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Mirador, a time bomb?

Mirador, the first open-pit mine in Ecuador, has been exploiting material since 2019. The first export from this mine, concessioned to the Chinese-owned Ecuacorriente S.A., took place in 2020. However, costs could exceed revenues and revenues are not sufficiently traceable. This is a first approach.

13 February 2023

More than ten years after the signing of the contract with the Chinese capital company Ecuacorriente S.A. and three years after the start of industrial mining in the country with the operations of the Mirador mine, the revenues for the Amazonian population are not coming.

Scientific studies warn that the economic costs of transforming Ecuador into a mega-mining country would exceed the benefits by billions of dollars, not to mention the social, environmental and cultural costs that are difficult to quantify in monetary terms.

The lack of clear laws, the cumbersome licensing processes, the large number of tax exemptions for large mining companies, the limited experience of state officials, the lack of prior and environmental consultations and the absence of control and oversight of large-scale activities such as mega-mining cause grey areas in the traceability of public resources.

By Diego Cazar Baquero / @dieguitocazar

Mega-mining, the place where political enemies converge

In Ecuador, mega-mining has been promoted by the last three governments, by private productive sectors and by associations representing large multinational corporations as "one of the great engines of the national economy". But as early as the 1990s, mining exploration began under the impetus of new legal frameworks

sponsored by the International Monetary Fund and the World Bank. These first projects unleashed social conflicts in various territories, such as Intag, in the province of Imbabura. Over the last decade, a number of large-scale industrial mining projects are already in the exploratory phase and two of them started operations in 2019 to extract mainly copper, gold and silver.

Geographer and professor at the School of Government and Public Administration of the Institute of Higher National Studies (IAEN) Andrea Carrión recalled that former president Rafael Correa "discursively positioned mining as a political and economic strategy" that would generate foreign currency to promote public investment and redistributive spending.

Under the idea of a strategy sown since then, that government and the two that succeeded it promoted the large-scale mining projects Mirador, Fruta del Norte and Panantza-San Carlos, located on the Amazonian slopes of the provinces of Zamora Chinchipe and Morona Santiago. Alberto Acosta - Minister of Energy and Mines during the first five months of Correa's regime, president of the 2008 Constituent Assembly and now one of the biggest detractors of Correa's extractivist policies - points out that these plans also included projects such as Quimsacocha (now called Lomalarga) and Río Blanco, located in the Andean highlands of the Azuay province, among other projects in the pipeline.

This government strategy deepened the socio-environmental conflicts unleashed in the 1990s: violent evictions, contamination of water sources, soil and other phenomena that Acosta and several environmental organisations warned would occur and that, over the years, have worsened.

The governments of Lenín Moreno and Guillermo Lasso - fierce critics of many of Correa's policies - fuelled this push for mega-mining and have chosen to link the affected inhabitants of the concession areas with criminal organisations. Officials from both regimes have used the argument of the supposed profitability of mining as a panacea and, at the same time, have reinforced discourses that criminalise

anyone who opposes mega-mining. "Extractivism is the point of convergence of progressive and right-wing governments," explains Acosta.

Tundayme viewpoint

In Tundayme, there are conflicts between the inhabitants who have remained and those who have arrived. Mining is the main occupation in the village, to the detriment of agriculture and livestock farming.

Tundayme

Some 25 policemen guarded the most recent eviction in Tundayme, which affected Aurelio Morocho and Rosa Sánchez, an elderly couple. Chickens, guinea pigs, three cows and a mare are among the Morocho Sánchez couple's possessions. These were transferred to the estate of a judicial depositary. Photos: Cascomi

Not all that glitters is gold... or silver or copper

The high economic relevance of mega-mining for Ecuador, according to the positions of the last three governments, is at least "questionable". A study by scientist and professor at the Universidad Andina Simón Bolívar William Sacher Freslon, published in issue 117 of the magazine Ecuador Debate, questions this supposed profitability and claims that in 100 years - between 2020 and 2120 - "the probability that the set of mining megaprojects considered will generate more costs than benefits is over 90%, and that the probability that [the costs] will represent at least two thirds of the benefits is 99.9%".

According to these figures, the costs, expenses and losses of transforming Ecuador into a mega-mining country "would exceed the benefits by \$24.5 billion", meaning that the costs would end up being 1.5 times greater than the revenues collected.

