast of Mesquite in Mexico's Sonora Desert.

and beyond. Eventual capacity production at Peñasquito will be 130,000 mt of ore, converted into an average gold output of 400,000 oz/y over its 14-year life. Having poured their first bar, Salvador Garcia, vice president-Mexico, Goldcorp explained

that, for gold, this year the company is looking at 70,000 oz, 140,000 oz next and then at full capacity thereafter, peaking at around 500,000 oz to 600,000 oz. "We will also be extracting 31 million oz/y in silver and 189,000 mt of zinc," Garcia

said. Goldcorp has had to speculate to reap this eventual accumulation, spending some \$2 billion in bringing Peñasquito online. The company also operating the Los Filos mine in Guerrero, which after being shut down due to community problems is now up and running, though the terms of the agreement are such that Garcia needs to personally attend an annual review of the agreement. "In Mexico we have built a solid platform for growth with first class operations that will be hugely profitable, but also emphasize our deep commitment to safety and social responsibility," Garcia said.


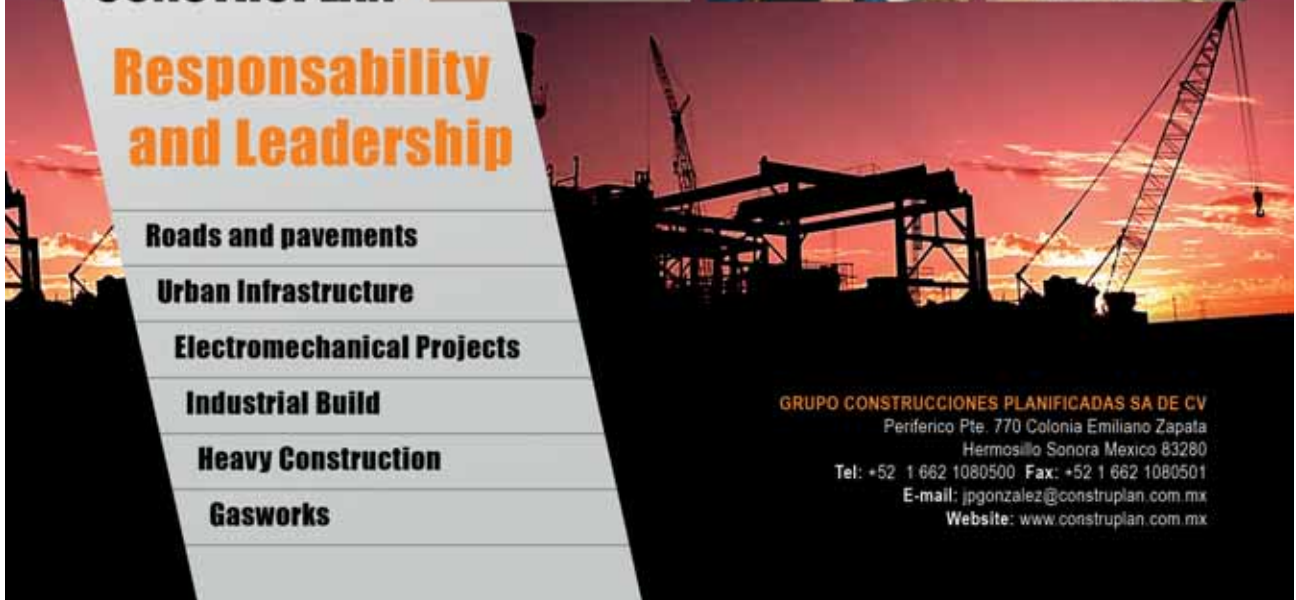
As with Grupo Mexico, the scale of Goldcorp's operations are leading the company to consider very seriously building its own power generation capacity: "We currently already supply 50% of the power needed to run our San Dimas mine in Durango, rising to 100% in the second stage, and Peñasquito (and an eventual Peñasquito 2) would seem to be crying out for autonomous energy," Garcia said. He sums up Goldcorp's plans for Mexico in one word: consolidation. Mexico is home to just under a third of Goldcorp's current properties and Garcia hopes to boost that share. They have an impressive suite of



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properties in need of development—particularly all along the Guerrero Goldbelt, a hugely rich area where they are on track to become the dominant player. The properties that he is the most excited about include El Limon, Media Luna (of which they own 22.5%) and Ana Paula, where drilling results are described as “amazing.”

