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The face of lithium and uranium in Puno

Culture, health, community rights, and the environment at risk

LITHIUM AND URANIUM RESEARCH IN PUNO

Prepared by

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EARTHRIGHTS INTERNATIONAL

With the collaboration of

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RED DE PROPUESTA Y ACCIÓN
Minería Ambiente Comunidades

Report: The face of lithium and uranium in Puno: Culture, health, community rights, and the environment at risk.

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Responsible organizations

EarthRights International (ERI)

ERI is a non-governmental, non-profit organization that combines the power of law with the power of people in defense of human rights and the environment, which we define as "earth rights." We specialize in fact-finding and legal action against those who violate these rights, train indigenous leaders, and promote public advocacy campaigns. Through these strategies ERI seeks to promote and protect human rights and the environment, end earth rights abuses, and bring real solutions to real people in the communities where we work. We have 25 years of experience defending earth rights in Southeast Asia, North America and the Amazon.

https://earthrights.org/

Human Rights and Environment (Derechos Humanos y Medio Ambiente - DHUMA)

We are brothers and sisters of the Church of the Andean South, who, inspired by the Word of God, are committed to the defense and enforceability of the rights of indigenous peoples and Mother Earth, with gender equality, interculturalism and intergenerational and environmental dialogue. We therefore accompany, train, inform, and provide legal, technical, and environmental advice to the Aymara and Quechua communities and to grassroots social organizations in the region of Puno. We do so through the the coordination of networks, and through allies in order to achieve the full exercise of indigenous peoples' rights.

https://derechoshumanospuno.org.pe/somos

Presentation

This report has been drafted by Human Rights and Environment (Derechos Humanos y Medio Ambiente-DHUMA) and Earthrights International (ERI). Information gathering was carried out through a combination of literature review and fieldwork on the Macusani and Falchani mining projects in Puno-Peru, including interviews with some representatives of the communities and grassroots social organizations in the impact zone of the projects[1]. These lithium and uranium projects, carried out by Canadian parent companies, are lucrative, large-scale, and respond to global pressure for "green minerals" and "clean energy".

At the same time, they threaten to generate serious environmental[22], cultural, and health impacts, as well as the violation of the collective rights of indigenous communities, peoples, and nationalities that are in their potential zone of direct and indirect influence. There are indications that those who are or will be primarily affected do not have clear and accurate information about the mining projects, their potential impacts, and the main actors involved. In addition, both projects are taking place in areas that lack strong environmental governance and capacity to address existing mining-related damage and conflicts.

In this context, this report aims to provide clear and accurate information on the projects being carried out. In doing so, we hope that communities will be able to use this information to make better informed decisions that safeguard their rights and well-being and to exercise their self-determination. We hope that this report will contribute to the work of civil society organizations, the Peruvian State and international bodies to ensure that the rush for "green minerals" does not become yet another chapter in which mining companies and States violate the rights of communities and further damage our planet and cultural heritage in the name of saving it.

1 Due to the sensitivity of the subject, we do not provide the names of the people who were interviewed.

2 The terms environment or natural resources will be used in this report because most texts and standards refer to them. However, for the researchers of this report, this does not negate the need to begin to change the androcentric approach to an ecocentric approach, in which nature is considered as a subject with rights.

Vito Calderón / DHUMA

1. The global rush for “green minerals”

The extraction of lithium and uranium in Puno cannot be understood without considering the major international political and economic scramble over “green minerals”. The decisions of transnational corporations and major global investors have an impact on the local lives of those who reside in the territories where these resources are extracted. Global dynamics have repercussions for national and regional policies, and regulatory frameworks aimed at guaranteeing extractive activity. All these new frameworks as well as the mining activity itself, affect the environment and communities. This makes the discussion on the control and management of natural resources a central issue[3].

3 Arrese, F. (2019) Litio y desarrollo en América del Sur. Un análisis comparativo de las políticas de Chile, Bolivia y Argentina. [Thesis for the degree of Bachelor of Arts in International Relations]. Universidad Nacional del Centro de la Provincia de Buenos Aires. p. 28-29. https://www.ridaa.unicen.edu.ar/xmlui/bitstream/handle/123456789/2101/Arrese%20Francisco.pdf?-se- quence=1&isAllowed=y

1.1. Global pressure for the extraction of “green minerals” and clean energy

Increasing the share of renewable energy in global energy production is vital for curbing global emissions generated by burning fossil fuels. People around the world are mobilizing to move away from fossil fuels and embrace a green economy. In the view of many, we will solve the climate crisis when we are able to fully embrace renewable energies, such as wind and solar, and when we increase the use of electric vehicles, among other key measures. This paradigm shift has led some minerals, such as lithium and uranium, to become highly relevant and be labeled as strategic or critical for the energy transition.

Lithium

Lithium is a light mineral that has a high energy storage capacity, making it useful in the manufacture of batteries used in electric mobility and in places with energy matrices with greater contributions from solar and wind energy[4].

4 Gundermann, H., & Göbel, B. (2018). Comunidades indígenas, empresas del litio y sus relaciones en el Salar de Atacama. Chungará (Arica), 50(3), 471-486. https://doi.org/10.4067/S0717-73562018005001602

5 Reuters (August 26, 2020). Electric cars to account for 79% of lithium demand by 2030: Chile | Reuters

6 International Energy Agency (2022). Tracking report - September 2022.IEA. Electric Vehicles - Analysis - IEA

7 Winton, N. (November 14, 2021). Lithium shortage may stall electric car revolution and embed China’s lead: Report. Forbes. https://www.forbes.com/sites/neilwinton/2021/11/14/lithium-shortage-may-stall-electric-car-revolution-and-embed-chinas-lead-report/?sh=6dddaeb746ef

8 International Energy Agency (2022). The Role of Critical Minerals in Clean Energy Transitions. IEA. Executive summary - The Role of Critical Minerals in Clean Energy Transitions - Analysis. - IEA

9 Pegmatite is a coarse-grained intrusive igneous rock formed from crystallized magma in the interior of the earth’s crust, which can contain extractable quantities of a number of elements, including lithium, tin, tantalum and niobium (Lithium Market Profile, United Mexican States, 2020. See at: https://www.gob.mx/cms/uploads/attachment/file/564104/ Litio_2020 ENE_.pdf)

10 Voskoboynik, D. M., & Andreucci, D. (2021). Greening extractivism: Environmental discourses and resource governance in the ‘Lithium Triangle’. Environment and Planning E: Nature and Space. https://doi.org/10.1177/25148486211006345

11 Bustos-Gallardo, B., Bridge, G., & Prieto, M. (2021). Harvesting Lithium: water, brine and the industrial dynamics of production in the Salar de Atacama. Geoforum; journal of physical, human, and regional geosciences, 119, 177-189. https://doi.org/10.1016/j.geoforum.2021.01.001.

Although lithium has historically had different uses, its inclusion in batteries is what ultimately drove the increase in international demand of the last decade. Demand for lithium is expected to increase exponentially through 2030, with electric vehicles expected to account for more than 70% of that demand[5]. The International Energy Agency (IEA) estimates that 13% of new cars sold in 2022 will be electric, and reaching a Net Zero Emissions Scenario in 2050 is based on the assumption that electric vehicles will account for 60% of new car sales[6]. In 2019, lithium demand was about 320,000 tons and is expected to reach 1 million in 2025 and 3 million in 2030[7]. IEA analysis estimates that, based on existing mines and projects under construction, only half of the projected lithium need will be met by 2030[8].

Lithium is an abundant mineral that is present in hard pegmatite rocks[9], petroleum, geothermal reservoirs, clays, continental brines, and marine salt water[10]. The best ways to extract lithium are from brine and hard rock deposits. In brine, saline water is pumped underground, and the dissolved lithium is extracted; in hard rock deposits, the ore is extracted and processed from granitic rocks[11]. The main lithium reserves in brine are found in Argentina, Bolivia and Chile, and the largest reserves of lithium in rock are in Australia and China[12]. The most popular forms of commercialized lithium are lithium carbonate, lithium hydroxide, butyl lithium and lithium chloride[13]. As demand has grown, lithium carbonate and lithium hydroxide prices have risen by 413% and 254% respectively, since the beginning of 2021[14]. The main demand comes from countries such as China, South Korea, Japan, the United States, and Belgium, mainly to satisfy the production of batteries used in electric cars sold in China, Europe, and North America. Only 4% of electric vehicle sales take place in the rest of the world[15].