One of the most alarming conclusions of Sacher's study is that "the implementation of these ten projects would mean the generation of annual waste that would represent twenty-five times the amount of domestic waste of the entire country", and an average annual increase in the country's water consumption of 5.4 per cent and 9.3 per cent in electricity.

For his analysis, Sacher chose the ten most advanced mining megaprojects in Ecuador. He developed a projection model with ten parameters to compare the benefits with the costs that the state would incur during mining operations and in a period after mine closure. As an example, Sacher highlighted two scenarios from the total of 30,240 scenarios he generated. The first, less likely and somewhat optimistic, with a probability of occurrence of just 5%; and a second, more pessimistic scenario with a 12.5% probability of occurrence.

But environmental damage, seen from an economic perspective, can mean costs that are impossible to cover in the future. In an interview published in July 2019 by El Comercio newspaper, Ecuacorriente S.A. spokesman Augusto Flores acknowledged that the environmental damage caused by the Mirador mine is irreversible. "Those areas were non-primary forests, which were intervened to settle the camp; then, the change is irreversible but it is necessary, if not, how do we settle?" asked Flores, a civil engineer with a background in safety, health and the environment. "There are only two possibilities: lie or tell the truth. There are no other options. And I, as a spokesperson for the company, am not going to lend myself to deception, never. The processes are irreversible, it is irremediable".

Geophysics scientist and expert Steven H. Emerman, from Utah Valley University, presented in 2019 a study commissioned by E-Tech International that evaluates the design and construction of the tailings dams for the Mirador mine, an infrastructure that has been designed to contain around 491 million cubic metres of mine waste, the equivalent of three San Pablo lakes and half of one more. Among other conclusions, the scientist determined that during the 30-year life of the project, the occurrence of an earthquake, a flood or episodes of internal erosion is imminent, given that the Amazonian soil is unstable, the area is highly seismic and the mine's infrastructure does not present the conditions to avoid a disaster.

"An immediate moratorium on further construction of the Mirador mine is recommended," Emerman said. The study concluded that "a failure of the tailings dams at the Mirador mine is inevitable and the consequences will be extreme". In addition, Emerman warned that no assessment of landslide and high erosion risks in

the area was conducted during construction of the mine, and said the Quimi dam - one of two planned at the mine - used a construction method described as "the most susceptible to all causes of tailings dam failure (...) The dam is susceptible to failure as soon as the tailings dam is filled with wet tailings," he explained in his study.

Tundayme

This satellite image shows the expansion of the Cónдор Mirador open-pit mine into the fragile ecosystem of the Cordillera del Cónдор mountain range in southeastern Ecuador. Image: Carlos Mazabanda.

Tundayme Mirador

From the mine pit, which is located on the other side of the mountain, minerals or waste come down and accumulate in the tailings. The Mirador project, operated by the Chinese mining company ECSA, is developed on an operational area of 6,998 ha and a mining infrastructure area of 1,836 ha. Photo: Ana Cristina Alvarado

Emerman has studied other mining dam break disasters in different parts of the world. In 2014, in Canada, a tailings dam at the Mount Polley mine, owned by Imperial Metals Ltd, ruptured, spilling 25 million cubic metres of water and mine waste into Polley Lake. The audit reports found that there were flaws in the construction design that did not take into account soil characteristics, much like what would have happened with Mirador. In 2015, in the state of Minas Gerais in Brazil, the mining company Samarco was responsible for the rupture of a tailings dam that released 39.2 million cubic metres of waste, killing 19 people and destroying the village of Bento Rodrigues. The episode was compared to the accident at the Fukushima nuclear plant in Japan in 2011. Also in Brazil, in Brumandinho, a dam at the Córrego do Feijão mine, owned by the Vale mining company, burst, spilling around 13 million cubic metres of mine waste in 2019, killing 259 people. At Mirador, two tailings dams are planned to be built with a capacity to contain around 491 million cubic metres, according to Ecuacorriente and Ecuadorian state data. "This enormous amount of material that will remain after the mining company leaves must be managed by someone," warns Alberto Acosta.

According to Sacher's study, in its most optimistic scenario, the average cost of breaking a tailings dam at the Mirador mine would be US\$47.136 million. But in its

most pessimistic and most likely scenario, this cost would reach \$141.408 billion, which is equivalent to about four times the approved general state budget in 2022. Between 2020 and 2120, the Mirador mine would provide the country with revenues of \$7.804 billion, but would mean \$16.021 billion in expenses, costs and losses.

