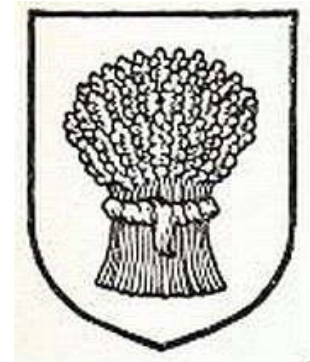


Wednesday, June 17, 2026



HALLGARTEN + COMPANY

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Rio Colorado Potash (PRC) The Revolving Door to Hell

Rio Colorado Potash

A Revolving Door to Hell

- + The Potasio Rio Colorado (PRC) potash project in Mendoza has the potential to service all Argentina's potash and have export potential to spare but.....
- × The story has become a saga that has dragged on for 20 years and chewed through the patience, and funds, of two international majors
- + The PRC when it reaches production, and it shall, by hook or crook, will propel Argentina into the top five potash producers globally
- + The output of the mine will replace Argentina's potash import needs and produce export income
- + Under the period of Vale's ownership, a substantial amount of construction was achieved, thus the minebuild is already advanced
- + Finally, FOMO considerations have driven Mendoza's political class to embrace mining
- × Capex, as with most potash projects, is sizeable
- × (Rail) Infrastructure to ports is a major challenge necessitating time and funding
- × The saga has long damaged Mendoza's image as an investment destination for mining
- × The current owners, all domestic, are not capitalized to undertake such a venture alone
- × The "tailings" *per se* of the project will be massive amounts of salt, which is perceived as a problem, but this can potentially be solved by reinjection
- × The financing environment is tough in the potash space if the project concerned is not under development by a major

A Mining Story Becomes a Mining Saga

As is becoming better known Argentina *per se* is NOT a mining jurisdiction, but its provinces are. In this respect it is like some of the other major mining nations with which investors are well acquainted. Indeed, the Federal government in Argentina has less say in mining matters than the Federal government in Ottawa does. This does not stop people from making sweeping statements where they conflate mining regulations with matters such as import/export duties or foreign exchange controls which are genuine bugbears that can be laid at the door of the national government.

The Rio Colorado project (PRC) is not on its first rodeo, indeed it may be on its fourth very shortly, and often the travails have been blamed on Argentina when part of the blame lies with the province of Mendoza and part with the policy decisions (read flip-flops) of international majors that have wandered into the project with eyes wide shut. It has successively chewed up Rio Tinto, Vale and now the Manzano group.

If Argentina was in the game of declaring projects to be of “national importance” then this would be a prime candidate. The project could convert Argentina into one of the world's top five potassium producers, replace imports of fertilizers and become a source of export income. It would also bring development (and a railway) to one of the more isolated parts of the country. We would not expect it to have any problems in gaining a RIGI status to fire up its financing.

In this review we look at the project, its long history and many twists and turns. We also look at current ownership and potential ownership. In our appendices we look at the fertilizer market in Argentina and the progress of a competing/complementary project, El Ceibo of Argentina Potash.

The “Asset”

The Potasio Rio Colorado deposits in Mendoza province have long been known and were drilled in the late 1980s, early 1990s, and again in 2005. A pilot test was conducted in the early 1990s and again after Rio Tinto acquired the property in 2004.



The project is close to the border of the province of Neuquen, with the eponymous river separating the two provinces.

The ore deposit is located at a depth of between 1,000 and 1,200 meters. There are claimed to be nearly 400 million tonnes of probable potash reserves, plus over one billion tonnes of inferred resources. This places PRC amongst the largest deposits globally. Initially, a 40-year lifespan was estimated with projected production increased from 2.4 to 4.3 million tons per annum of potash.

To extract the potash, high-temperature water will be injected to dilute them, and a brine will be extracted. The sodium chloride present alongside the potassium in the deposit will then be separated from the brine through evaporation, differential crystallization, and drying processes. The main inputs for this process are gas (1 million m³/day), electricity (78 MW), and water (1 m³/second). The residual

sodium chloride will be stored on the surface, virtually in perpetuity, forming a 120-million-ton salt pile covering an area of 200 hectares and reaching a height of 50 meters. This will become the main environmental liability of the mining operation.

Geology

The Colorado River has its headwaters in the Andes, and flows to the East, reaching finally the Atlantic Ocean. Throughout its journey, it does not receive significant water contributions, and in its upper and middle course the river is confined.

The Río Colorado Subgroup, formerly named as Río Colorado Formation, is a Late Cretaceous (Santonian to Early Campanian) geologic subgroup of the Neuquén Basin in northern Patagonia, Argentina. It belongs to the Neuquén Group and contains the Anacleto and Bajo de la Carpa Formations. The subgroup overlies the Río Neuquén Subgroup and is overlain by the Allen Formation of the Malargüe Group, separated by an unconformity dated to 79 Ma.

The Colorado Basin is a rift basin formed in the Upper Jurassic associated with the initial opening of the South Atlantic. Most of the Colorado basin develops offshore, roughly in an E-W direction (Folguera et al., 2015). The sedimentary basin fill includes sediments up to the Neogene, which have a maximum thickness of 700 m.

Mendoza on the Mind

The province of Mendoza has had a rather chequered image on the mining front. For quite a while we believed that the Rio Tinto retreat from the PRC was due to local opposition, but the matter is somewhat buried in the mists of time. It has however long been a given that there is “local opposition” to mining in Medoza. However, when one scratches the surface of this claim and talks to those in the know it turns out that the opposed parties are generally in the agriculture sector and hundreds of kilometers away from the mine site. Why should this be?