Although Australia is currently the world’s leading lithium producer, the largest amount of lithium resources and reserves on earth are found in the South American Andean region between Argentina, Bolivia, and Chile, representing 52% of total resources and 62% of total reserves[16]. Due to the need to secure supplies for the future should political and technological decisions continue in the same direction, attention has focused on the Andean salt flats, including the Salar de Uyuni in Bolivia, the Salar de Atacama in Chile, and additional salt flats in the Punta de Atacama in Argentina. Chile has the largest lithium reserves in the world with 9.2 million tons, while Bolivia has the largest amount of lithium resources: to date, it holds 21 million tons[17]. Argentina has 19.3 million tons of lithium resources and Chile, 9.6 million[18].

12 Ibid

13 Jerez, B., Garcés, I., & Torres, R. (2021). Lithium extractivism and water injustices in the Salar de Atacama, Chile: The colonial shadow of green electromobility. Political Geography, 87, 1-11. https://doi.org/https://doi.org/10.1016/j.polgeo.2021.102382

14 Rapier, R. (December 31, 2021). The Challenges Posed by Rising Lithium Prices. Forbes. https://www.forbes.com/sites/rrapier/2021/12/31/the-challenges-posed-by-rising-lithium-prices/?sh=18a2d7ef3af9

15 Jerez, B., Garcés, I., & Torres, R. (2021). Lithium extractivism and water injustices in the Salar de Atacama, Chile: The colonial shadow of green electromobility. Political Geography, 87, 1-11. https://doi.org/https://doi.org/10.1016/j.polgeo.2021.102382.

16 U.S. Geological Survey (2022). Lithium United States: Department of the Interior. https://pubs.usgs.gov/periodicals/mcs2022/mcs2022-lithium.pdf.

17 Ibid

18 Ibid

This means that almost all of Chile's lithium resources are, in theory, extractable.

Uranium

Uranium is a radioactive element found naturally in the earth's crust. It is more abundant than gold, silver or mercury. Uranium is used almost exclusively to produce electricity; over the past 60 years it has become one of the world's most important energy minerals[19]. Some 440 reactors require about 74,000 tons of uranium oxide concentrate each year, containing about 62,500 tons of uranium (tU) extracted from uranium mines[20].

When uranium is found near the surface, it is accessed by open-pit mining, which involves an open mine and the removal of a large amount of residual rock. When uranium is found at a greater depth, subterraneous mining is used, which involves the construction of shafts and tunnels[21]. Conventional mines have a mill where the ore is crushed, ground and leached with sulfuric acid to dissolve the uranium oxides. The uranium is then separated by ion exchange before being dried and packaged. When uranium is recovered as a by-product, the treatment process is usually more complex[22].

The uranium market is expected to grow over the next ten years. The "baseline scenario" of the 2021 edition of the World Nuclear Association's Nuclear Fuel Report shows a 27% increase in uranium demand over the period 2021-2030, and a 38% increase in uranium demand for the decade 2031-2040. Given that electricity demand in 2040 could increase by around 50% over 2019 (according to the International Energy Agency's World Energy Outlook 2020 report), a growth in nuclear capacity is likely, especially in a world seeking to limit greenhouse gas emissions[23]. The main growth in uranium demand is coming from Russia and China; these states have sought stakes in uranium mines abroad[24].

In 2021, uranium mines supplied about 48,303 tons of uranium, which met 77% of the annual needs of energy companies[25]. About two-thirds of the world's uranium production comes from mines in Kazakhstan, Canada, and Australia[26]. Peru has never produced uranium, but, according to the 2016 edition of World Distribution of Uranium Deposits, it has 33,400 tons of identified recoverable uranium resources, largely formed by volcanic deposits such as those near Puno[27].

1.2. Global pressure for the extraction of "green minerals" reaches Puno

The need to meet global demand for "green minerals" has led to an expansion of the search for such minerals. In Peru in 2018, the press reported the discovery of 2.5 million tons of high-grade lithium resources and 124 million pounds of uranium in the Puno region. Subsequently, a preliminary technical-economic report completed in 2020 estimated the indicated lithium resources at 60.92 million tons and the inferred lithium resources at 260.07 million tons[28].

Likewise, the most recent preliminary technical-economic report on the amount of uranium puts the figure at 130 million tons of inferred resource and 95.2 million tons of indicated resource[29]. It should be noted that neither lithium nor uranium mineral reserves have yet been established in the area. These would correspond to the economically exploitable part of the indicated mineral resource, which are estimated through an economic evaluation pursuant to a pre-feasibility or feasibility study of a mining project[30].

However, these findings suggest that the project could be one of the largest lithium mines discovered to date in the world[31]. In this case, and unlike the other countries in the region, lithium was identified in rock as opposed to brine[32]. The presence of uranium in the Peruvian lithium deposit also marks a key difference with the lithium resources located in the Atacama (Chile) and Salar de Uyuni (Bolivia) salt flats, whose extraction process is not linked to radioactive minerals. Although the companies involved claim that there is lithium without uranium in Puno, the Ministry of Energy and Mines of Peru has expressed doubts regarding these claims, suggesting that the extraction could be complex due to the presence of uranium, which

19 World Nuclear Association (June 2022). Uranium Mining Overview, Markets, Production. https://world-nuclear. org/information-library/nuclear-fuel-cycle/mining-of-uranium/uranium-mining-overview.aspx.

20 Ibid

21 Ibid

22 Ibid

23 World Nuclear Association (June 2022) Uranium Overview, Markets, Production. https://world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/ uranium-markets.aspx. Nuclear Energy Agency and the International Atomic Energy Agency (2020). Uranium 2020. Resources, Production, and Demand. p. 12. OECD. https://w w w w.oecd-nea.org / upload /doc s/applic ation/ pdf/2020-12/7555_uranium_-_resources_production_and_ demand_2020 web.pdf

24 World Nuclear Association(June 2022) Uranium Over- view, Markets, Production. https://world-nuclear.org/information-library/nuclear-fuel-cycle/uranium-resources/uranium-mar- kets.aspx.

25 Ibid

26 Ibid

27 Nuclear Energy Agency and the International atomic Energy Agency (2020). Uranium 2020. Resources, Production, and Demand. p. 18. OECD. https://www.oecd-nea.org/upload/docs/application/pdf/2020-12/7555_uranium_-_resources_production_and_demand_2020__web.pdf

28 DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 4. https://minedocs.com/20/Falchani_PEA_03192020.pdf.

29 Plateau Uranium Inc. (January 12, 2016) Macusani Project NI 43-101 Report-Preliminary Economic Assessment. GBM. p. 31. https://www.miningnewsfeed.com/reports/Macusani_PEA_01122016.pdf.

30 DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 4-5. https://minedocs.com/20/Falchani_PEA_03192020.pdf; Plateau Uranium Inc. (January 12, 2016) Macusani Project NI 43-101 Report-Preliminary Economic Assessment. GBM. p. 207. https://www.miningnewsfeed.com/reports/Macusani_PEA_01122016.pdf.

31Dannemann, V. (February 18, 2018). Peru's vast lithi- um discovery. A risky economic boom? Deutsche Welle. https://www.dw.com/en/perus-vast-lithium-discovery-a-risky-economic-boon/a-44936017; Dannemann, Dannemann, V. (January 8, 2018). Lithium discovery in Peru: challenges of white gold wealth Deutsche Welle. Lithium discovery in Peru: challenges of white gold wealth | Highlights | DW. |01.08.2018; American Lithium (sf), Falchani Lithium Project. https://americanlithiumcorp.com/falchani-lithium-project.

32 Dannemann, Dannemann, V. (January 8, 2018). Lithium discovery in Peru: challenges of white gold wealth Deutsche Welle. Lithium discovery in Peru: challenges of white gold wealth | Highlights | DW | 01.08.2018.

requires special treatment to minimize damage to health and the environment[33].

