



GLOBAL BUSINESS REPORTS

Re-Charging Argentina's mining industry

Having ousted the populist administration, Argentina is reintegrating with global business.

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Introduction **Reintegrating Argentina for business**

Argentina is under new rule, and the elected businessmen in Buenos Aires tasked with increasing competitiveness and reducing inflation see mining as one of the greatest opportunities to attract much needed FDI. President Mauricio Macri's administration is working to unify the country in sustainably re-introducing mining as an encouraging catalyst for local economic development. His team is filled with private sector executives—including the former president of Shell Argentina, Juan José Aranguren as the acting Energy and Mining minister and co-founder of APL Economía and JP Morgan alumna, Alfonso de Prat Gay, serving as the Minister of Economy—and the new president himself is the first to take office with a civil engineering background. "There is a new generation of politicians," comments Alberto Carlocchia, mining coordinator for the Argentina-Canadian Chamber of Commerce. "The world needs new open markets, and Argentina has opened to the world.'

Some of Macri's action plans include: working towards a Sistema Unico de Incormacion Minera, an open data portal to enable complete public access to geological information, statistics and cadastral systems; the optimization of energy and infrastructure; and the creation of the Nuevo Acuerdo Federal Minero, an agreement to homogenize mining regulations across provinces to improve clarity for investors and stakeholders.

"The global economy is somehow depressed, with mining companies focusing on increasing their assets' productivity rather than finding new assets," noted Marcelo Alvarez, president of CAEM, the mining chamber of Argentina. "This affects the short-term prospects of Argentina, but it is actually good for the country, because we have some time to adjust the macroeconomic variables, such as inflation, exchange rate and tax reform. and we can also adjust the rules of the game for mining investment with the different provinces. In other words, we still have some time to tidy up the house and modernize the mining legislation from the 1990s to make Argentina much more competitive."

The geological potential of Chile's eastern neighbor is unquestioned, but there are many factors contributing to why Argentina's underexplored terrain has remained unattractive for investors until recently. In 2010, when the rest of the world was reaping the Source: ABECEB

benefits of favorable commodity prices, Argentina imposed a 5% export tax. Exports after 2011 drastically dropped, and exploration followed this downward trend. Leaving behind the self-inflicting, nationalistic economic policies of Cristina Fernandez de Kirchner, President Macri has a bottom-line approach to development. The country is in need of \$400 million in exploration annually, and major change is necessary for this number to see fruition. Within his first year of presidency, Macri reversed many decisions of his predecessor that held back investment, including the elimination of both export restrictions and deceptive currency controls. After retentions were removed, four businesses that had announced their closing, decided to extend their time and continue production. The most emblematic case is the Bajo La Alumbrera mine in Catamarca, which extended its operations until December 2018. Additional financial reframing came in the form of facilitating access to imports and international credit. free dividends distribution, and standardizing

capital inflows. The federal government is set on normalizing, and after recognizing the peso's true value, settlements were reached with bondholders affected by the default. Argentina is the world's 25th largest economy and the second largest in South America, but it has been greatly stigmatized internationally by

its tendency towards defaults. "When the Macri government came into office, the new team eliminated the barriers that had been in place which made doing business more difficult, such as the limitations to send foreign currency abroad, the exchange rate 'clamp' and the impossibility to import the necessary mining equipment, including for exploration," explains Julio Ríos Gómez, president of SEGEMAR.

Globally, investment in exploration has dropped significantly, but Argentina has suffered considerably worse in comparison to other active mining countries. When comparing exploration budgets between 2012 to 2015, total spending has decreased 66% in Argentina. Neighboring country Chile has decreased their spending by 38%, while Peru's drop is 47%.

Argentina has \$500 billion of documented reserves underneath its surface that are currently not seeing development. Over 10,000 million metric tons (mt) of mineral resources have been identified across 42 active projects; this tonnage calculation equals the summation of 52 billion pounds (lb) of copper, 79 million ounces (oz) of gold, 1.7 billion oz of silver, and 1.42 million lb of ancillary resources such as molybdenum, zinc, lead, iron ore, lithium and uranium. According to Argentina's federal Ministry of Mines, only 3% of the total 465 identified projects are in operation at present.