Mendoza is world-renowned for its wine industry and domestically for other fruit and nut production. Many of these industries rely upon low wage itinerant workers. Ergo, the agricultural industries in the province use (feeble) environmental arguments against mining projects in the province, when really what they are saying is that they do not want the sudden onset of substantial new sources of employment that would provide year-round employment at higher pay rates for unskilled and semi-skilled labourers that would otherwise be used for harvesting.

In particular, the San Jorge project (of Benton Resources – TSX-v: BTC - once upon a time) was a poster child for the effects of this *animus* from the vineyard crowd towards miners, despite being very distant from the wine country.

However, one should never underestimate the combined effect of the passage of time and of the FOMO factor. Mendoza is rather bent out of shape that San Juan (with its much smaller wine and fruit industry), which traditionally played a distant second fiddle to Mendoza, has surged ahead due to mass

attention paid by international mining investors. The difference is that NO stones have been put on the road to development in San Juan, while miners perceived that Mendoza was populated by chronic blockers of progress.

This newfound willingness has resulted in the actions that the province has taken on the Rio Colorado project (to be discussed anon), the approval and advancement of San Jorge and the creation of a sort of venture capital arm of the provincial government, *Impulsa Mendoza*, and it taking stakes in a number of projects (e.g. Indio Hierro).

One should also note that there is finally advancement of the past-producing Huemul uranium mine (formerly exploited by the Federal government's nuclear authority). It is now in the hands of a company that listed in New York recently.

The real litmus test will be any or all of these projects reaching actual production.

The Rio Tinto Period

As mentioned, Rio Tinto acquired the property in 2004. In 2006, the company said that at that time it was on track to complete a final feasibility study within half a year, but that it was too early to put specific start dates or cost figures for the development.

In 2007, Rio Tinto said it was aiming to produce around 1.6 million to 2.4 million tonne per annum of potash. At the time, it was estimated that Rio would spend US\$735mn million building the potash mine. Construction was slated to begin early in 2007 and to employ 1600 workers.

In February of 2009, Rio Tinto completed the sale of its undeveloped potash assets to the Brazilian mining company Vale for a cash consideration of US\$850mn (R8.5 billion). Rather than a reaction to the specific asset, this sale was part of a generalized clearing of the decks that Rio Tinto indulged in fater the global financial crisis of 2008. A whole swathe of assets were thrown overboard and considering how early-stage PRC was at the time the company did very well to get such a high price from Vale as the markets were still roiled by the crisis.

The Vale Period

In January of 2009, Vale announced that it had entered into a purchase and sale agreement with Rio Tinto Plc to acquire a bundle of iron ore (in Brazil) and potash assets (i.e. PRC) through an all-cash transaction. The price to be paid for the iron assets was US\$750mn, while the potash deposits were to be acquired for US\$850mn, for a total of US\$1.6bn.

In mid-June of 2011, Reuters reported that the province of Mendoza had suspended the PRC project claiming that it had not complied with local regulations. In a statement posted on its website the government asserted that Vale had not complied with a local labor law and failed to provide sufficient information on its investment plan. Vale denied any irregularities and said it would provide any additional information required. Commentary at the time suggested that the halt was electioneering

driven rather than a genuine breach of conditions.

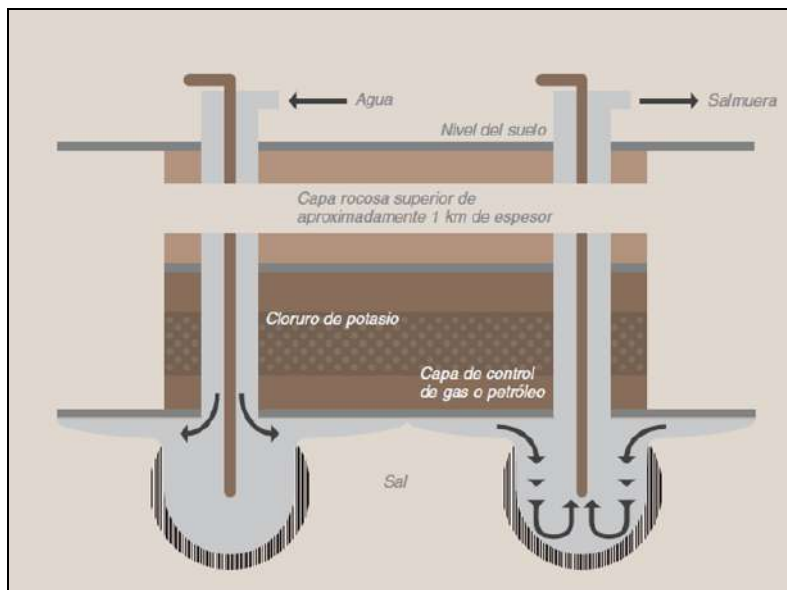


Dow Jones then, in July of 2011, reported that the province had lifted its suspension of the project. Mendoza's Environmental Secretariat allowed Vale to move forward with the mine after the company agreed to submit reports on its local hiring and procurement practices to the local authorities.

Potential Production

As mentioned, the ore deposit is located between 1,000 and 1,200 meters deep.

Initially, a 40-year lifespan was estimated. Projected production increased from 2.4mn to 4.3mn tons per annum of potash. To extract potassium salts, high-temperature water will be injected to dilute them, and a brine will be extracted.