Furthermore, the general manager for Macusani Yellowcake, the Peruvian company in charge of the Falchani mining project, stated that "[w]hat was found at Falchani was enclosed in 2,400 hectares. The issue is uranium. There is uranium in all of the Macusani site and it is on the surface, it is very low grade, but there is volume [of it]. There is uranium in all the concessions"[34]. In this regard, in March 2021, Report No. 183-2018/ MEM-DGAAM-DEAM-DGAM of the Ministry of Energy and Mines stated that in the concessions of the Falchani project, which the companies involved define as a lithium project, exploration activites had been carried out aimed at determining the existence of uranium[35]. To date, there is no Environmental Impact Study for the extraction phase that has undertaken the evaluation of this important issue.

In any case, given the high global demand, much of the focus of the extractive industry is centered on lithium exploitation. In the midst of this avalanche of interest, Peru has added the Falchani Lithium Project and the Macusani Uranium Project. However, as explained later in this report, these projects threaten serious impacts on the environment, culture, and other rights of the communities, such as health. All this worsens the human rights situation in the department of Puno, which, among other things, lacks adequate environmental governance. In addition, communities do not seem to have clear data on the scope of the projects, the actors involved, and the potential impacts.

33 Saldarriaga, J. (March 16, 2021) Lithium: Minem and Canadian mining company disagree on the need for a standard for radioactive minerals. El Comercio at: https://elcomercio.pe/economia/dia-1/litio-minem-and-minera-canadian-mining-disbelieve-about-necessi-standard-for-minerals-radioactive-radioactive-carbonate-lithium-li-ion-news/? ref=ecr

34 Revista Rumbo Minero. (December 2018) Interview, Ulises Solis, General Manager of Macusani Yellowcake: "Depósitos de litio de Macusani garantizan 40 años de explotación" Rumbo_Minero, (115), 20-21._https://www.rumbominero.com/edicion-115/

35 Sistema de Evaluación Ambiental en Línea (SEAL) (February 2018). Macusani Yellowcake, Declaración de Impacto Ambiental de la Exploración "Chacaconiza". https://extranet.minem.gob.pe/seal

1.3. The rush to prioritize lithium extraction without a national and local regulatory framework threatens to repeat the same problems and impacts produced by traditional mining

In light of the global pressure for the exploitation of "green minerals" and the discovery of large lithium deposits in Puno, the Peruvian state launched an effort to facilitate the extraction and development of a national lithium industry. Although the government has announced its intention to prioritize the exploitation of lithium within the country, it has not established a specific regulation that takes into account the rights of communities and the environmental, cultural, and health risks that its exploitation threaten much less a framework that takes into account the fact that lithium and uranium (radioactive mineral) are found together in Puno.

On March 11, 2021, the Regional Council of the Regional Government of Puno issued the Regional Agreement No. 039-2021-GRP-CRP, which states that Puno is currently "blessed by Lithium", and that regarding the enormous lithium reserve at Macusani, there is an urgent need for legal regulations for its extraction. It recognized that bills had been presented to regulate activities related to radioactive minerals, such as uranium, thorium, and radium, and that the lithium found in the region may be accompanied by these radioactive minerals. For that reason, the Regional Government urged the Congress of the Republic and the Ministry of Energy and Mines to incorporate in the next "Law of Lithium, Uranium, and its derivatives" the participation of the State, the private sector and the population in the extraction of the strategic resource for its sustainable use[36].

On July 15 of that same year, the Congress of the Republic published Law No. 31283, which declared that the exploration, extraction, and industrialization of lithium and its derivatives was of public necessity and national interest, without including any mention of uranium[37].

36 Regional Agreement No. 039-2021-GRP-CRP [Regional Government of Puno]. March 11, 2021 https://www.regionpuno.gob.pe/descargas/consejoregional/acuerdos/2021/ACUERDO%20REGIONAL%20Nro.%20039-2021-GRP-CRP.pdf.

37 Law No. 31283. Ley que declara de necesidad pública, interés nacional y recurso estratégico la exploración, explotación e indus- trialización del litio y sus derivados. July 16, 2021 https://www.leyes.congreso.gob.pe/Documentos/2016_2021/ADLP/Normas_Legales/31283-LEY.pdf


Vito Calderón / DHUMA

Furthermore, it instructed the Executive Power to enact regulations within 60 calendar days. Law No. 31283 followed the approval of the Preliminary Opinion of Bills No. 6195 and 7039 by a majority of the Energy and Mines Commission of the Congress of the Republic[38].

Earthrights International submitted requests for information eleven months after the approval of Law No. 31283. Despite the time that has passed, the Ministry of Energy and Mines[39], the Ministry of the Environment[40], and the Supervisory Agency for Energy and Mining Investment[41] do not yet have any internal rules, regulations or other internal documents that establish monitoring, inspection, or control of the exploration and extraction of lithium and uranium in Peruvian territory.

The rules and regulations approved by the executive and the legislative branch only prioritized the industrialization and extraction of lithium and failed to provide measures to mitigate the impacts of this activity in accordance with appropriate environmental standards. Likewise, they did not discuss the importance of having an adequate normative framework for the regulation of lithium associated with uranium. Even the goal of industrialization seems to be in question. According to the general director of Macusani Yellowcake, this goal "will be

38 Bills Nos. 6195 and 7039. Opinion on Bills No. 6195/2020-CR and 7039/2020-CR, with substitute text, which proposes to declare the exploration, exploitation and commercialization of lithium as a public necessity, national interest and strategic resource. May 11, 2010. https://leyes.con- greso.gob.pe/Documentos/2016_2021/Dictamenes/Proyectos_ de_Ley/06195DC-11MAY20210512.pdf.

39 Official Communication N° 1163-2022-MINEM/DGM. May 18, 2022

40 Ministry of Environment. LETTER N° 04-2022-MINAM/SG/OGDAC

41 OSINERMING. Mining Supervision Management. GSM-169-2022

defined along the way, because investors want what is fastest and without major problems "[42].

In addition, in the context of the most recent presidential elections, the candidates of the various political parties - including the elected president of the Republic - joined the call for the industrialization and extraction of lithium in Puno.

In short, the Peruvian State has issued regulations that prioritize the extraction of "green minerals" without taking into account the rights of the communities and the environmental, cultural, and health risks that could threaten their life and integrity.

1.4. The lack of capacity to address mining-related environmental and health issues in Puno is not new

In addition to the deficiencies and regulatory gaps in the extraction of lithium and uranium, the exploitation of these minerals takes place in a context in which there is an inadequate system of supervision and environmental and human health protection at the departmental and national levels. This has meant a lack of control and vigilance in terms of mitigating and demanding the remediation of the damage caused by small and large-scale mining. It has also implied a lack of prevention and subsequent care for people exposed to heavy metals, who in turn suffer serious impacts on their health and lives resulting from these activities.

In 2020, according to data from the Ministry of Energy and Mines, the Puno region ranked third on the list of regions with the highest number of Mining Environmental Liabilities (PAM by its Spanish acronym)[43] in Peru. According to the Environmental Liabilities Report issued by the Comptroller of the Republic, as of 2020 the Puno region had about 921 PAMs, which represents 11.6% of the total of 8000 PAMs[44].

In 2021, according to DHUMA's analysis of the inventory of mining environmental liabilities[45] contained in R.M. No. 200-2021-MINEM/DM[46], the Puno region has 916 PAMs. Of these: 1) the generator of the PAM was only known in 72 cases; 2) only 272 PAMs were subject to remediation by those responsible; and 3) and only 180 PAMs had environmental studies for their closure or remediation. In other words, according to the data processed by DHUMA, the majority of PAMs do not have information on the generator, the responsible party, or environmental studies for their closure or remediation.

Within the above framework, it is also important to highlight that in 2017, the National Water Authority pointed out that the PAMs that affect or impact "(....) water quality are the mines with acid water drainage, the clearings whose surfaces are exposed to rain and that generate acid water drainage during the rainy season (January-March); and the abandoned tailings, which are eroded during the rainy season and whose material (tailings) is transported to the surrounding water bodies"[47].