From speeches to figures on Mirador

In general, the data on this project have been ambiguous. Years before the Mirador mine began operations, the Correa government said it had calculated that there were 3.04 million tonnes of copper; 3.2 billion ounces of gold; and 25 million ounces of silver. In mid-2019, with Lenín Moreno as president, the then Ministry of Energy and Non-Renewable Resources, led by Carlos Pérez, increased the figures and assured that Mirador has reserves of 3.18 million tonnes of copper, 3.39 million ounces of gold and 27.11 million ounces of silver.

The state's initial projection was to extract more than 350,000 tonnes of copper concentrate per year from Mirador, or about 958 tonnes per day, which over the mine's 30-year life would amount to 10.5 million tonnes. Years later, a total extraction of 20 million tonnes of copper concentrate was calculated over the 30 years (the equivalent of some 666 666 tonnes per year and 1 826 tonnes per day). But it was also assured that the beneficiation plant would receive about 10,000 tonnes of rock per day, that in six months it would reach 30,000 tonnes and that in a year it would reach the 60,000 tonnes per day offered at the beginning.

Former minister Pérez said, however, that 94,000 tonnes of copper concentrate would be processed per year and an estimated US\$95 million in exports for 2019 from the Mirador mine alone. An official statement said that by 2020 the figure would reach \$498 million.

Mirador Tundayme

The entrance to Tundayme is plagued by propaganda posters for Ecuacorriente S.A., the Chinese company in charge of exploiting Mirador.

According to the legal norm, sales must be reflected in the benefits for the population directly affected, in royalties, taxes, concession conservation patent, profits and other items.

According to information from the Internal Revenue Service, since 2019, the province of Zamora Chinchipe has experienced a drastic increase in its income. On 15 January 2020, Ecuador exported the first shipment extracted from Mirador, with 22,000 tonnes of copper concentrate with a commercial value of 23 million dollars.

Ecuacorriente had already declared \$30 million in royalties in 2019, completing the \$100 million advance royalty payment to which the company committed in the contract signed in 2012. The state received the \$100 million in four separate payments. In 2020, by contrast, its royalties amounted to just \$3'650,166.49. And in 2021, the company declared 12'071,706 for the same item.

According to Central Bank figures, investment in the mining sector in the first quarter of 2022 was USD 35.5 million; meanwhile, gold and silver exports, between January and May 2022, were 6.50 tonnes with an increase of 19.21% compared to the same period in 2021.

In 2022, manufacturing industries together with mining and quarrying constituted 15.31% and 13.18% of total exports, respectively.

In that period, the canton of El Pangui - where the parish of Tundayme is located, which in turn is the site of the Mirador mine - recorded a revenue of 261,192,395 dollars, while the entire province of Zamora Chinchipe collected 413,805,129 dollars. El Pangui alone accounts for 63% of the province's total revenue. Of the revenue collected in El Pangui, 269,451.28 dollars were registered for the Patent of Conservation for mining concessions. For mining royalties, the State obtained 54'945,219.49 dollars and for profits from mining activities it collected 54'523,928.41 dollars.

On 14 January 2020, the president of Ecuacorriente S.A., Hu Jiandong, said that up to that date a total of 264 million dollars had been paid to the country. The government said that same day that between 2016 and 2049, the Mirador mine should pay the Ecuadorian state \$9.239 billion in taxes, royalties and mining profits alone, with \$36.478 million from the export of copper concentrate.

But a Central Bank bulletin of the same date presented an estimated sales value of 40.92 billion dollars between 2020 and 2049, that is, a difference of more than 4 billion dollars for exports and in a shorter period.

Article 93 of the Mining Law establishes that 60% of the total royalties must be used for social investment projects in areas surrounding mining projects through the National Government, Decentralised Autonomous Governments or the Technical Secretariat of the Special Amazon Territorial Circumscription, but despite these declared figures, the Secretariat does not record any transfer of mining royalties from Ecuacorriente S. A. A. In addition, Ecuacorriente S.A.'s net profit in 2019, 2020 and 2021 is recorded as zero in the SRI's records.