The sodium chloride (NaCl) present alongside the potassium in the deposit will then be separated from the brine through evaporation, differential crystallization, and drying processes.

The main inputs for this process are gas (one million m³/day), electricity (78 MW), and water (one m³/second).

As with so many potash projects the “waste” product is salt. The residual sodium chloride will be stored on the surface, forming a 120-million-ton salt pile covering an area of 200 hectares and reaching a height of 50 meters. This has been targeted by critics as the main environmental liability of the mining operation.

The Railway Proposal – What Might Have Been

It seemed clear that the Vale strategy was to export the production of PRC. The great swathes of the Argentine grain growing were to the north while Vale signalled its desire to build a railway that would move the output to a port on the coast, that is to the southeast. Cynics might see this as part of some sort of Brazil Inc. strategy to supply the severely deprived and dependent Brazilian market with potash from a “friendly” source.

A news item in May 2010 first alerted us to a proposal affecting Rincón de los Sauces in the north of the province of Neuquén, for a railway to carry potash (potassium chlorate) from there to Bahía Blanca. Details given then included a bridge over the Río Colorado of spans totaling 250 metres, 21 km of line in the province of Mendoza, 187 km in Neuquén and 156 km in Río Negro to a junction with the existing line to Zapala at Cervantes. Trains were to be of 86 wagons, double-headed, conveying 5,074 tonnes of material totaling 2.4 million tonnes a year.

The promoter of the project, now commonly known as the *Ferrocarril Potasio Río Colorado*, was Vale, although the initial work was carried out by Río Tinto.

An environmental assessment was prepared in 2007, which gave interesting details of the railway, by then proposed to join the existing network at Km 1218 on the branch line from Cipolletti. The trains were to be 54 wagons long, each wagon being of 88 tonnes capacity, and carried on six-wheel bogies.

By early 2012, the proposals for the railway had altered and it would now have the junction 4 km west of Chichinales. The reason for the change of route would appear to be the advantages of constructing, and subsequently operating, the line clear of the populated highly-productive irrigated areas from Cinco Saltos to Villa Regina.

It also became clear that the line would stop short of crossing the Río Colorado to reach the site of the mine and that the mineral would be conveyed between the mine and the railhead by a covered conveyor belts system. The earthworks started on a site at the junction to the west of Chichinales, and loads of rails were imported as well as three SVM 1000R track laying machines, two PBR 500 ballast regulators and two STC SL tamping machines, all ordered by the main contractor for the railway works Skanska.



More recently, under the latest holder, CMAP, a partial solution was secured through an agreement with BCYL S.A., a *Trenes Argentinos* subsidiary, enabling access to the railway line from Palmira to the port. However, this is not a complete solution to the broader logistics issue.

Care & Maintenance

The project went on care & maintenance from January of 2013 and was officially suspended in March of 2013, after spending a reported US\$2.5bn and completing over 40% of the project Vale. The Brazilian company cited rampant inflation and exchange rate controls in Argentina as the main factors that made the project commercially unviable. It also said the cost had almost doubled to \$11bn from initial

estimates.



By that time, the mine life was expected to exceed 50 years with an average annual production estimated at 2.4 million tonnes in Phase 1 rising to 4.3 million tonnes per year in Phase 2.

Vale's decision to ditch its only major asset in Argentina left both governments unhappy. About 8,000 Argentine workers in three provinces were left out of jobs, while Brazil saw its goal of becoming "self-sufficient" in fertilizer by 2020 seriously jeopardized. As [our recent note on Brazil Potash](#) showed we are now well past 2020 and Brazil's plans has gone the way of all things.

Vale had originally expected to invest around US\$5.9bn on development of the mine with US\$1.2bn slated for 2012 alone.

Japanese Interest?

In June of 2014, it was reported that Vale was negotiating a deal with Marubeni Corporation, that was reportedly interested in acquiring the halted potash project.

In a bizarre turn, the Left-leaning (i.e. Kirchnerite) newspaper *Pagina 12*, claimed that the Japanese firm was seeking to enrol Chinese capital to kickstart the PRC project.

Another mooted option for Marubeni would have been to partner with Vale on the project.

The Mendoza Period

The province of Mendoza assumed control of PRC in 2020 after Vale's exit. In competition for the asset,

Compañía Minera Aguilar Potasio S.A. (CMAP) acquired the deposit, overtaking Eduardo Eurnekian's Corporación América (NYSE: CAAP), which was another interested party. CMAP was a corporate entity under the control of José Luis Manzano.

An Evaluation Commission recommended transferring 88% of shares of PRC S.A.U. to CMAP and 12% to Impulsa Mendoza Sostenible S.A., a sort of venture capital arm of the Mendoza government. The presence of Impulsa enabled the province to maintain a degree of control and technical oversight through a Shareholders' Agreement with CMAP. CMAP's parent company, Compañía Minera Aguilar S.A., acted as guarantor for the transaction, backing CMAP's obligations, including payment of the Breakup Fee Guarantee.

On the strategic cooperation front, Decree No. 1979 approved a Memorandum of Understanding (MoU) signed by the Governor, CMAP and the Brazilian consortium, Grupo ARG (Fortaleza de Santa Teresinha Empreendimentos e Participações S.A. and Múltipla Engenharia Trading Company S.A.) which specializes in large infrastructure projects. The MoU laid the groundwork for collaboration on exploration, extraction, industrialization, and marketing of potash. The project is of high strategic interest to Brazil, and Mendoza sees it as a development priority.

The province duly transferred 88% of the company's shares to *Compañía Minera Aguilar Potasio S.A.* (CMAP) in September 2023.