According to DHUMA, of the PAMs in the Puno region in 2021, there were a total of 597 PAMs with the subtype of mines, waste clearings and tailings. This means that 65% of the identified PAMs in

42 Rumbo Minero Magazine (December 2018). Interview, Ulises Solis, General Manager of Macusani Yellowcake: "Depósitos de litio de Macusani garantizan 40 años de explotación. Rumbo_Minero, (115), 26-27. https://www.rumbominero.com/edicion-115/

43 MAPs are those facilities, effluents, emissions, residues or waste deposits produced by mining operations, currently abandoned or inactive, and which constitute a permanent and potential risk to the health of the population, the surrounding ecosystem and property. Review in: Law N° 28271 which regulates the Environmental Liabilities of the mining activity.

44 Report of the Comptroller's Office, 2021, Pasivos Ambientales Mineros en el Perú: Resultados de la auditoría de desempeño sobre gobernanza para el manejo integral de los PAM Link: https://www.gob.pe/institucion/contraloria/informes-publicaciones/2120316-pasivos-ambientales-mineros-en-el-peru-resultados-de-la-auditoria-de-desempeno-sobre-gobernanza-para-el-manejo-integral-de-los-pam

45 Ministry of Environment (2021). Ministerial Resolution No. 200-2021-MINEM/DM. Annex: Inventario de pasivos ambientales mineros. https://www.minem.gob.pe/minem/archivos/file/Mineria/LEGISLACION/2021/ANEXO_INVENTARIO%20RM%20200-2021.pdf

46 Ministry of Energy and Mines (2021) Ministerial Resolution No. 200-2021-MINEM/DM. Aprueban actualización del Inventario inicial de los pasivos ambientales mineros, aprobado mediante R.M. N.º 290-2006- MEM/DM. http://www.minem.gob.pe/archivos/legislacion-839b5zy8z8y7937rz-RM200-2021-minemdm.pdf

47 Translation by the author. Ocola Salazar, J. J., & Laqui Vilca, W. F. (2017). Contaminating sources in the Lake Titicaca basin: A contribution to the knowledge of the causes that threaten the water quality of the marvelous Lake Titicaca. Autoridad Nacional del Agua. p. 173. https://repositorio.ana.gob.pe/handle/20.500.12543/636.

Table 1

Status of identification of responsible parties and generators in Peru

Category	2018[1]	2020[2]	2021[3]
Generator identified	0	616	564
Generator not identified	8794	7340	7104
Responsible party identified	2571	2477	2539
Responsible party not identified	6223	5479	5129
Total PAMs identified	**8794**	**7956**	**7668**

1 R.M. Nº 224-2018-MINEM/DM, Update the Initial Inventory of Mining Environmental Liabilities (PAM).
2 R.M. Nº 238-2020-MINEM/DM, Update the Initial Inventory of Mining Environmental Liabilities (PAM).
3 R.M. Nº 200-2021-MINEM/DM, Update the Initial Inventory of Mining Environmental Liabilities (PAM)
Source: Human Rights and Environment - DHUMA Puno.

Puno could represent a high and very high risk to the environment, water, fauna, flora, and people.

"In Peru, identifying and making the responsible party [of a PAM] pay is an expense in time, energy, and investment on the part of the State, because the responsible party cannot be identified and therefore there is no one to assume the costs of remediation [of PAMs]"[48], or the responsible party is not able to bear the remediation obligations[49]. Therefore, it can be concluded that the problem with the identification of responsible parties and generators is a national problem: according to Table No. 01, PAMs with no generator identified make up 90-100% of total PAMS nationwide, while parties responsible for remediation have been determined in only 66-70% of the cases.

It should not be forgotten that "the main obstacles for the remediation of [Environmental Mining] liabilities are the impossibility of identifying those responsible for the abandoned mines, and the need for more resources for remediation. This is because when it is not possible to identify a responsible party, it is the State that is responsible for remediation"[50].

In addition, 58% of Puno's population is exposed to metals and metalloids, equivalent to 716,246 people, including children the- 8th highest rate of exposure among Peru's regions[51].

It is worthwhile recalling that to determine the areas of danger of exposure for the population, the following sources of contamination are taken into consideration: (i) environmental liabilities; (ii) active mining units; (iii) socio-environmental conflicts; (iv) biological monitoring of individuals; (v) and the presence of heavy metals in water for human consumption[52].

As Peru's Ombudsman's Office has made clear, "the presence of heavy metals, metalloids and other chemical substances in the environment is a reality in Peru. The causes are diverse, and can be of natural

48 Translation by author. Bailetti, G. (2009). Nuevas soluciones a viejos problemas. Análisis sobre la reciente modificación al régimen legal de pasivos ambientales mineros en el Perú. Revista De Derecho Administrativo, (8), 109-118. https://revistas.pucp.edu.pe/index.php/derechoadministrativo/article/view/13988

49 BOYD, J. (2005). Obligations for coal and subway mines in the United States, in Bastida, E. et. al. (eds.). International and comparative mining policy and law. Kluwer Law International, p. 729.

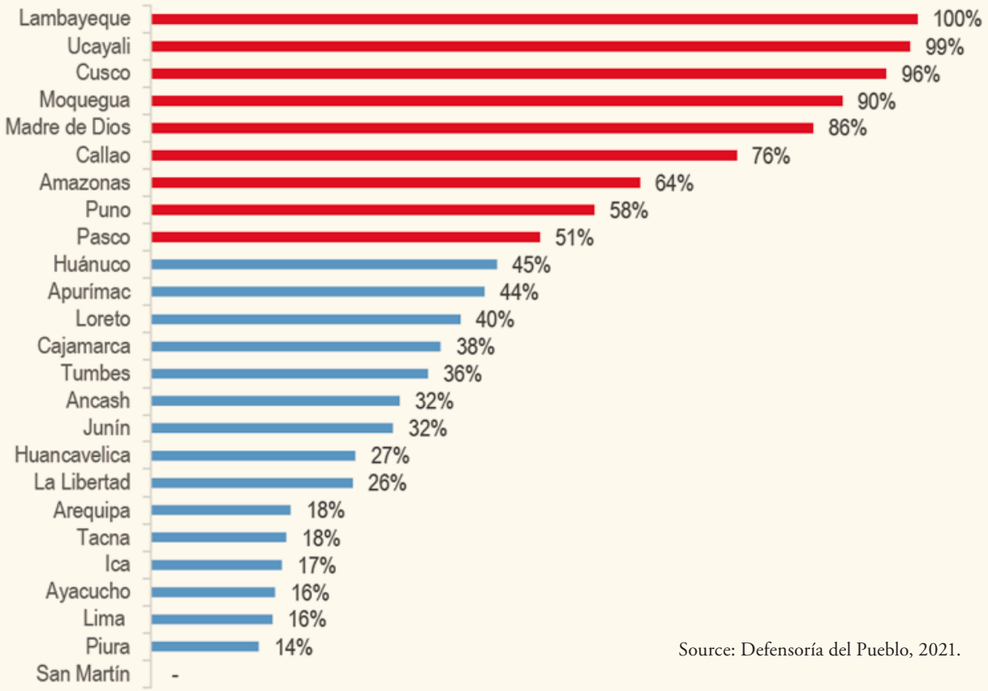
50 Translation by author. Castillo, L., Satalaya, C., Paredes, U., Encalada, M., Zamora, J. & Cuadros, G. (2021). Pasivos Ambientales en el Perú: resultados de la auditoría de desempeño sobre gobernanza para el manejo integral de los PAM. Documento de Política en Control Gubernamental. Office of the Comptroller General of the Republic.

51 Vásquez, L. (2021). En defensa de las personas expuestas a metales pesados, metaloides y otras sustancias químicas tóxicas: los impactos de la contaminación ambiental. Ombudsman's Office.