Mining projects that are expected to come online in Argentina

Gold, Silver & Copper

It will take some time before the impact of a recovery of prices and policy changes to be felt.

Due to the depletion of the Mina Pirquitas mine and decreased production from both PanAmerican Silver's Manantial Espejo and Austral Gold's Casposo, exports of gold and silver have decreased considerably. The temporary suspension of Barrick's Veladero mine, as a result of a 224,000 liter cyanide solution spill, has greatly impacted both gold output and Argentinian acceptance of mining in general. The general public has very openly scrutinized the impermanence of job security for mining affiliated jobs along with the permanence of alterations to the land's ecosystems, and four principal mines producing either gold or silver are likely to close within the next three years.

Argentina's largest open-pit operation. Bajo La Alumbrera, will continue to produce until the end of 2018. Goldcorp expects to remain a strong producer within Argentina honing in on investment for their Cerro Negro project, which poured its first gold in 2014. The nation will be watching Minera Alumbrera's methodology while it begins to comply with its mine closure plan, as the environmental and socioeconomic impacts will set a major precedent for what is acceptable.

Meanwhile, there are a few advanced projects with the capacity to come online in the short term. Fortuna Silver's newest acquisition, the Lindero gold project, is igniting positivity into the local value chain. Their aim is to commence construction in 2017 and begin production in 2018. "From 2017 on, there will be a lot of mining movement," explained Adolfo Mimessi, general manager of INCOVI, a heavy equipment provider in Salta. "Almost every 15 to 20 days, people come in from abroad to discuss projects, which is an incredibly positive sign of what is to come."

Lindero will also serve as the first metals mine in operation in the province. "We feel that it was a smart move to enter Argentina early," noted Jorge Ganoza, president and CEO of Fortuna Silver Mines. "We took our decision to buy Lindero in February 2016, when Macri had barely been in government





Hunt Mining Enters Production

SANTA CRUZ, ARGENTINA - Hunt Mining's President & CEO, Tim Hunt announces production operations at the Martha Mine began in January 2017. *Recommissioning of the facilities at the Martha Mine completed, we are excited to have transitioned from exploration and development to Argentina's newest gold & silver producer! The acquisition of Martha and its mechanical infrastructure made it possible for our company to commence milling our ore, initially from local ore, but soon from La Josefina and La Valenciana to build a bright future in Santa Cruz."

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for three months. At the end of the day, it is a risk trade-off: some investors tell me that Argentina's recent history has been very volatile, and I cannot convince them that this is not the case, but Macri is moving in the right direction."

Cerro Moro and Don Nicolas are the two major, principal projects considerably moving forward with construction.

The gold price increase has helped producers such as Yamana Gold further develop the projects within their pipeline, and Cerro Moro is ahead of schedule with the first gold pour expected in early 2018. "We have been proudly exploring, operating and investing in Argentina since 2006." said Mario Hernández, vice president of Yamana Gold. "The Cerro Moro project is a very high grade...we think this mine will be one of our cornerstone operations once it ramps up to full production."

Yamana Gold's Gualcamayo project has been producing since 2008 and their current exploration program aims to extend its life, and they are in search of partners to strategically monopolize upon the potential of their large scale, multi-metal, but primarily copper-infused, Agua Rica project.

Reactions to the productivity of the goldsilver project Don Nicolas have been mixed. Don Nicolas' new owner, has remained relatively under the radar with minimal an-



Mario Hernández, vice president of Yamana Gold.

nouncements, but operators and service suppliers working on the project have evidence of signed contracts for the coming year to confirm progress. "We finished construction on a lab for Don Nicolas, and it will be fully operating within the mine towards the beginning of 2017," noted Marcelo Tejada, managing director of Alex Stewart Argentina.

M3 Argentina, an engineering and consulting firm, has begun providing the project with assistance in "logistics and engineering staff," noted M3 Argentina's managing director Manuel Teyechea. In 2013 CIMINAS agreed to completely finance the project in conjunction with Minera IRL, but in 2014

they acquired all remaining shareholdings for \$11.5 million. "The Cerro Morro and Don Nicholas mines have invested significantly and are also making good underway," said Brad Dormer of All Pumps Argentina, a supplier to the mine.