The Manzano Period

As mentioned, in September 2023, the province transferred 88% of the shares to Compañía Minera Aguilar Potasio S.A. (CMAP), in an agreement ratified by the Legislature in October of 2023.

The contract stipulated a five-year investment plan of US\$1.0391 billion to achieve a production capacity of 1.4 million tons of KCl per year, along with a guarantee scheme that includes penalties of up to US\$150 million for total non-compliance with the plan. As part of this scheme, specific milestones were defined for the construction of a pilot plant. Among them, the start of construction and 50% completion of the KCl separation plant were to be achieved by June 6, 2025, along with the pre-commissioning of the facility.

Manzano & Integra

The figure of Jose Luis Manzano is a well-known one in Argentine politics and business.

Compañía Minera Aguilar Potasio S.A. (CMAP) is sometimes described as the longest running mining operation in Argentina, centred on the far northern province of Jujuy.

CMAP was, until 2021, a part of the Glencore empire. At that time, Integra acquired the company from Compañía Minera Aguilar S.A , Ar Zinc y Glencore Servicios Mineros S.A. and the mine recommenced operations in September of 2022.

As an aside we would note that Integra has since gone on to acquire the storied Volcan mining group in Peru, which was quite a momentous transaction as Argentine mining groups, such as they are, had never ventured outside the country.

Integra Lithium is also a large, though late, runner in the Lithium Stakes in Argentina and may indeed have missed the starting gun.

The CMAP Deal

The agreement was ratified by the provincial legislature in October of 2023 (thru Decree No. 1979) and this established clear obligations upon the new owners.

The transaction outlined an ambitious investment plan focused on the production, industrialization and commercialization of potassium chloride (KCl) for agricultural use. It projected:

- an estimated investment of US\$1.039bn
- an annual production capacity of 1.4mn tonnes per annum of KCl, based on a FEL-2 level estimate

The contract provided Mendoza with a double economic safeguard to ensure the seriousness of the investment.

One layer was the Initial Offer Maintenance Guarantee worth US\$10mn, which covers the Breakup Fee in case of fundamental non-compliance.

A second guarantee, called the Total Investment Plan Default Penalty, was set at US\$150mn. This is enforceable in the event of persistent failure to fulfill essential obligations.

To protect the asset further, Mendoza placed 100% of CMAP's acquired shares into a Guarantee Trust. Release of shares was to be gradual and conditional: only 15% of shares would be released upon verification of Stage 1 compliance, with an additional 10% released annually following compliance with subsequent stages.

Progress

Key engineering and production milestones were outlined for Stage 1. The investment plan included critical deadlines for the KCl Pilot Plant, encompassing engineering, procurement, construction, commissioning, and startup.

According to the contract, construction of the KCl separation plant and 50% progress on the KCl plant were scheduled for early June of 2025, as was the end of the KCl plant's pre-commissioning—all key deliverables of Stage 1.

The processing plants and services account for the largest investment item, totaling over US\$621mn in

projected spending.

CMAP Gets Spanked

Then, in mid-2025, government of Mendoza found itself in a challenging position after CMAP failed to meet the contractual milestones required under Phase 1 of the project.

This breach may force provincial authorities to evaluate possible sanctions and determine how to proceed with the site's development.

The leading mining journal in Argentina, Panorama Minero, reported that the province was exploring alternatives to avoid reigniting conflict over PRC. It cited "analysts" warning against initiating legal action over the project that still had several critical issues to resolve.

The biggest challenge for CMAP's reactivation of the PRC site lies in infrastructure, specifically railway logistics and mineral transportation. The plan explicitly defines logistics as a critical requirement. It includes a Critical Logistics Milestone (Condition Precedent) that involves multiple national stakeholders. The contract states that "an acceptable agreement must be reached between *Trenes Argentinos*, National Ports and the buyer regarding the transportability of the extracted mineral."

Any delay to the logistics and power infrastructure would directly affect the project's final timeline.

These milestones were not met within the established timeframes. Failure to meet the Phase 1 objectives placed the project under the penalty regime stipulated in the contract, which includes daily fines of US\$7,000 for the first two years following the agreement's conclusion. This applied for each day the breach was not remedied, creating mounting financial pressure on the company.

The government was said to be reviewing its next steps, beyond what was outlined in the contract and penalty schedule. The impact of unresolved logistics (i.e. the railway) was also under scrutiny, as it continued to pose a major hurdle.

Potential Fins in the Water

We would refer to [our recent Growth Minerals Monthly](#) from our analyst, Joshua Mayfield. In that publication he notes that Latin America is ahead of the game—way ahead of the U.S.—in terms of plans to diversify domestic and international sources of fertilizers. When Tether, the world's largest stablecoin, bought a majority stake in Adecoagro back in March 2025, the company knew that it was getting involved in both agriculture and fertilizer projects in Latin America.

Adecoagro is an agriculture and renewable energy company with operations in Brazil, Argentina and Uruguay. Tether purchased 70% of the company for a price of US\$600mn. The deal is related to the stablecoin giant's strategy to expand its crypto influence into a broader set of brick-and-mortar assets. For example, agricultural commodities form part of Tether's strategy to expand on more innovative forms of "tokenization" that will potentially adopt sugar or corn tokens for hedging tools or a source of

collateral. The sugarcane operations that Adecoagro owns will also be utilized to power Tether's crypto-mining operations with a limitless bio-fuel energy source of electricity.