A crushingly difficult situation when it comes to risk capital has prevented any ‘senior’ development beyond these monolithic enterprises. That said, there is such a thing as successful independent Mexican mining. This falls into one of two kinds: those that have prospered in the boom and used their own money to develop companies, and those who have been able to tap the Canadian stock exchange for the money to grow. Of the first sort, an excellent working example is Minera Atocha. Atocha was founded by a mining family who had sold their concessions to an international firm. However, instead of pocketing the money, Bernardo Ysita went back into mining, using the proceeds of the sale to invest in a new property in Tepeuane, Durango. With some 2,000 hectares, Ysita was able to put five drills to work in 2004 using his own money and money from Fifomi to develop the property, rich in lead and zinc and gold and silver. Whereas the lead-zinc concentrates have until now been the mine's principal product, the Chinese decision to place prohibitive tariffs on lead imports has resulted in Atocha refocusing on their gold and silver, opening a separate mine in the same district to take advantage of higher prices on that front. The fiercely independent Ysita is committed to going it alone. “Further expansion will be in line with profits,” Ysita said. “I’m not interested in any partnership that could result in profits being taken out rather than reinvested.”

Heartening as it might be to see one man going alone and making a success of it, one wonders if Atocha is not the exception to the rule. There are other routes to creating a successful Mexican mining company in the 21st century. Ironically, the very capital markets blamed by many in Mexico for the death of the pequeno minero provide one such route. A particularly interesting example is Arturo Bonillas’ formation of not one but two companies: Silvermex Resources and Timmins Goldcorp. As suggested by the companies’ names, they concentrate on gold and silver, respectively and exclusively. “Both stocks are traded on the TSX and share office space in Canada and Mexico,

the result of my partner and I flipping the model and turning the stock markets ability to raise cash into a real, 100% Mexican company,” said Bonillas. Timmins has been able to start producing at its 100% owned San Francisco mine in Sonora, developed by Sandvik as a model for what they can do in this area. They will be crushing 3 million mt of ore in Year 1, looking to rise to 5 million mt in Year 2. Timmins also holds the rights to more than 40,000 hectares all around the mine with nine targets within chalkable distance of the current mine. Silvermex lags a little behind and is currently focused on exploring its huge portfolio of concessions that run the length of the Sierra Madre from Sonora to Jalisco.

While Silvermex and Timmins still have a way to go before they can rest on their laurels, there are extant examples of success to which they can aspire. One such is First Majestic. The company was founded in 2004 by current COO Ramon Davila and his partner with assets that consisted wholly of ambition and knowledge of the market. “Four years later, we have 1,500 employees stretched across three silver mines in operation, a further three

advanced stage projects in the pipeline, and production in the region of 5.3 million oz of silver-equivalent,” said Davila. Their success is down to smart acquisitions, putting together an aggressive program centered on late term, near-production and production properties. Based on their existing portfolio, First Majestic will, in three years, be producing 15 million oz of silver achieved through this year’s expansion programs at La Encantada and San Martin and then the expansion of La Parilla over the course of 2009.

Mexicans have been able to leverage the stock market to create their own thriving growth companies with production at their core. Its majors have been making headlines worldwide, and not only for their union disputes. Further, traditional non-stock market-linked companies such as Atocha and Minas del Bacis have been able, amidst all the activity of juniors, to select effective properties that will contribute to their sustained growth over the next few years. Perhaps the most straightforward message to take from the Mexican effort in Mexican mining is the underlying confidence behind Daniel Chavez of Grupo Mexico’s “buy our stock.”

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# An Interview with Eduardo Luna

Before becoming chair of Silver Wheaton, Eduardo Luna was for many years president of Luismin—since acquired by Goldcorp, on whose board he sits. He is a former president of the Camara Minera de Mexico (Camimex) and has also worked for both Minera Autlan and Peñoles.