Hunt Mining's La Josefina gold-silver project in Santa Cruz is very advanced, as their local subsidiary Cerro Cazador is in the process of transitioning from a mineral exploration company to a producer. In 2016, the company strategically acquired the Martha mine which lies within close range of their concessions. "We are currently re-commissioning the flotation mill of the Martha mine, as well as complimentary exploration to add more mineral resources to the company portfolio. We expect the mill to be operational by January 2017," explained Danilo Silva, president of Cerro Cazador.

Metallurgical results yielded a recovery of 96% gold and 72% silver at the La Josefina, and logistical plans include utilizing the refurbished flotation mill for processing ore across internal projects.

According to an analysis conducted by BNamericas, Argentina has approximately \$13.77 billion worth of copper projects waiting for more favorable conditions, including El Pachón, San Jorge, Agua Rica and the highly anticipated Taca Taca. "First Quan-





Jorge Ganoza, president and CEO, Fortuna Silver Mines

tum's colossal Taca Taca copper project is bringing \$5 billion in investment and requires three or four years of construction in an environment of legal security and long-term stability," explained Facundo Huidobro, president of the Salta Chamber of Mines. "The political idea of mining in Salta is that mining activities should be private. The government is not to be involved directly in the business of a private company," he continued, which is why many mining projects within his province are soon to come online.

Salta is repeatedly considered the top mining investment destination within Argentina according to the Frasier Institute, with the province of San Juan ranked closely behind. Glencore announced that it will invest \$3 billion to double its copper production within Argentina over the coming years, which would be a much needed boost so San Juan's semi-stalled mining activity. Their El Pachon project is located in an area at an average height between 3,600 and 4,200 m only 5 km from the border with Chile. The altitude of the Andes provides interesting challenges for multinationals and large scale operations, requiring the logistical and adaptive expertise of the local Argentinian people. "We have 15 years of research in overcoming obstacles in high altitudes, difficult geography, and diverse climates under our belt, which is why we have grown to become the largest and principal telecommunications provider in the north and west of Argentina." explained Emanuel Salinas, managing partner of

In the rural areas of the country, the majority of inhabitants still are not connected. "The government has been giving credits to providers to expand their services and in 3 years, 100% of the population in Salta, Catamarca, and Jujuy will have internet access." In six months, the majority of the mountainous region will have communications connections available.

local provider Integradata Solutions.

The new copper-gold-silver Filo del Sol project, which in 2016 was spun-off by the well-established operators of NGEX and DEPROMIN-SA, straddles the Chile-Argentina border with three quarters of the area within Argentinian territory. "Not many companies have the capacity to work across the two countries like this; there have only ever been five projects with cross-border protocols," explained Martin Rode, South American exploration manager for Filo del Sol.

Barrick's Pascua Lama project was another multi-national venture operating in conjunction with the Argentina-Chile Economic Complementation Agreement. The bilateral mining treaty that falls in the realm of this legislation was signed by both parliaments in 1997, as a result of years of lobbying by many of the majors operating in Argentina. Chile and Argentina have specially established border controls for mining companies operating within concessions that cross country lines, granting special access to privileges including water, immigration exemptions, health necessities, labor and materials. "Our



Danilo Silva, president, Cerro Cazador.









Facundo Huidobro, president, Salta Chamber o Mines

workforce is mixed between Argentinians and Chileans and price determines which country we buy from: rigs are generally cheaper in Chile, whereas dozers are cheaper in Argentina," explained Rode. "Under the previous government we had problems making orders in Chile because there were limits on how many dollars we could send across the border; this situation is now more clear."

It will likely take a few years of reframing public opinion, more favorable commodities prices, and the effects of Macri's grand policy shifts to reap a notably calculable difference in production, but the hype for Argentina's mining future is charged by lithium and sustained by substantial resource speculation. "Most of our current work is related to gold mines," noted Dr. Alejo Sfriso of SRK Argentina, "and we expect this to continue in the coming years. It might happen that something new, like development of electric cars, acts as a game changer in Argentina."