So, what does this have to do with fertilizers after all? Adecoagro bought a 90% stake in Profertil—formerly operated as one of Nutrien's nitrogen fertilizer assets—in Argentina for a purchase price of approximately US\$600 million in December 2025. In relation to the acquisition of Nutrien's 50% interest in Profertil, this allowed Adecoagro to acquire YPF's 50% stake in Profertil S.A., the largest Latin American producer of granular urea located in Bahía Blanca, with an annual capacity of approximately 1.3 million metric tons of urea and 790,000 metric tons of ammonia. This will give the company approximately 60% of Argentina's domestic urea market.

In Argentina, it has been reported that nearly 56% of fertilizers are imported, mainly from Morocco, China, the U.S., and Peru, of which figures change according to agricultural commodities prices during each crop season. With this fertilizer import dilemma, Tether has the funding to significantly grab market share of Argentina's domestic fertilizer market and other fertilizer markets throughout Latin America. Argentina is also an importer of phosphate and potash, and we have two companies of interest in Brazil that meet those needs for potential Tether acquisitions: Brazil Potash (NYSE: GRO) and Argentina Potash (which we are reliably informed is heading for an NYSE-American listing in early 2027).

Brazil Potash and Argentina Potash are prime targets for a party with Latin American regional expansion goals. Potassio Rio Colorado is, dare we say, also a potential target. Tether already has a foot and leg in the door of this market with Argentina's nitrogen fertilizer assets. What's stopping Tether from becoming one of the world's next NPK giants? With Tether on board in Latin America, the claimants to regional relevance (Yara, Eurochem and Nutrien) need to step up their game in this globally dynamic fertilizer market going forward!

We have gone on record as speculating that Tether will eventually need to diversify its portfolio beyond gold royalties, and that then conjures up all manner of hard commodities and even non-ingot tradables such as fertilisers, and lo and behold, that is what they have done in the Adecoagro transaction that has gone largely unnoticed.

We would also note a Latin American tinge to Tether's direction of travel. The preponderance of Italians at Tether might also signal why they feel comfortable in Argentina (and probably Brazil).

Executive Summary

The big thought on this project is that while it has had majors gnaw upon it, none of the majors were majors in fertilisers. Vale, in particular, were exceptionally clueless.

Then, in recent times, after 20 years of birth pangs the PRC looked set to be born into this world with one of Argentina's wealthiest and most powerful political movers & shakers acting as the midwife. However, when the driving force behind a project that has (according to Vale) a US\$11bn plus capex cannot (or won't) stump up \$10mn for a pilot plant then it's clearly a case of returning to the drawing

board. One has the suspicion that the old Argentine adage of “*hombre rico, empresa fundida*” is yet again in evidence.

Is this just viewed as a flip? The province awards the concession over not only the project, but the hundreds of millions of sunk cost on construction work expended by Vale. And yet an extra \$10mn is a bridge too far? One gets the suspicion that this was being used as a flip. Find an international major (well, been there done that) and then the Argentine insurgent remains with a goodly free carry, and the foreigner earns in by bringing it to production. What could go wrong?

Well, nothing has in fact gone wrong except that the “owner” has a “*cocodrilo en el bolsillo*” and doesn’t want to put his hand in to pull out his chequebook. Can the defaulting owner be disciplined (or have the award of the project rescinded) if he is the closest thing that Mendoza has to a sacred cow? Who dares?

Now that Argentina is respectable investment fodder again, and with the tailwind of RIGI, thus the PRC could be fairly large mouthful for parties that like to gorge on big fertilizers. The plans of Vale were certainly pharaonic and came to grief. That the budget blew out to US\$11bn just shows how much of a newbie Vale was to this space, and frankly clueless. Virtually anyone else would have cut the coat better to suit the cloth. Tether would probably want someone competent leading the project before they would jump into that challenge. Managing it themselves would not necessarily be all that wise.

The PRC sits there as a major challenge and opportunity. It has the captive market of the Argentine market on its doorstep and the Brazilian market, almost captive, next door. Even with the onset of Brazil Potash’s Autazes project, there would still be voracious demand in Argentina’s northern neighbour.

Who (that is competent and resourced) will seize the nettle and win the prize (to mix some metaphors)?

Appendix I:

Fertilizers in Argentina

- + **Argentina produces a goodly proportion of its own fertilizer needs**
- + **The country produces 1.7mn tonnes of its 4.3mn tonnes annual fertilizer requirement**
- + **Resourced in rich topsoil and utilizing crop rotation practices, Argentina has long minimized its fertilizer requirements**
- + **It is probably erroneous to say that Argentina has ever had a fertilizer policy, but certainly initiatives like the broader RIGI scheme will enable PRC**
- + **The El Ceibo project of Argentina Potash promises an additional potential source of production in the Rio Colorado Basin**
- × **The current war against Iran has heightened the sense of dependency, everywhere, on foreign-sourced fertilizer supplies**
- × **Despite having sizeable domestic potash resources, the country has not achieved fertilizer independence**

Some Local Features

Not all great agricultural districts are created equal. Brazil has the challenge of most of its zones being in the tropics, then issues of soil quality and degradation. The US has severe winters to deal with. Argentina on the other hand has vast swathes of cropping land in a highly favorable temperate weather belt, with (mainly) reliable rains.

The average top-soil depth across Argentina's agricultural heartland (the Pampas) ranges from 20 cm to 30 cm. While the productive surface layer varies depending on local micro-topography, the total soil profile to restrictive hardpan layers (known locally as *tosca*) typically averages 114 cm in depth. For summer crops like corn, sunflower, and soybean in the humid Pampa, optimum yields are found where the soil profile reaches depths of 150 cm or more.