52 Ibid.

Figure 1

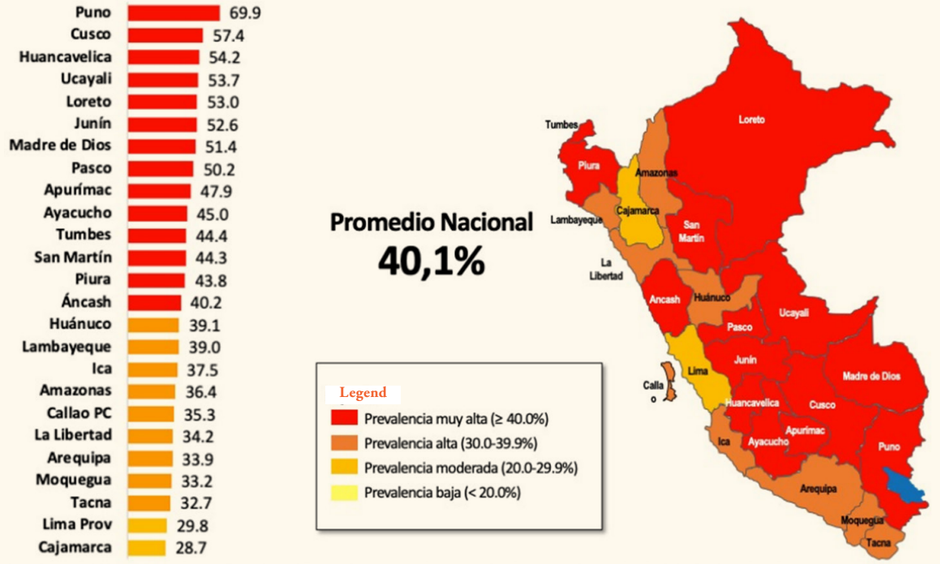
Population exposure risk by region



Source: Defensoría del Pueblo, 2021.

Current status of anemia

Prevalence of anemia in children under 6 to 35 months of age, according to departments



Sources: National Institute of Statistics and Informatics (2020). Demographic and Family Health Survey (ENDES) 2018.

or anthropogenic origin, i.e., due to human action, including productive and extractive activities, whether formal, informal or illegal"[53].

In addition, the Directorate of Prevention and Control of Non-communicable, Rare and Orphan Diseases (Denot) of the Ministry of Health (Minsa) has recently indicated that this risk of population exposure falls on an estimated 10,162,380 inhabitants, equivalent to 31.15% of the estimated national population in 2020.

According to Minsa figures, 84% of the cases of people exposed to heavy metals were children between 0 and 11 years of age. This situation is worrisome due to the high vulnerability of this group.

The development and cognitive abilities of this population sector will be affected.

The department of Puno ranks first in cases of anemia in children between 6 to 35 months, eighth in terms of the percentage of population exposed to metals and metalloids (716,246) and third in the number of PAMs (916). Maternal anemia is associated with increased maternal and infant morbidity and mortality, including risk of miscarriage, stillbirth, prematurity and low birth weight[54]. The WHO mentions that if anemia is not reduced worldwide, millions of women will suffer a decline in their health and quality of life for generations to come. Despite this, there is an attempt to promote the exploitation of minerals such as lithium and uranium, when none of the problems mentioned above, linked to extractive activity, has been addressed.

Likewise, it must be noted that, in 2016, the National Water Authority had already warned of the need to pay attention to water pollution in the Puno region.

Thus, in the 2016 report "Prioritization of Basins for Water Resources Management"[55], it is noted that nine (09) of the thirteen (13) basins that make up the Titicaca watershed were identified as high or medium priority areas for the attention of the National Water Authority.

Among the main reasons for their categorization are: a) high pollution levels, b) social conflicts, c) water scarcity, and d) hydrological, environmental, social and economic impact. In this report, the Inambari and Urubamba watersheds, belonging to the Amazon Hydrographic Unit, were registered as high priority, in addition to the Azángaro watershed, belonging to the Titicaca Hydrographic Unit.

In this environmental context, it is also important to highlight that the people in the direct and indirect spheres of influence of the mining projects and of the PAMs suffer permanent violations of their right to to a healthy environment. For this reason, there are permanent socio-environmental conflicts, according to the Ombudsman's Office[56].

In short, in the department of Puno there is no adequate environmental control and monitoring system in place to mitigate and remedy the environmental damage that mining companies have caused to date. This situation could worsen if lithium and uranium exploitation is allowed without a normative framework that provides adequate control and oversight by the local and national government.

53 Ombudsman's Office (December 2021). En defensa de las personas expuestas a metales pesados, metaloides y otras sustancias químicas tóxicas: los impactos de la contaminación ambiental. Lima, Perú.

54 Nutrition and Food Safety. (December 30, 2014). Global nutrition goals 2025: anemia policy paper. Who.int; World Health Organization. https://www.who.int/es/publications/i/item/WHO-NMH-NHD-14.4

55 National Water Authority. (2016). Priorización de cuencas para la gestión de los recursos hídricos. Ministerio de Agricultura y Riego, pp. 118, 128 and 133. https://www.ana.gob.pe/publicaciones/priorizacion-de-cuencas-para-la-gestion-de-los-recursos-hidricos.

56 Ombudsman's Office and Office for the Prevention of Social Conflicts and Governance (2021). Reporte de conflictos sociales nº 209. https://www.defensoria.gob.pe/wp-content/uploads/2021/08/Reporte-Mensual-de-Conflictos-Sociales-N%C2%B0-209-julio-20

2. Lithium and uranium mining in Puno:

The Macusani and Falchani projects risk repeating old problems

2.1. Companies involved in lithium mining in Puno: American Lithium, Plateau Energy and Macusani Yellowcake

Since May 2021, the Macusani and Falchani projects have been owned by the Canadian company American Lithium[57], which is headquartered in Vancouver, British Columbia in Canada[58]. The company is listed on the TSX Venture Exchange in Canada and the OTCQB in the United States, a venture capital exchange for emerging companies. It is also listed on the Frankfurt Stock Exchange in Germany[59]. American Lithium has actively participated in lithium exploration since April 2016[60]. Its shareholders are a mix of institutional investment firms, the company's board of directors and management, as well as more than 50,000 minority shareholders[61]. The main investors are Commodity Capital of Switzerland[62], Ausbil of Australia[63], GlobeX, Primevest of the Netherlands[64] and NewGen of Canada[65].

57 American Lithium (2021) Consolidated Financial Statements, p. 27. Annual-FS-Feb-2021.pdf (americanlithiumcorp.com).

58 Ibid. p. 10.

59 Plateau Energy Circular: Arrangement Involving Plateau Energy Metals Inc. and American Lithium Corp. (2021). Notice and Management Information for the Special meeting of Securityholders of Plateau energy Metal Inc. Appendix F Information Concerning American Lithium. Plateau-Energy- Metals-SM-Circular.pdf (plateauenergymetals.com)

60 Ibid.

61 American Lithium (2022). Corporate Presentation. p. 5. https://americanlithiumcorp.com/wp-content/uploads/2022/06/American-Lithium-Investor-Presentation-2022-V14-Final.pdf.

62 Commodity Capital Home Page. https://www.commodity-capital.com/en.

63 Ausbil (n/d) Contact Us Page. https://www.ausbil.com.au/contact-us.

64 Primevest About Us Page https://www.primevestcp.com/about-us/.

65 NewGen Home Home | NewGen Asset Management (newgenfunds.com).

American Lithium owns the Falchani and Macusani projects through a corporate structure that includes its subsidiary Plateau Energy, based in Toronto, Ontario, Canada, and its Peruvian subsidiary Macusani Yellowcake S.A.C. In May 2021, American Lithium acquired 100% of Plateau Energy, and as a result of the acquisition, Plateau Energy is now a wholly owned subsidiary of American Lithium[66]. Plateau Energy Metals, like many junior mining companies, identified the mineral reserves and then sold them to another mining company, in this case American Lithium[67].