## How closely linked to Mexico is Silver Wheaton?

We're essentially a silver bank. As the silver market has matured, we have developed a way of 'wrapping' it that has proved attractive, sought after and profitable: basically making it 'another gold.' 70% of our future growth will come from Mexico, just as it does now. This is a strategic decision based on relationships, knowledge and confidence in Mexico.

## What challenges do you see ahead for Mexico?

Unions are less of an issue here than in, say, Peru. The biggest problem here is with access to land due to Mexico's

unhelpful ejido system. To be honest, I can see it getting worse: blackmailing miners seems to be one of the most successful startup industries created by the current boom. But, it is also the companies themselves that are to blame. The real issue in Mexico is one of cultural misunderstanding: things are 'thicker' here. You have to really 'join' the community where the mine is and ensure your operations are seen as lifeblood to



the community. Too many juniors seem to arrive in Mexico thinking that once they have a legal document inscribed and in place that they now hold a trump card over any future difficulties with ejidos. That this is not the case.

## What does the future hold?

What we provide is an easy way for both miners and investors to gain from silver. After all, finance is not their core business: their core business is building and operating gold mines. Now that we are fully independent of Goldcorp, I think people will be keen to do deals with us. Although we are now separate from Goldcorp, our working relationship with them remains strong—60% of our silver comes from Goldcorp, including being entitled to 25% of the silver from Peñasquito.

Our model is to maximize the value of our shares and minimize their number. This means that shares are only issued in line with the adding of major silver streams, of which I am confident there are many more available.



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# An Evolving Marketplace



As more underground mines in Mexico prepare to increase production, equipment and technology will play a larger role. (Photo courtesy Atlas Copco)

In theory, Mexico is a miner's dream. But miners are nothing if not practical and, practically speaking, mining is a complicated, intensive and expensive process in which materials, people and support services are as essential as the minerals themselves. In this regard, Mexico's reputation is mixed. Put succinctly, negative perceptions of the Mexican service market include it being under-staffed, overly-conservative and even unqualified. While there may have been a certain element of truth to that perception in the early years of this century, there have been significant developments. Chief among these is the growing number of companies who, while their mining history may vary in length, are striving to match the needs and expectations of mining companies for whom the 'mañana' syndrome just will not do.

That said, there are structural difficulties that are hampering the development of a first-class services sector as much as they are causing headaches for mining companies' operations. The chief problem would seem to be human resources. "I'm running three compa-

nies, all providing services essential to mining, but I'm severely limited in any expansion plans by the fact that I simply cannot find any more geologists to add to the 15 I have," said Jesus Herrera Ortega, president, Geoprocesos Analiticos, and a suite of related mining service companies. Hanging onto those skilled employees requires paying ever escalating wages.

Herrera's complaint, while echoed by many, is not universal. Geologists and engineers are most definitely at a premium—Alfonso Martinez Vera, outgoing President of the principal skilled miners union, says that Mexico is at least 7,000 people short of what is required for present operations alone. On an institutional level, the government, the major trade association Camimex, professional associations such as Martinez's and major companies such as Grupo Mexico and Peñoles have all instituted programs to encourage students into thinking about earth sciences and mining, and universities are seeing significant increases in students for relevant courses. Such programs will take

time to bear fruit and the need for such professionals is pressing."

Not everyone is complaining. Leslie Clark of SGS—the laboratory that reopened its mining services in Mexico three years ago—has said that recruiting competent chemical engineers has been a breeze, as does Steve Armstrong of ALS Chemex. Several mining company executives were also clear that they have not suffered from a lack of qualified staff. Tawn Albinson of Baja Mining, for example, argues that finding the right people in Mexico is all about knowing where to look. Sadly, many companies have decided that the best place to look is other people's operations, leading to a bewildering staff turnover rate for both mining companies and service providers alike. "Before I came to Mexico I would have immediately discarded any resume that showed someone leaving a job after two years, now if you come across someone who's worked in a place for two years, he's the Rock of Gibraltar," said Stuart Mathews of Coeur d'Alene's Palmarejo project. If the situation is so extreme amongst the international firms blamed for much of the brain drain, it would suggest that the situation for Mexican firms seeking to service them is yet worse.