Lithium The hype metal currently electrifying the sector

Argentina is situated within the lithium triangle, a geographic zone that encompasses northern Argentina, northern Chile and southern Bolivia, constituting 65% of the world's total lithium reserves. Argentina alone accounts for almost 10% of that total, and the demand hype for this soft silverwhite metal has refocused the world's attention towards investing in greenfield proiects and bringing more lithium operations online. Uncertainty about true demand makes creating price margins difficult.

"There is constant discussion amongst market analysts over whether the market will become oversupplied or whether the shortage will remain for the next five to 10 years. I am more inclined to believe the latter, because from exploration it takes roughly three years to get substantial amounts of new production into the market," noted a representative from Galaxy Resources.

"Argentina can become one of the top largest lithium producers in the world in

five years time, with 120,000 to 140,000 mt/y. This way we could account for more than a third of the world's lithium production. However, a plant producing batteries may only need 400 mt/y, so thinking of the value chain is important...We are working with investors on how to develop opportunities in this respect," said Daniel Meilán, government secretary of mining.

Conservative linear projections state that the world will need about 350,000 mt/y by 2020. By that benchmark, Argentina is hoping to be producing 140,000 tonnes annually given the rough estimates given by the Puna region's main lithium players-including Orocobre, FMC, Enirgi Group, Eramine, International Lithium. SQM and Lithium Americas' investment in Minera Exar. Millennial Lithium, Lithium-X, Neolithium and Galaxy Resources. "The market is very tight, and this is an advantage. Prices are very high, and I anticipate them to stay high for some years," said Iain Scarr, vice president of development and exploration for Millennial Lithium.



Nicolas Galli, general manager, NorLab and

Scarr has worked with a handful of the world's most prominent mining players across metals and minerals, including Rio Tinto, Lithium One, Galaxy Resources, and Enirgi Group, Finding and maintaining turnkey talent is critical in Argentina, as the already young mining country has even less of a specialization in the complexities of lithium chemistry and engineering. Knowledge development is equally critical in the public sector, and there are continual talks of regulatory amendments being added to provincial codes that cater to the needs of liquid brine management. Nothing has solidified, and most are not confident anything definitive will be presented in the short term.

"The government is in the process of learning about salars and brines. The learning curve is steep and they do not yet have the full capabilities to help, meaning any and all expertise lies with the mining companies," explained Franco Mignacco, president of Minera Exar. "Private entities have more information about this than the public governing body at this point."

Scarr's accumulation of experiences has brought him to spearhead Millennial Lithium's Pastos Grandes project, where he is quickly pushing for a production to initiate within a timeline of three and a half years. "After the initial drilling phase at Pastos Grandes we will move immediately into developing other strategic projects. Our ambition is to introduce a sensible amount of product onto the market that matches global growth, and multiple operating sites in order to maintain flexibility. We need to do it quickly using existing technologies, at least at first," added Scarr.

Daniel Galli is another renowned mining expert within Argentina who has capitalized on a keen business opportunity resulting from the lithium boom. He holds patents under his name related to solid sulphates, solar energy and another in the production of lithium. His company, Sociedad Minera

Galli (SMG), was founded 40 years ago. and has since evolved into NorLab, which is a fully accredited lab offering geochemistry, environmental analysis, consulting and much more. "Today we are part of a joint venture for setting up an industrial pilot scale operation at Diablillos Salar in association the Salar's owner Lithium-X.," said Nicolas Galli, general manager of NorLab and SMG. "The project aims to produce high quality concentrated lithium solutions using our technology. We expect to get the approval of the environmental permits to start the construction very soon in the next months."

The Galli family has been and continues to be critical in Argentina finding its feet in the lithium sphere. While many are utilizing the traditional solar pond evaporation method, Enirgi Group is testing pilot plants with entirely alternative processes. "Along with studying and understanding our resource we created solutions of how to handle and measure the lithium within the complex brine," said Carlos Galli, operations manager of Enirgi Group Argentina. "The newly implemented technologies allow us to obtain the lithium product directly from the brine, without the need of evaporation systems in the main line of lithium production."