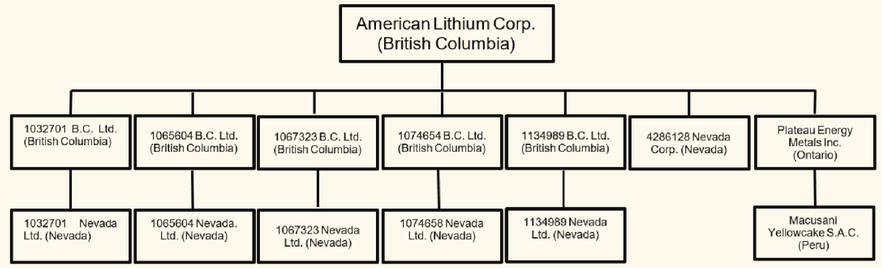
The Peruvian company Macusani Yellowcake S.A.C., formerly known as Global Gold, owns the mining concessions that constitute the Falchani and Macusani projects in Puno. In turn, Macusani Yellowcake S.A.C. is 100% controlled and 99.5% owned by Plateau Energy[68]. Diagram 1 shows the companies involved.

As a result of the acquisition, American Lithium now has three main properties: 1) the Toponah Lithium Claim (TLC) project in Nevada, USA; 2) the Falchani lithium project in Puno, Peru; and 3) the Macusani uranium project in Puno, Peru[69]. The TLC project is located 6 miles northwest of Tonopah, Nevada, in Big Smokey Valley, located in one of the world's least developed sedimentary lithium basins, in an area that has several other mining projects[70]. The identified lithium deposit is a three-and-a-half-hour drive from the Tesla Gigafactory[71].

The company promotes its projects as a contribution towards helping the United States achieve energy independence and breaking China's stronghold on the lithium supply chain. It claims that its lithium projects will respond to a growing global demand for the metal for electric vehicles, advanced robotics, renewable energy and information technology[72].

Diagram 1

Found in Arrangement Involving Plateau Energy Metals Inc. and American Lithium Corp.



66 Plateau Energy Circular: Arrangement Involving Plateau Energy Metals Inc. and American Lithium Corp (2021). Notice and Management Information for the Special meeting of Securityholders of Plateau energy Metal Inc.Appendix G, Information Concerning the Combined Company. Plateau- Energy-Metals-SM-Circular.pdf (plateauenergymetals.com).

67 Energiminas Magazine (June 28, 2019). Ponen en duda de exis- tencia de "lago de litio" hallado en Puno por junior Plateau Energy. Energiminas Magazine. https://energiminas.com/ponen-en-duda-existencia-de-lago-de-litio-hallado-hallado-en-puno-por-junior-plateau-energy/

68 Plateau Energy Circular: Arrangement Involving Plateau Energy Metals Inc. and American Lithium Corp (2021). Notice and Man- agement Information for the Special meeting of Securityholders of Plateau energy Metal Inc.Plateau Energy Circular, Appendix G, Information Concerning the Combined Company.,Plateau-Ener- gy-Metals-SM-Circular.pdf (plateauenergymetals.com).

69 Plateau Energy Circular: Arrangement Involving Plateau Energy Metals Inc. and American Lithium Corp (2021). Notice and Management Information for the Special meeting of Securityholders of Plateau energy Metal Inc.Plateau Energy Circular, Appendix G, Information Concerning the Combined Company, Plateau-Energy-Metals-SM-Circular.pdf (plateauenergymetals.com); See also American Lithium. (2022). Corporate Presentation. p. 4. https://americanlithiumcorp.com/wp-content/uploads/2022/06/American-Lithium-Investor-Presentation-2022-V14-Final.pdf.

70 American Lithium (May 22, 2021). TLC lithium project. https://americanlithiumcorp.com/tlc-lithium-project/; American Lithium. (2022). Corporate Presentation. p. 4. https://americanlithiumcorp.com/wp-content/uploads/2022/06/American-Lithium-Investor-Presentation-2022-V14-Final.pdf.

71 Ibíd

72 American Lithium. (junio de 2021) Corporate Presentation.p. 22-25. https://americanlithiumcorp.com/wp-content/up-

The mining company also presents its projects as an alternative for societal change towards a new, safe and sustainable energy model, and in the case of the projects in Peru, it speaks of clean energy for the Americas[73]. The company has received grants from the U.S. Department of Energy's Advanced Manufacturing Office to complete the field demonstration of new technologies for leaching, purification and production of the lithium hydroxide precursor for batteries from American Lithium's TLC project[74].

2.2. The mining projects: Falchani and Macusani

The companies involved have a total of 151 mining concessions under their control, covering an area of 93,000 ha[75]. They are primarily located in the Macusani plateau in the province of Carabaya, in the Macusani and Corani districts of southeastern Peru, in the Andes Mountains, an area that has been actively explored since the 1980s for uranium and, more recently, lithium[76].

loads/2021/06/American-Lithium-Investor-Presentation-v27-1.pdf; American Lithium. (septiembre de 2021). Investor info. https://americanlithiumcorp.com/investors/;

73 American Lithium. (s/f). About the Company. https://americanlithiumcorp.com/.

74 Plateau Energy Circular: Arrangement Involving Plateau Energy Metals Inc. and American Lithium Corp. (2021). Notice and Management Information for the Special meeting of Securityholders of Plateau energy Metal Inc. Appendix F Information Concerning American Lithium. Plateau-Energy- Metals-SM-Circular.pdf (plateauenergymetals.com)

75 Plateau Energy Metals Inc., Interim Condensed Consolidated Financial Statements, p. 9. American Lithium announced in June 2022 that it purchased an additional 14,243 hectares in southern Peru. See Bloomberg Linea (June 1, 2022) Lithium and Uranium in Peru: American Lithium Expands Mining Concession to Southern Peru, p. 9 https://www.bloomberg.com/press-releases/2022-06-01/american-lithium-adds-further-concessions-close-to-its-existing-projects-in-southern-peru

76 DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report- Preliminary Economic Assessment, p. 1. https://minedocs.com/20/ Falchani_PEA_03192020.pdf. According to information provided by Senace and the Online Environmental Assessment System (SEAL), since 2008, the Macusani Yellowcake company submitted a total of seven environmental management

Map 1
Included for Plateau Energy by DRA Pacific in the Flachani Technical-Economic Report

The Falchani Lithium (lithium) and Macusani Uranium (uranium) mining projects are among these concessions[77]. See Map 1 for the location of the relevant concessions in Peru and the region.

2.2.1. Falchani (lithium)

According to American Lithium, the net present value of the Falchani project is US$1550 billion, with an internal rate of return of 19.7%, and with a mine life of 33 years[78]. According to the Falchani Project's Preliminary Technical-Economic Report, it will be an open pit mine using conventional truck and shovel mining methods with drilling and blasting to break the rock mass. It is anticipated that mining operations will be carried out by a contractor-operated fleet. Operations will be conducted 24 hours a day, seven days a week and 353 days a year[79].

The mineral resources at the Falchani Project are comprised of the two concessions shown in Table 1[80]:


Vito Calderon / DHUMA

Table 1
Mineral resources Falchani Project (lithium)

Mining concession code	Name of mining concession	Date granted	Owner
010320205	Falchani	13/10/2005	Macusani Yellowcake S.A.C.
010215005	Ocacasa 4	11/07/2005	Macusani Yellowcake S.A.C.

instruments for lithium and uranium exploration projects in its mining concessions, of which four were approved, one was declared inappropriate, one was disapproved and one is under review by Minem. To date, the company has not submitted any Environmental Impact Study for the mining projects that are the subject of this report.

77 Vilca, P. (March 2020) El proyecto de explotación de litio en Puno. Ford Foundation, Ser. http://siar.minam.gob.pe/puno/documentos/proyecto-explotacion-litio-puno; DRA PACIFIC & PLATEAU ENERGY METALS INC.(2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 1., https://minedocs.com/20/Falchani_PEA_03192020.pdf

78 American Lithium (n/d). Falchani Project Highlights. https://americanlithiumcorp.com/falchani-lithium-project/.

79 DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 115, https://minedocs.com/20/Falchani_PEA_03192020.pdf.

80 Ibíd. p. 26.


Vito Calderon / DHUMA

2.2.2. Macusani (uranium)

The Macusani project, also located on the Macusani plateau, proposes to extract the uranium on these properties using open-pit and subterranean mining methods[81].