Victor Tapia, general manager, Atlas Copco Mexico.

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**Atlas Copco**

But this conclusion is belied by the fact that there is a clear and even exponential growth amongst those firms active in servicing mining companies. Edoardo Leonidez Rodriguez of Desarrollos Rod may complain about the difficulty in finding staff, but he and his family have been able to nonetheless convert the company from a construction to an overground contracting firm capable of working on projects as large as Goldcorp's Los Filos mine in Guerrero. Similarly, Cominvi is a specialist underground contracting firm that began operations in only 2004, but now boasts 506 employees and a resume that includes Gammon Gold, Coeur d'Alene and Great Panther Resources. Similarly, Atlas Copco has been able to increase its staff numbers by 70 and Sonora-based but Mexico-wide contracting firm Construplan has likewise been able to keep up with escalating demand for their services. Construplan has been steadily winning huge contracts for mines as large as Grupo Mexico's Cananea and Penoles/Fresnillo's La Herradura and has been able to source and train the people required. According to Construplan's chair Alfonso Reina Villegas, the secret is careful and progressive HR management. "We are able to retain and hire staff because people are proud to work for us," said Reina. "Wages are one thing, and we have of course raised these, but more important has been the creation of a professional atmosphere on all our projects that people feel genuinely proud to be a part of." While Construplan's slew of awards are testament to the success of such an approach, this requires an investment in training and the creation of a transparent and communicative atmosphere that some firms in Mexico appear to have difficulty developing.

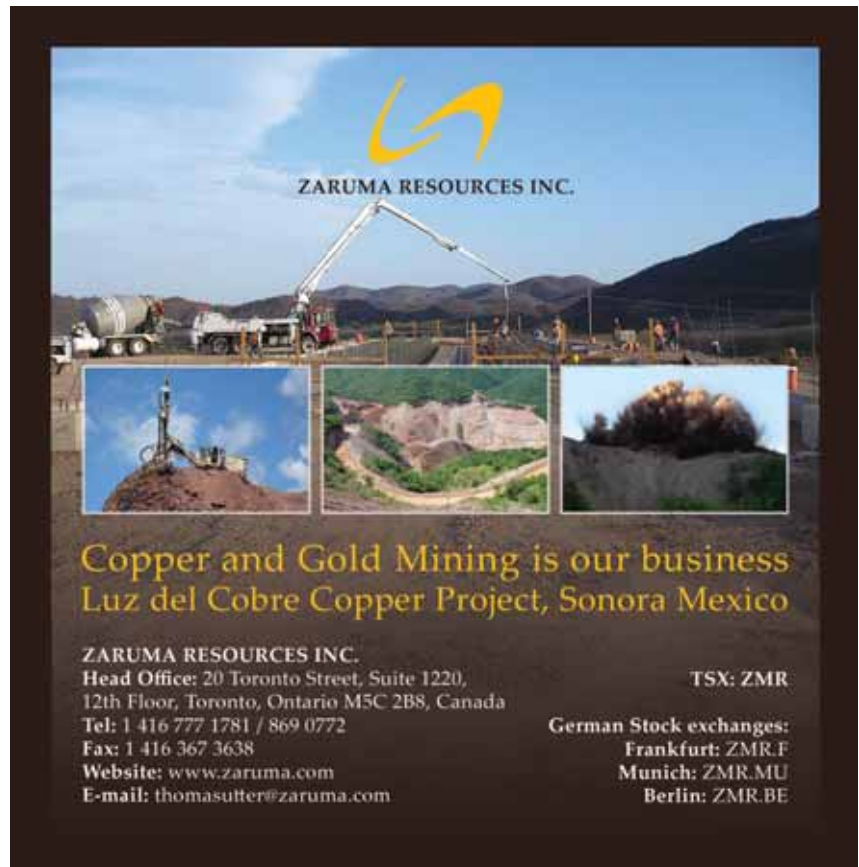
But by no means all. Sonora Naturals is a distributor of materials and equipment that has put in place a horizontal management structure that results in there being virtually no hierarchy in the company. Staffs are given total responsibility for managing a relationship with a given client and for securing what it is that the client has requested. According to Hector Diaz Galaviz, one of the two people in Sonora Naturals with a title, the effect on staff commitment and retention is