This new means of processing separates "It is important to come in to every situ-

the lithium ion from the brine at an earlier stage, precipitating a higher quality product with less contaminants involved in their solutions. The needed chemicals involved in this system are also minimized, as the production process creates its own reagents. A principal downside to this shift in methodology is the high quantity of energy required. ation with an open mind and an analysis of what is best with the available resources," iustifies Anthony Koyacs, chief operations officer of International Lithium, "And in this case we are aiming to concentrate our brine through the natural solar energy process." International Lithium holds a strategic partnership with Ganfeng Lithium, a vertically integrated lithium product producer that is keen on supplying to the Chinese market, whose government is making bold moves towards normalizing electric vehicles.

The World Bank estimates that air pollution is costing China close to \$300 billion annually when calculating health bills and productivity loss. Their government has a target of 5 million "new-energy" vehicles on its roads by 2020 and cut electric car charging station rates by 30%.

Combined efforts achieved by consumers and the government have increased







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Daniel Meilán, Secretary of Mining, Government of Argentina.

electric car purchases in this country alone by 300% from 2014 to 2015. With these numbers in mind, it is easier to understand the drastic spike in lithium prices on the market. Many analysts are surprised at the price strength lithium held throughout 2016 as it stabilizes towards a new normal. Though there are lithium projects with impending start-up dates, no one is predicting a drop in price.

Companies with the greatest comprehension of their brines, swiftly realistic production schedules, and the most connected means to the market are likely the ones to prevail.

Uranium **Power of perception**

Argentina is currently importing about 250 tonnes of uranium per year to satisfy demand for nuclear power gen-eration, and there is enough uranium in the Mendoza and Chubut provinces to feed national consumption for the next century. Unfortunately, however, these are the provinces notoriously least friendly towards mining.

The Canadian uranium mining company U308 formerly owned concessions in Mendoza pre-2007 anti-mining legislation, but has since revamped its project portfolio in the equally challenging province of Chubut. U308 is the first mining company to enter into a partnership with a resource company that is owned by the Chubut provincial gov-

ernment. Open-pit mining and cyanide use are prohibited, and U308 has a method of surface extraction without generating a mine or using corrosive chemicals at all. Laguna Salada is a flat deposit in a semi-desert area, and the uranium extraction is guite simple. One must gather the gravel, screen out the pebbles, and then mix the uranium-vanadium component of the gravel with water, pumped to a plant, processed with baking soda, and the uranium is separated. "We must take care of the natural resources that we use as if we



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- Uranium, phosphate, nickel & rare earth elements in Colombia:
- Uranium in Guyana



Richard Spencer, president and CEO, U308.

were working in our own garden, hence our use of environmentally sound mining methods," explained Richard Spencer, president and CEO of U308. "Hardy shrubs form the backbone of the Patagonian steppe environment, providing protection for smaller plants against the wind. These shrubs are the only thing preventing full scale desertification and therefore our mining method ensures that the shrubs are removed ahead of mining and are immediately replanted in the gravel that has just been replaced after mining so that we maintain this first line of defense against the desertification that is prevalent in Patagonia."

The delicacy of the method paired with the government's push for domestically sourcing its uranium has shifted the way the public and private sector are categorizing this activity. Moving away from the somewhat negatively connoted term 'mining,' this process is being reframed as a necessary step in sustainable 'power production.' The Macri administration has a newly created Undersecretary of Nuclear Energy position, with the intent of creating many public-private partnerships for the honorable goal of energy self-sufficiency. At present, there are only three nuclear small modular reactors (SMR) being built-in China, Russia, and Argentina-which are the most advanced in nuclear production design, given the lesser up-front capital requirement and quicker cash flow returns. "The marketing strategy of the Argentine nuclear sector may be to offer a package that includes reactor design, construction, fuel and spent nuclear fuel storage. As it stands at the moment the only thing that they lack in this plan is the necessary fuel," explained Spencer.

The shift in public opinion concerning uranium mining may also be achieved by crafting this type of 'power production' as a part of Argentinian identity. "Agrochemicals and oil and gas have a type of tradition in Argentina. They have the big names, wealthy families and societal integration," explained Ernesto Cussianovich, associate director of Poliarquia Consultores. "In mining this is not the case, as there are no national mining companies or producers."

Argentinians have shown they would rather invest in oil and gas or agriculture because they are more familiar. According to a study conducted by Poliarquia Consultores, YPF is a prime example of how patriotism can play into the success of an extractive industry. After the announcement of YPF's nationalization, 64% of the population said they approved of YPF. Only one month later, that percentage had increased to 72%.