The project includes 6 complexes: Corachapi, Colibri, Kihitian, Isivilla, Corani and Sayaña[82]. According to American Lithium, the Macusani uranium project has a net present value of $603 million, a rate of return of 40.6 % and a mine life of 10 years[83].

The Macusani Project includes the following mining concessions[84] (see Table 2):

81 Plateau Uranium Inc. (12 de enero de 2016) Macusani oject NI 43-101 Report-Preliminary Economic Assessment. GBM. p. 30. https://www.miningnewsfeed.com/reports/Macusani_PEA_01122016.pdf.

82 Ibíd. p. 37.

83 American Lithium. (s/f)., Macusani Project Highlights. https://americanlithiumcorp.com/macusani-uranium-project/.

84 Plateau Uranium Inc. (12 de enero de 2016) Macusani Project NI 43-101 Report-Preliminary Economic Assessment. GBM. p. 44. https://www.miningnewsfeed.com/reports/Macusani_PEA_01122016.pdf

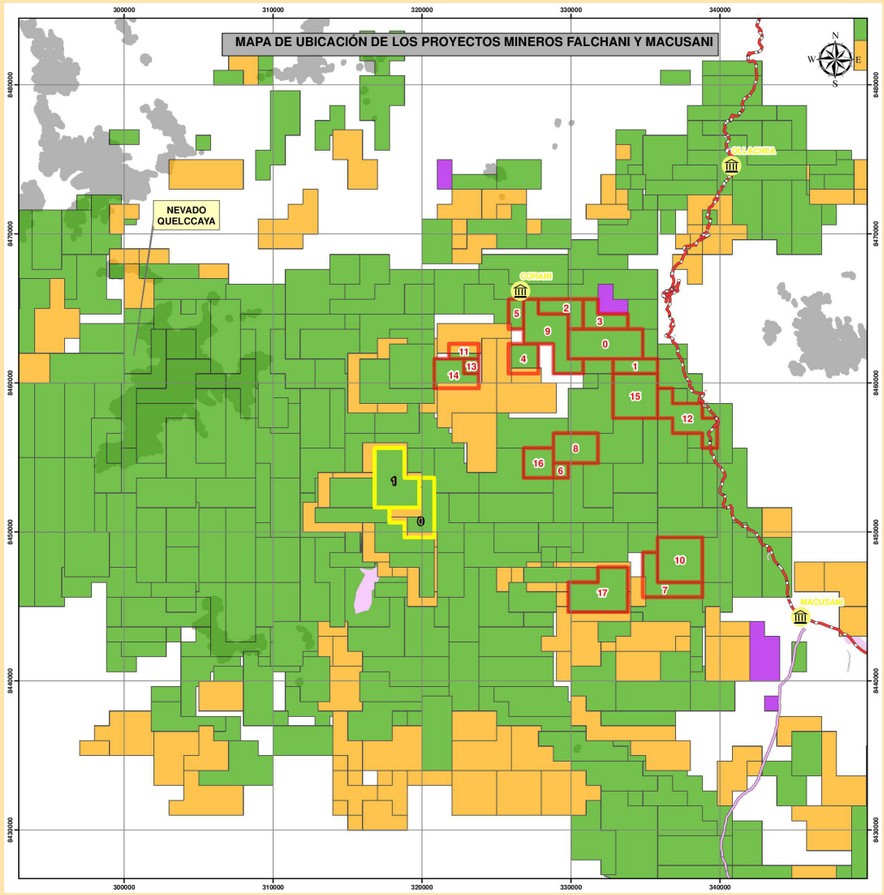
Table 2
Mining Concessions Macusani Project (uranium)

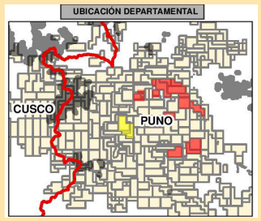
Mining concession code	Name of concession	Date granted	Área Ha	Owner	Complex
010053 005	Lincoln XXVII	07-Sep-07	900	Minergia SAC[1]	Complex 3 - Kihitian
010052905	Lincoln XXVI	2005	1000	Minergia SAC	Complex 4 - Isivilla
010053205	Lincoln XXIX	2005	1 000	Minergia SAC	Complex 5 - Corani
010117805	Lincoln XXX	2005	200	Minergia SAC	Complex 5 - Corani
010342897	Corachapi	27-Jul-05	500	Global Gold SAC[2]	Complex 1 – Corachapi
010215204	Taititira	27-Jul-05	100	Global Gold SAC	Complex 1 – Corachapi
010007005	Taypicorani	27-Jul-05	200	Global Gold SAC	Complex 1 – Corachapi
010088905	Colibri II	11-Apr-05	600	Global Gold SAC	Complex 2 - Colibrl
010121805	Colibri III	16-May-06	100	Global Gold SAC	Complex 2 - Calibri
010069505	Tupuramani	18-May-05	400	Global Gold SAC	Complex 2 - Colibri
010036705	Kihitlan	27-Jul-05	800	Global Gold SAC	Complex 3 - Kihitian
010016505	Triunfador I	10-Jan-05	400	Global Gold SAC	Complex 4 - Isivilla
010071105	Calvario II	18-May-05	400	Global Gold SAC	Complex 5 - Corani
010069705	Calvario III	18-May-05	400	Global Gold SAC	Complex 5 - Corani
010111305	Samilio I	15-·Jul-15	1 000	Global Gold SAC	Complex 6 - Sayana
010069205	Triunfador 4	27-May-05	900	Global Gold SAC	Complex 6 - Sayana
010086605	Triunfador 5	18-Aug-05	600	Global Gold SAC	Complex 6 • Sayana
010077205	Tantamaco 3	31-Aug-05	300	Minergia SAC	Complex 3 - Kihitlan

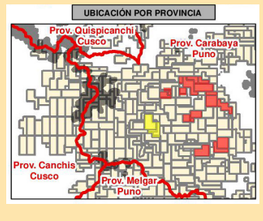
1 In 2014, Plateau Energy, formerly known as Plateau Uranium, acquired 100% of Minergia S.A.C. See DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 34-35., https://minedocs.com/20/Falchani_PEA_03192020.pdf.

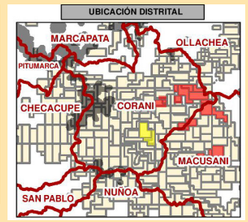
2 Macusani Yellowcake S.A.C. was formally known as Global Gold. See DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 35., https://minedocs. com/20/Falchani_PEA_03192020.pdf.

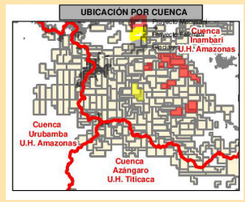
Map 2
Location of Falchani and Macusani mining projects











CONCESIONES MINERAS DEL PROYECTO FALCHANI

FID	Código	Concesión	Titular de concesión	Leyenda	Ha	Sustancia	Provincia	Distrito
0	10320205	FALCHANI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	700	No metálica	Carabaya	Corani
1	10215005	OCACASA 4	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	No metálica	Carabaya	Corani