greater than any raise would be. Sonora Naturals has taken the further step of producing a series of open-to-the-public workshops on modern mining techniques to bolster the knowledge and competence of the service sector in general. On a slightly grander scale, Martin Engineering, a conveyor belt firm with contracts that include Goldcorp's Peñasquito, has invested \$6 million of its \$140 million global profits into establishing a centre for innovation in Chihuahua designed to educate both employees and interested firms in the use and benefits of sophisticated conveyance.

Moving beyond the demand for people, there remains a distinct chorus of complaints—chiefly from Mexicans themselves it has to be said, about a shortage of competence more generally. Edoardo Leonidez Rodriguez of Desarrollos Rod, to take just one example from dozens, says that his specialist overground contracting firm is limited by a shortage of partners able to support their activities in aspects as basic as catering in the far-flung locations where much new mining is taking place. This appears to be the result of an inherent conservatism on the part of many Mexican companies who could be serving the mining industry, but elect not to. Distributors, construction companies and even drilling companies that could be active in mining are unwilling to make the investment in training and equipment required to participate in the current boom. A contributing factor is no doubt the very difficult times that both SMEs and major Mexican companies suffered following the mid-1990s devaluation crisis and suspicion that the present boom in mining could fizzle out as suddenly as the last one. Irma Inclan, the charming director of the all-woman drilling company Perfoparts, is an example of the many Mexican company directors who wax lyrical about their mining past before stressing that they see the long-term trajectory of their companies as being away from the sector.

Given the strength of the current boom and the consensus that metals prices—and commodity prices more generally—are unlikely to dip for some time to come, this pervasive negativity is initially puzzling. That is, until one appreciates that the effect of Mexico's blocking of foreign capital resulted in a



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service sector dependant on just a few massive potential clients and many small ones. Now, whereas mining is a cyclical industry the world over, the skewed nature of Mexican mining in particular had the effect of creating a kind of super-cycle where the lows were not just difficult, but decimating.

The truth is that Mexico does in fact offer a vibrant and increasingly sophisticated market for services that is fast catching up with its more developed neighbors. This is to a significant extent due to, firstly, the entry of new international firms to service the boom (the vast majority of whom are staffed almost completely by Mexicans), significant re-investment into the sector by international firms in Mexico for decades that had diversified away from mining during the long period of low prices and, perhaps most heartening of all, newly-created firms willing and prepared to service the newly buoyant mining sector.

### Increasing Improvement and Innovation

It is uncontroversial to argue that one of the chief difficulties of mining in Mexico is finding decent companies with whom to work. That said, this difficulty is much more to do with opaqueness of your average Mexican firm's approach to corporate communications

rather than an actual dearth. The reality of the situation is actually not bad and steadily improving.

The Mexican government's decision to favor seed funding to services companies over small miners has played a somewhat controversial role in encouraging new entrants to the sector. Lower interest rates also help, as does a gradually improving infrastructure. A particularly eye-opening development is the immanent opening of Mexico's first "public" port on Mexico's Pacific coast specially designed for the transportation of bulk minerals. The port, Terminales Portuarias del Pacifico (TPP), a joint venture between GMD-Carbonser and Transenergy, will be in full operation in 2009 and have mooring capabilities for Panamax, Post-Panamax and Cape Size vessels. In a separate joint venture, GMD also operates a public bulk mineral terminal on the Gulf of Mexico at Altamira Port that in 2007 handled more than 3.3 million metric tons (mt) of material.

The entry of a slew of international firms has radically altered the quality of service companies across the board. "When the Canadians came they brought their own drillers with them," said Gabriel Elizondo of the specialty drillers Cau, SA. "They were more professional than we Mexicans and we faced the



choice of either radically improving our equipment and training or going under.” Cau, SA elected to rise to the challenge and currently have 35 diamond drills and nine raise bore drills working across 16 projects across the north of Mexico.”