Then there is the issue of crop rotation. With such a strong top-soil endowment, the main planting area of country has had a long history of crop rotation and fallow periods to obviate or reduce exhaustion and fertilizer requirements. That is why Argentina is a much smaller demander of fertilisers from the global markets.

The conventional practices though, during the past two decades, have seen extensive agriculture, particularly soybean production, progressively replace/reduce other crops in Argentina. The expansion of soybean production has brought a substantial increase in agricultural revenue for Argentina. However, the predominance of soybean cultivation poses significant challenges, such as diminished soil fertility, reduction and increased variability in crop yields, ecological imbalance, increased greenhouse gas (GHG) emissions, and vulnerability to climate change.

Crop rotation, particularly balanced crop rotation, may result in very large positive impacts on soybean yields, especially in unfavorable climatic conditions such as those experienced during the *La Niña* ENSO phase in Argentina. In addition to this positive impact on agricultural productivity and climate adaptation, in some contexts crop rotation may also contribute to the reduction of GHG emissions, increase input energy efficiency, and improved environmental outcomes.

However, the ascendancy of soybean cultivation may have peaked. Increasingly, agriculture in Argentina is relying on the massive adoption of no-tillage farming and a shift from traditional soybean monocultures toward intensified sequences, particularly integrating maize and wheat to restore soil nutrients, prevent disease, and manage herbicide-resistant weeds.

The Pampas agricultural zone (including regions like Buenos Aires, Córdoba, and Santa Fe) balances high-intensity cereal rotations (wheat, maize) with legume production (soybean).

In dryer zones, rotations often involve long fallow periods or integrate grazing pastures with crops (e.g., wheat with natural grasses) to allow soil water levels to recharge.

Trends of note are:

- The standard foundation for crop rotation in the Pampas is shifting from continuous soybean monoculture to a soybean/maize sequence, which increases soil organic carbon and significantly boosts crop revenues and nutritional quality
- A highly prevalent practice in the Pampas is a strict double-crop rotation where wheat is grown in the winter and early soybean is planted in the summer within the same calendar year.
- The use of winter cover crops, such as vetch, oats, and rye is expanding to outcompete/suppress weeds, reduce herbicide dependency, and retain soil moisture.

The mistaken impression that Argentina is in some way part of the Global South (i.e. primitive) is a total fallacy. Argentina has been a leading grain production zone since the late 19th century. Due to advantageous factors previously enumerated combined with sophisticated land management the country has maintained and increased its grain production while expanding its offering of products.

We would also note that Argentine land practices have seen the expansion and conversion of the planted frontier with creating dustbowls (*a la* Oklahoma and, periodically, in Australia). Partly responsible for this have been No-Tillage policies. Currently, around 90% of extensive crop production

operates under strict no-till systems to reduce wind and water erosion, minimize soil disturbance, and trapping carbon in the ground. Meanwhile, continuous rotation is utilized to break the biological cycles of stubborn weeds and lower the dependency on chemical herbicides.

Fertilisers & Sourcing

Despite these advantages and soil management styles, there is still a substantial fertilizer demand in the Argentine market. Although local production is around 1.7 million tons, more than half of the fertilizers used in the country come from abroad with China, Morocco, and the United States being the main suppliers.

As we often note in our Growth Minerals Reviews, the global fertilizer market is dominated by a few countries. China is the leading producer (and consumer), followed by Morocco, Russia, the United States, and India. In the internal Argentine market, prices and local availability remain dependent on international supply and demand conditions.

More Nitrogen, Less Potassium

National production reaches 1.7 million tons per year, with nitrogen fertilizers predominating (68%), used to stimulate plant growth. Phosphate fertilizers (25%), which promote flowering and root growth, are next, followed by sulphur fertilizers (7%) and a minimal proportion of potassium fertilizers.

Most of the production and distribution plants are located in Buenos Aires, Santa Fe, and Córdoba, where the port terminals for the import and export of these products are also concentrated.

Principales plantas de fertilizantes en Argentina

Año apertura	Compañía	Productos	Capacidad de producción anual (en toneladas)	Localización
2001	Profertil (Joint venture entre YPF, Adecoagro y ACA)	Urea granulada	1.320.000	Bahía Blanca, Buenos Aires
2006	TFA (Joint Venture entre ACA y Bunge)	Superfosfato simple	240.000	Puerto General San Martín, Santa Fe
2004	Bunge	Tiosulfato de amonio (TSA) Tiosulfato de potasio (KTS) Amoníaco (NH3)	140.000 (TSA) 14.085 (KTS) 29,700 (NH3)	Campana, Buenos Aires
2008	Bunge BCR	Superfosfato simple	180.000	Ramallo, Buenos Aires
1956	Fábrica Militar de Río Tercero	Nitrato de amonio	8.300	Río Tercero, Córdoba

@BCRmercados en base a datos de Ministerio de Economía, CIAFA, Fertilizar y datos de las empresas

Source: Bolsa de Cereales de Rosario

Imports (and Exports)

In Argentina, the situation reflects this dependence: 56% of the fertilizers used are imported, mainly

from Morocco, China, the United States, and Peru. This proportion increases in years of high agricultural demand, or when international prices fall.

During 2024, Argentina imported US\$1.49bn in Fertilizers, mainly from Morocco (\$411mn), China (\$186mn), and United States (\$148mn).