We tried to contact the mayor of El Pangui, Carlos Punín, and the president of the Junta Parroquial de Tundayme, but did not get a response from either of them.

Image of the Mirador mine installations. Photo: Ministry of Energy and Mines.

Lives denied: the incalculable price of fear

No one knows or can ever know how much fear costs. On 12 May 2014, police forces stormed into the neighbourhood of San Marcos, in the parish of Tundayme, and demolished a church and a school. More than a year later, on 30 September 2015, another police contingent evicted 16 families from the Via Condor Mirador and San Marcos areas. On 16 December of the same year, members of the police, the Attorney General's Office and Ecuacorriente S.A. evicted other families and

destroyed houses with heavy machinery in San Marcos, Tundayme. On 4 February 2016, they evicted Rosario Wari, a Shuar woman over 95 years old. The magazine Plan V published these episodes and counted 116 members of 32 families violently evicted in this place, where the Mirador mining facilities were built. But the evictions did not end there; they were repeated in 2021 and 2022. A team from La Barra Espaciadora reported the eviction of an elderly couple in poverty who lost their home on 26 April 2022, in an operation carried out by some 25 members of the National Police. The fear of new operations among the population of Tundayme is growing.

Federico Auquilla, who was vice-minister of Mines in the Correa government during the signing of the contract with Ecuacorriente S.A., in 2012, until May 2013, assured in an interview with La Barra Espaciadora that San Marcos "was not a town, it was an issue that came out of nowhere, overnight, even overnight they built a church to say that there was a church (...) There is no such town (...) It was a kind of land to which they gave a name, but it did not exist, there has never been the town of San Marcos or the hamlet, or whatever you want to call it". For this former civil servant who now works as a university professor, everything went well with Mirador until 2018, when, he says, "the state lost control over the project (...) There are no authorities who know what they have to do". Auquilla had announced on 3 March 2016 that Mirador would leave 40 million dollars a year during its useful life, just from royalties. By then, he had already left the Vice-Ministry of Mines to advise Ecuacorriente S.A. until 2017.

María Eulalia Silva, executive president of the Chamber of Mines of Ecuador (CME), agrees with Auquilla. "If the resources are not coming back as they should from the state, don't blame the Chamber, this is something that the industry is asking the state for," she told La Barra Espaciadora.

Silva also acknowledges that there has been no prior consultation in the communities directly affected by the installation and operation of Ecuacorriente S.A. and the other 32 Canadian, Australian, Chilean, British and Chinese mining companies, which are represented by the GCE. But he does not agree that operations should be halted in order to make way for the discussion and approval of the law on prior consultation, which has been delayed since 2008. That "would not be fair for us, nor for the

180,000 jobs we generate, nor for the 13 points of poverty reduction. You are making an innocent person pay for a fault on the part of the state (...) The [mining] industry is the first to want and to ask for, to demand this Law on Prior Consultation", he exclaimed.

He also flatly denied that there had been evictions, despite the fact that the records of the press, the Ombudsman's Office and even international organisations are abundant. "There have been no families dispossessed because mining is [already] coming (...) everything in the subsoil belongs to the state, it is a question of sovereignty".

However, dozens of testimonies collected in the report *Entretelones de la Megaminería en el Ecuador*, written by academic researchers William Sacher, Michelle Báez A., Manuel Bayón, Fred Larreátegui F. and Melissa Moreano, reveal the violence of these evictions and the participation of various state institutions in their execution.

Political scientist and lecturer at the Pontificia Universidad Católica del Ecuador Michelle Báez adds a consequence of the arrival of the mine in Tundayme, which is a common characteristic of all extractive projects in the Ecuadorian Amazon: "The increase of violence in families, the fear of women to move alone in the parish, the appearance of 'houses of tolerance' or 'chongos' since the mining activity arrived".

Tundayme viewpoint

The largest tailings dam of the project is contained by a dam that will reach a height of 260 metres. On the mountain in the background is the mine. Photo: Ana Cristina Alvarado.

Tundayme viewpoint

Backhoes and dump trucks make up the main landscape of Tundayme, located at the foot of the Cordillera del Cóndor.

Tundayme viewpoint

The Mirador copper project is located between three Amazonian rivers (Quimi, Wawayme and Tundayme) that discharge their waters into the Zamora.

Explore the [Living Amazon map](#)