Change can be quick. M3, for example did not even have a presence in Mexico until 1996 but now, according to Jaime Carvajal’s estimate, work on between 40% to 60% of the new mines coming on-line in Mexico, taking on anything from the compilation of scoping, prefeasibility and feasibility studies to engineering consultancy and full service ECM turn-key projects.

Joint ventures also help—such as that between parts supplier Continental de Mexico and French firm Aramine, or that between the U.S. blasting firm Austin Powder and the Mexican mining group Bacis to create Austin Bacis. Access to the full range of Austin Powder’s blasting solutions allowed Austin Bacis to quickly move from simply selling raw material to providing sophisticated blasting solutions as the market evolved. This includes assisting mining companies in how to use less of their material as well as their patented QED and QED+ blasting systems. “The market has grown and diversified to the extent that we need to do more than just sell dynamite, you have companies that know and understand exactly what they want, you have companies that think they do—which is where we try to play a more consultative role—and then you have very sophisticated work involving electronic intuition systems, which are something very new for Mexico,” said Ricardo Moreno, director general, Austin Bacis.

As well as standard JVs, there are intriguing instances of Mexican companies being stewarded into higher standards by mining companies who, finding that they couldn’t find the right partners, took the inspiring step of helping to create them. The Guanajuato-based subterranean contractor Cominvi is one such firm and Electrocontroles del Noroeste another. Electrocontroles implement process automation systems but were greatly assisted by information-sharing on the part of foreign mining companies who allowed them to, as Director Arturo Freydid puts it, “learn how to adapt technological solutions to provide full control over all aspects of an operation.” They have been able to weld their acquired knowledge with their internal expertise of how Mexican mines were run in the past to work on projects as varied as setting up Cananea’s data management system, to repairing shoddily implemented mill systems for juniors.

Returning to Cominvi, its creation was the result of an often discussed weakness of the Mexican service sector: its dearth of quality subterranean contractors. As Jose Martinez Gomez, CEO of the Durango-based Jomargo, cheerfully concedes, companies such as his own (whose resume includes Agnico Eagle, Peñoles and Endeavour as well as international experience) are few and far between. This increasingly leaves them in a position to pick and choose what projects they work on.

This was discovered by Gammon Gold when they acquired the El Cubo mine in Guanajuato. Somewhat in limbo as to a quality contractor, they took the step of helping create one from scratch. Cominvi was borne out of three factors, chief among them Director-General Rafael Villagomez’s desire to “change the way that miners look at Mexican contractors, so that we were chosen because we were excellent not because



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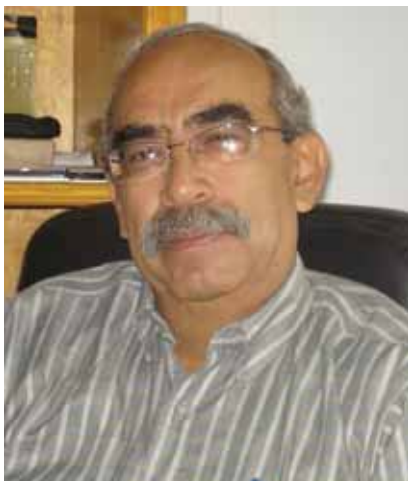
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we were here.” The other factors were Gammon Gold’s willingness to add their technical know-how to Villagomez’s knowledge of how to get things done in Mexico and together the two were able to negotiate the acquisition on credit of the firm’s first equipment from Atlas Copco. Villagomez describes the relationship with between Gammon Gold and Cominvi as “an apprentice-mentor relationship” and it is one that has resulted in the creation of a firm whose capacities are now benefiting four other firms and providing jobs for more than 500 Mexicans.