On the export front, Argentina sold to outside markets in 2024 a total of \$47.7mn in fertilizers, primarily to Paraguay (\$24mn), Chile (\$9.07mn), and Uruguay (\$4.96mn).

Consumption is consolidating

During the 2024/25 season, total fertilizer use reached 4.8 million tons. Corn was the main consumer, accounting for 38% of the total, followed by wheat (27%), soybeans (8%), barley (7%), and regional crops, which together accounted for another 11%.

The market's leading fertilizer continues to be urea, representing 76% of nitrogen fertilizer use. Among phosphate fertilizers, monoammonium phosphate (MAP) predominates, with 52% of consumption, followed by single superphosphate and diammonium phosphate (DAP).

Despite some efforts to increase local production, the country remains highly dependent on foreign trade. Over the past fifteen years, imports have averaged US\$1.225bn annually, peaking in 2022 due to the Russia-Ukraine conflict and rising international prices.

The main entry points are the ports of San Nicolás, San Lorenzo, and Ramallo, which handle more than 80% of the imported volume.

Greater Efficiency, Less Impact

The growth in fertilizer use reflects the search for higher yields in the context of tight margins. An oft-forgotten point for outsiders is that the stability of the peso against the US dollar, removing the historic pressure valve of constant devaluation of the peso to lessen internal costs (particularly the labour and energy components) has created a straightjacket within which the agricultural sector must now operate.

Experts urge the need to improve application efficiency and reduce losses due to leaching or volatilization, especially with nitrogen fertilizers. At the same time, interest in biofertilizers and controlled-release technologies is growing, alternatives that could reduce costs and environmental impact.

References:

“The Fertilizer Market in Argentina and the World” - Bolsa de Cereales de Buenos Aires

Appendix II: Argentina Potash

- + **This new developer in the potash space in Neuquen province is in close proximity to the storied PRC project across the border**
- + **It has the potential to piggyback upon any infrastructure, particularly rail, that PRC might cause to be built**
- + **The company is targeting a listing on the NYSE American in early 2027 under the ticker symbol KCL**
- + **The asset might ultimately come to the attention of Tether**
- × **The chequered history of the PRC might weigh on the prospects but progress at PRC could also give this project an accompanying tailwind**
- × **Funding large potash projects is not for the faint of heart**

The Company

Argentina Potash Corporation, a Canadian corporate entity, is focused on the exploration, appraisal, and sustainable development of potash resources in the Neuquén Basin. The asset is held via CanCambria Exploración, a subsidiary of Argentina Potash.

The El Ceibo Project covers approximately 7,200 hectares within a larger 92,000-hectare land package. There is an extant NI43-101 resource on the project.

The project aims to develop an “ultra-high-grade” potash deposit well-suited for “low-cost, low-impact” solution mining. With a targeted ultimate production capacity of up to one million tonnes per annum of muriate of potash, AP aims to become a significant regional supplier to Southern Cone agricultural markets.

El Ceibo - Resource

El Ceibo hosts an inferred mineral resource of 1,606 million tonnes of sylvinite containing an estimated 391 million tonnes of potassium chloride (KCl), making it one of the largest defined potash deposits in South America.

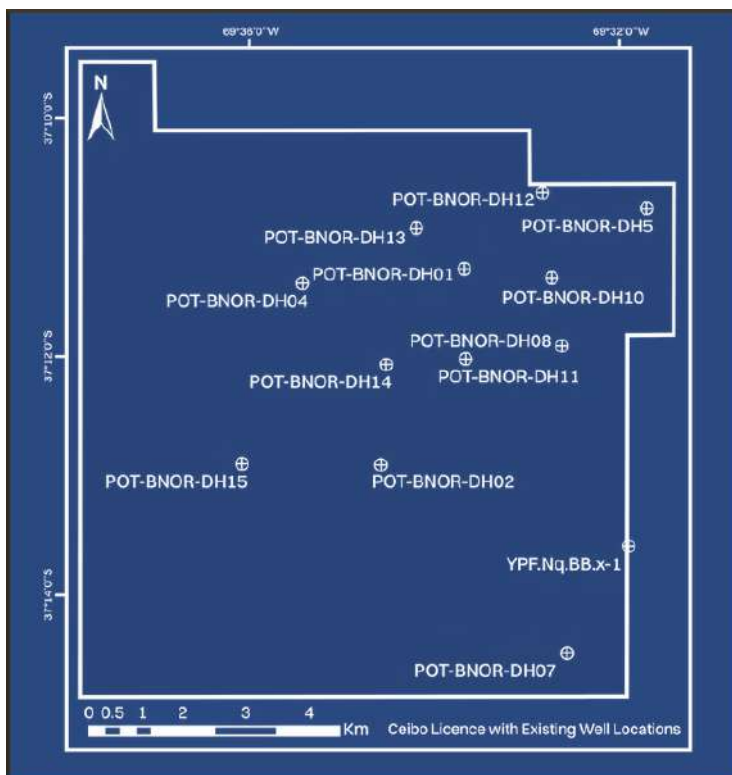
Inferred Mineral Resource – El Ceibo*

Potash Level	Resources Category	Mine Property Area (Km ²)	In-Place Sylvinite Tonnage (Mt)	Gross K ₂ O Tonnage (Mt)	Gross KCl Tonnage (Mt)
K3	Inferred	71	285	47	74
K1	Inferred	71	1,321	200	317
TOTAL			1,606	247	391

It is strategically located near existing infrastructure in the Neuquén Basin and yet is also well-positioned to serve the agricultural heartlands of the Southern Cone.