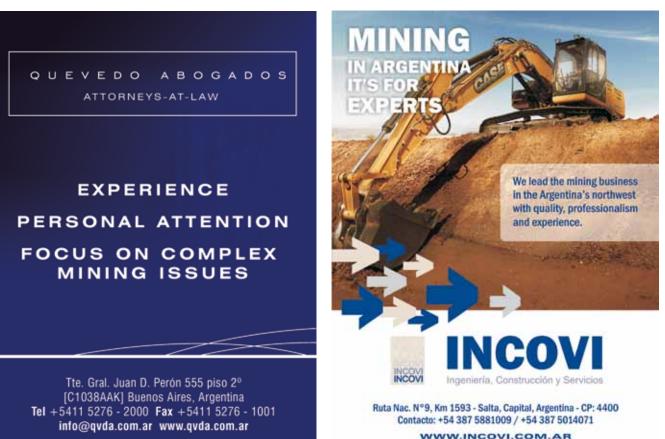
UrAmerica, an entirely Argentinian owned uranium company operating in Chubut, is helping to infuse uranium into Argentina's story. Poll results show that Argentinians would like to have more nationals involved in mining, and Omar Adra, CEO of UrAmerica, is possibly a figurehead of this holistic strategy. "Uranium is not a free disposal mineral, so we are working very closely with the government in two ways," said Adra. "Firstly, with the Ministry of Energy and Mining to sort out the energy deficit in Argentina. Secondly, with the Ministry of Science and Technology because we are applying certain methods of production for the first time in Latin America."

Remaining **Hindrances Provincial problems**

Market insecurity and irregularities in price cycles have hampered mining investment globally, but Argentina's particular operational concern is its political fragmentation and provincial discrepancies. Due to an unclear and unjustified distribution of mining related tax revenue, some provinces have taken it upon themselves to effectively see an inflow of cash from the mining operations taking place within their borders. Something President Macri is working to change is the small percentage of earnings that is redistributed to the local governments. It is the public's understanding that some mining unfriendly provinces merely do not view managing the industry as worth the hassle. Other provinces see it as being contrary to the public's demand for environmental consciousness and preservation. "Provinces have not banned mining from a formal perspective, however, they have elevated the environmental requirements to such

levels, with norms that prohibit doing open pit Mendoza and Chubut are the top exam-

mining, using cyanide and other chemicals, that they make mining economically impossible," explained Ignacio Celorrio, partner at Quevedo Abogados. "From my perspective, all these regulations are unconstitutional, but some provincial courts, such as Córdoba and Mendoza, have sanctioned them as constitutional. Some provincial authorities are scared of the social reaction to mining projects, and also you can see that people really do not know about how the mining industry works." ples of unexploited mining potential, with mining related bans that are keeping some of Argentina's richest provinces underexplored and underdeveloped. Pan American Silver has announced it would commit to an investment of more than \$1 billion to start mining one of the world's largest silver deposits, but the province of Chubut remains strictly anti-open pit, making the project unfeasible. Mendoza is undoubtedly the most mineral-endowed province, and its government is set on configuring a unified stance either in favor of economically sensitive mining or against it all together. Mining in Mendoza could add additional export revenue of \$1.2 billion to the province, nearly doubling its output. Copper is its most prominent resource, but uranium is also teasingly available.



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Conclusion **Policy stability and** unification lead concerns

Before mining majors pump more money into the ground, the overarching question of policy stability and unification seems to be delaying confirmed contracts and concrete agreements. However, many signs point to Argentina moving in the right direction, such as its bump upwards of two spots in the World Bank's 2017 Ease of Doing Business ranking. "Argentina is expected to grow by 3.5% within the next year," stated Diego Calvetti, audit partner and head of oil & gas and mining for KPMG Argentina. "Positive changes are being made and, therefore, the market will be able to deal with growing pains and react accordingly over time."

The challenges are not to be ignored, as the development of the activity requires guaranteeing stable game rules before securing competitiveness. Marci's political challengers remain vocal with worrving statements and proposals to reverse the president's movements, including export tax re-introduction.