Atlas Copco’s decision to assist Cominvi’s formation would be surprising but for their mining MD Victor Tapia’s assertion that the company has a responsibility to help foster a new sense of dynamism and professionalism among Mexico’s contractors. Exemplary of many other companies, Atlas has reacted to the growth in demand for equipment and services by trying to actively communicate the need to request its equipment months in advance and by opening a servicing centre in Zacatecas this year and another in Hermosillo, Sonora in 2009. Sandvik is



Mario Campos, president of Ingenieria Dibujo Geologia SA de CV.

also boosting its presence in Mexico, most intriguingly through a move to full ECM turnkey projects, but also through increasing its distribution of materials from other firms, such as eventually drilling fluids from the Australian Mud Co. Another multinational firm increasing its presence in the market is 3M who have developed a suite of mining products and solutions tailored specifically to the industry’s needs.

The market still requires is a vastly improved chemical testing sector and this now appears to be pending. As well as the creation of a number of independent Mexican labs for day-to-day purposes, ALS Chemex—long the dominant player in Mexico—has increased its capacity, and faces healthy competition thanks to the re-entry into the market of multinational SGS in 2005. SGS, which has geochemistry and metallurgy labs up and running in Durango, present the first real alternative for testing in Mexico where the vast majority of chemical work has been restricted to prep labs. According to Leslie Clark, the head of the Durango lab, SGS eventually aims to be able to provide the full range of analysis and testing to the Mexican services market for the first time and will be fully certified to do so by the end of 2008. “We already offer metallurgical testing and geochemical analysis and will soon to be doing settlement work,” said Clark. “Uniquely for Mexico we’ll be ISO17’d up at the end of this year.”

Unfortunately, on a smaller, but no less essential scale, many small Mexican distributors are, it has to be said, failing to rise to the challenge of

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supplying the growing demand for parts and equipment. Many companies remain hesitant to gear up their line of products and have yet to fully modernize their approach to the concept of service. This has created an opportunity for some firms who have been able to react to the ease with which mining companies can now access materials from the U.S. and further afield. Sonora Naturals are among the most successful of these, striving to improve the range of parts they supply, if not necessarily the cost. Another successful distributor is the family-run Ingeniería, Dibujos y Geología (IDG). Like many Mexican firms, IDG started small, focussing on supplying a few specific quality exploration materials such as assay bags and core boxes. Since 2003, however, the company has been steadily expanding its range of supplies and has been rewarded with growth that has seen it expand to Chile, Guatemala and Colombia. As well as ambition, Mario Campos, the company's MD and father to its senior staff, puts their success down to his inside knowledge of the industry, its projects and, importantly, its personalities.

This view would appear to be borne out by the differing experiences of Geoproductos Mexicanos and Poliliner/Citland International de Mexico. Taking Geoproductos Mexicanos first, the company is a distributor and installer of geotextiles, geogrades and geomembranes for the purposes of erosion control and rock fall prevention. Its Managing Director, Alejandro Ramirez Manzano, feels the company's efforts to make headway in mining have been frustrated by, on the one hand, barriers to accessing the new mining companies—whose mine plans are often designed in Vancouver rather than Mexico, meaning Geoproductos do not get a chance to make their case—and on the other by an innate conservatism among some Mexican mine engineers to look beyond cost and toward quality. In fairness to Ramirez, this last point is backed by others in the industry, notably Atlas Copco's Victor Tapia. On the other end of the spectrum is Poliliner/Citland International, a company apparently so successful that mines in Mexico use the words "liner" and "poliliner" interchangeably. The key to the twin firms' success was a focus on making the case

for their liners to engineering firms over direct selling to company executives, as well as strong understanding of what the market requires.

Mexico has responded strongly to the demand for services created by the explosion of activity across exploration, development and production. On the whole the effect of the arrival of companies with enshrined QA and QC processes, answerable to shareholders and wary of NGOs and community unrest has led to a significant general improvement in the standard of services. Some Mexican firms complain bitterly that international firms are stepping into business that should rightfully be theirs, but the vast majority of those interviewed instead welcomed the pressure to perform that the competition represented. International firms have lifted the expectations of clients and the performance of the sector in general. Traditional weaknesses of the sector are being increasingly exposed, but there seem to be firms that are ready to make these their opportunity. Finding the right partner remains a challenge, but it would seem that is increasingly a challenge worth facing.



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