Argentina Potash plans to utilize horizontal drilling and selective solution mining techniques designed to minimize surface disturbance, water consumption, and overall environmental impact.

The El Ceibo Potash Project has a highly concentrated KCl resource with near-term production potential of one million tonnes per annum (TPA) of Muriate of Potash (MOP).



AP's evaluation of well logs, core and seismic data compares favorably with previous studies by VALE S.A. within the Ceibo area. AP's NI 43-101 report records an inferred resource, estimated at 391 Mt of KCl. We believe this is a world-class deposit and ranks 2nd in size within South America, behind that of the adjacent PRC Mine.

The (US) DFC Grant

In the first days of June of 2026, it was announced that the U.S. International Development Finance Corporation (DFC) has approved US\$4.07mn in Project Development funding for its flagship El Ceibo Potash Project in the Neuquén Basin.

The US\$4.07mn DFC funding is expected to be matched dollar-for-dollar by strategic investors, resulting in total Phase 1 funding of US\$8.15mn. These proceeds will advance technical studies, environmental and social impact assessments (ESIA), and work towards a Pre-Feasibility Study (PFS), accelerating the company's path toward construction of a 50,000 tonnes per annum (TPA) Demonstration Plant. The ultimate aim is a full-scale commercial production of one million tonnes per annum of muriate of potash (MOP).

This transaction represents the first DFC Project Development funding awarded in Argentina. It is also the first project to directly align with the US-Argentina Critical Minerals Framework Agreement signed in February 2026, following the designation of potash as a U.S. critical mineral in November 2025.

The Sequence Going Forward

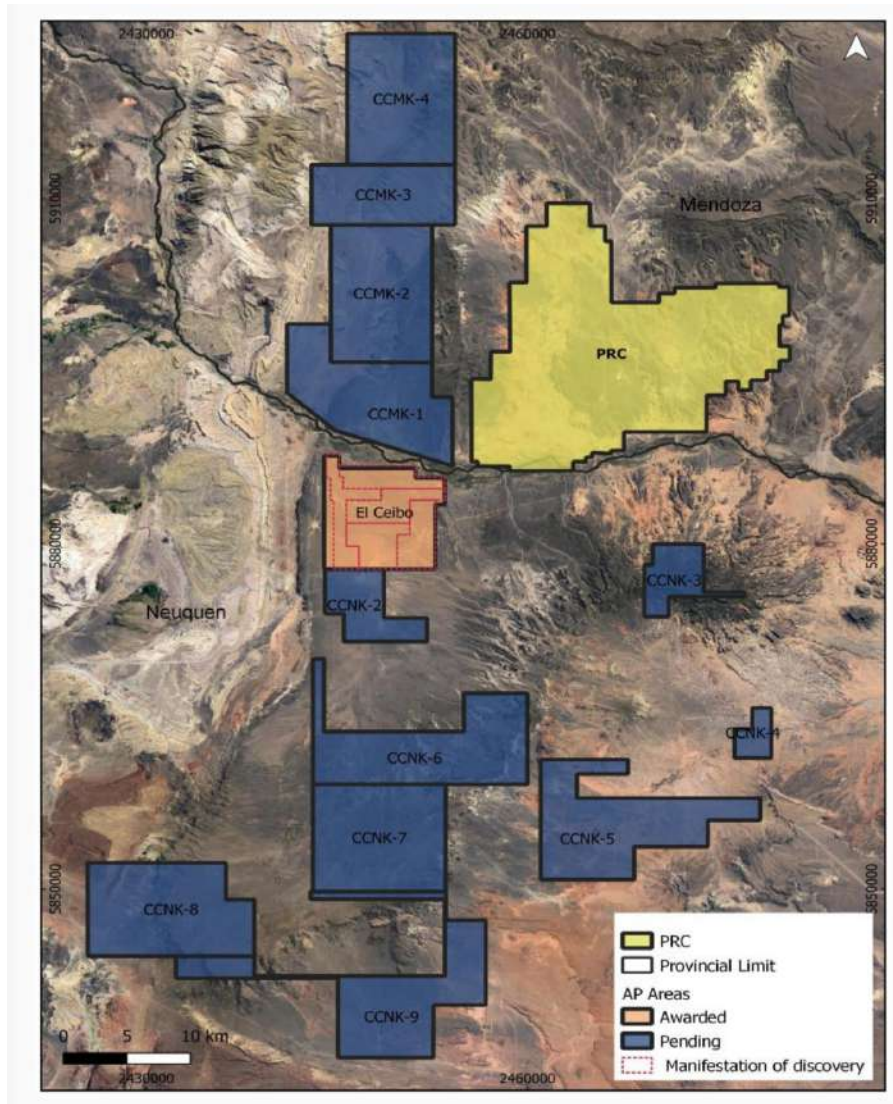
In recent comments the company's management have laid out progress & goals:

- US\$8.15mn Phase 1 funding, of which the US\$4.07mn from U.S. DFC is expected to be matched dollar-for-dollar by strategic investors
- A 50,000 tonnes per annum Demonstration Plant planned
- FEED and ESIA studies underway, advancing toward construction
- Path to one million tonnes per annum Commercial Production Conceptual planning progressing in parallel

The Broader Concession

On the following page the El Ciebo project vis-vis PRC can be seen.

Moreover, one also sees that the company has pending license approvals that could potentially massively increase its territory, and into Mendoza.



Important disclosures

I, Christopher Ecclestone, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

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