CONCESIONES MINERAS DEL PROYECTO MACUSANI

FID	Código	Concesión	Titular de concesión	Leyenda	Ha	Sustancia	Provincia	Distrito
0	10052905	LINCOLN XXVI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Corani/Ollachea
1	10077205	TANTAMACO 3	MACUSANI YELLOWCAKE S.A.C.	TITULADO	300	Metálica	Carabaya	Corani/Macusani
2	10071105	CALVARIO II	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani
3	10016505	TRIUNFADOR 1	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani/Ollachea
4	10069705	CALVARIO III	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani
5	10117805	LINCOLN XXX	MACUSANI YELLOWCAKE S.A.C.	TITULADO	200	Metálica	Carabaya	Corani
6	10121805	COLIBRI III	MACUSANI YELLOWCAKE S.A.C.	TITULADO	100	Metálica	Carabaya	Macusani
7	10086605	TRIUNFADOR 5	MACUSANI YELLOWCAKE S.A.C.	TITULADO	600	Metálica	Carabaya	Macusani
8	10088905	COLIBRI II	MACUSANI YELLOWCAKE S.A.C.	TITULADO	600	Metálica	Carabaya	Corani/Macusani
9	10053205	LINCOLN XXIX	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Corani
10	10069205	TRIUNFADOR 4	MACUSANI YELLOWCAKE S.A.C.	TITULADO	900	Metálica	Carabaya	Macusani
11	10007005	TAYPICORANI	GLOBAL GOLD S.A.C.	TITULADO	200	Metálica	Carabaya	Corani
12	10036705	KIHITIAN	MACUSANI YELLOWCAKE S.A.C.	TITULADO	800	Metálica	Carabaya	Macusani
13	10215204	TAITITIRA	GLOBAL GOLD S.A.C.	TITULADO	100	Metálica	Carabaya	Corani
14	10342897	CORACHAPI	GLOBAL GOLD S.A.C.	TITULADO	500	Metálica	Carabaya	Corani
15	10053005	LINCOLN XXVII	MACUSANI YELLOWCAKE S.A.C.	TITULADO	900	Metálica	Carabaya	Corani/Macusani
16	10069505	TUPURAMANI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani/Macusani
17	10111305	SAMILIO I	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Macusani

Ubicación de proyectos mineros Falchani y Macusani

0 3 6 12 18 Km

Elaborado por:	Fecha:	Escala:
Bladimir C. Martínez O.	Junio, 2022	1:150,000

Fuentes:
Ministerio de Cultura (MINCUL) - Plano N° SDC DA-007 A
GEOCATMIN (Instituto Geológico, Minero y Metalúrgico - INGEMMET)
Investigaciones independientes
Autoridad Nacional del Agua (ANA)
Minsterio de Transportes y Comunicaciones (MTC)
Ministerio del Ambiente (MINAM)
Instituto Nacional de Cultura (INC)
Technical Report-Preliminary Economic Macusani y Falchani

01

2.3. Communities potentially impacted by the Falchani and Macusani Projects

The lithium and uranium mining projects are located in a geographical area of difficult access, more than 4,500 meters above sea level, in the districts of Macusani and Corani in the province of Carabaya in the department of Puno. According to the Preliminary Technical-Economic Reports of the Lithium (Falchani) and Uranium (Macusani) Projects, the areas of potential impact include the rural communities[85] of Isivilla, Tantamaco, Corani, Chimboya, Pacaje, and Chacaconiza[86]. However, all communities have not yet been accurately identified because the Environmental Impact Assessment (EIA) is still being prepared by Asesores y Consultores Mineros S.A. (ACOMISA), in collaboration with Anddes, an environmental consulting firm[87]. As more information on the scope and impact of the projects becomes available, the number of potentially affected communities may increase. For example, the Preliminary Technical-Economic Report for the Falchani Project does not consider Quelccaya as one of the potentially affected communities, despite acknowledging a recent discovery of lithium mineralization in that area and that the access routes to the projects consider passing through this community[88].

The rural communities identified to date are dedicated to camelid (alpaca) breeding and some artisanal processing activities using alpaca fiber and meat, as well as agricultural activities, such as the cultivation of bitter potatoes[89].

85 Under Peruvian law, Rural Communities are legal entities made up of families that inhabit and control certain territories, linked by ancestral, social, economic and cultural ties, expressed in the communal ownership of land, communal work, mutual aid, democratic government and the development of multisectoral activities.

86 DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 9. https://minedocs.com/20/Falchani_PEA_03192020.pdf; Plateau Uranium Inc. (12 de enero de 2016) Macusani Project NI 43-101 Report-Preliminary Economic Assessment. GBM. p. 276. https://www.miningnewsfeed.com/reports/Macusani_PEA_01122016.pdf.

87 Ibíd. p. 9, 30, 162. https://minedocs.com/20/Falchani_PEA_03192020.pdf

88 Ibíd. p. 162, 172.

89 Incacutipa, D. (2018) Inter-Subjetividad y Relaciones de Poder entre la Empresa Bear Creek y las Comunidades de Influencia Directa del Proyecto Minero Corani. [Thesis for the academic degree of Doctoris Scientiae in social sciences]. Repositorio Institucional Digital de la Universidad Nacional del Altiplano, p. 27. http://repositorio.unap.edu.pe/bitstream/handle/UNAP/10721/Duverly_Joao_Incacutipa_Limachi.pdf?sequence=1&isAllowed=y

90 Korsbaek, L. (2017). La ronda campesina en una comunidad quechua en Puno: El caso de Corani. Revista Peruana de Antropología.http://revistaperuanadeantropologia.com/la-ronda-campesina-en-una-comunidad-quechua-en-puno-el-caso-de-corani/

91 Instituto de Bien Común & Cepes. (2016). Directorio 2016 Comunidades Campesinas del Perú, Sistema de Información sobre comunidades campesinas del Perú. http://www.ibcperu.org/wp-content/uploads/2017/06/DIRECTORIO-DE-COMUNIDADES-CAMPESINAS-DEL-PERU-2016.pdf.

92 The apus, from the Quechua word for "lord", are mountains that have been considered venerable since pre-Inca times in several Andean villages, and which are attributed with having direct influence on the vital cycles of the region they dominate.

93 Burga, M. (2012) Prácticas alimentarias durante un contexto de cambio estacional: el caso de la comunidad altiplánica de Tantamaco, Puno. [Thesis for the degree of Licenciado en Antropología]. Digital Thesis and Research Archive PUCP. https://tesis.pucp.edu.pe/repositorio/handle/20.500.12404/1263

94 Instituto de Bien Común &, Cepes. (2016). Directorio 2016 Comunidades Campesinas del Perú, Sistema de Información sobre comunidades campesinas del Perú.http://www.ibcperu.org/wp-content/uploads/2017/06/DIRECTORIO-DE-COMUNIDADES-CAMPESINAS-DEL-PERU-2016.pdf.

95 The ayllu, a family clan, is the traditional form of a community in the Andes, especially among Indigenous Quechua and Aymara peoples.

Cerro Chacaconiza
Vito Calderón / DHUMA

The rural community of Isivilla has one of the highest population growth rates in the area and was the basis for the creation of the Isivilla Population Center. In the community's territory there is a large petrified human footprint that probably dates back to the Incas of Tahuantinsuyo. When the villagers saw this large footprint, they said: "esi huella", which they eventually adapted to "Isivilla", thus giving the community its name[90]. The community was recognized on December 22, 1956 with the R.S 94 and titled on February 1, 1994, with a total of 7804.00 hectares[91].

The rural community of Tantamaco is located in the Macusani district and covers a total area of more than 7,000 hectares. Its name comes from the Quechua word "Thanta mamacu" which means "ragged", "old" or "deteriorated", and "old woman", because one of the first inhabitants was an old woman who used to walk on her knees and was dedicated to the cultivation of *ocas* and izaños (Tropaeolum tuberosum).

The main activity of the community of Tantamaco is agriculture. The community is known throughout the province for the quality of the potatoes it produces, and specifically for the production of the native potato, of which there are more than one hundred varieties in the community. This is manifested in "la papa ch'allasqa", a ritual that is performed at the family and communal level at harvest time to pray to the earth for a good potato harvest. The main guardians are the Apus[92]; the main one of which is the Apu Gregorio, who controls the destiny of the crops, letting the community members know what year will be a good and bad harvest[93]. The community was recognized on October 10, 1973 with R.J. 101-73-AE-ORAMS-VIII, and titled on November 10, 1992. It consists of a total of 3,523.00 hectares[94].

The community of Corani is located in the district of the same name; it is considered one of the oldest ayllus[95] of this jurisdiction. Its name comes from the Quechua word "ccora", which means wild herbs.

Eventually they formalized the name as Corani. It is located at an altitude of 4,100 meters above sea level and is on both sides of the Corani River; its main economic activity is agriculture, along with the breeding of llamas and alpacas. It was recognized formally as a rural community on January 27, 1977 by R.J 003-77-AE-ORAMS-VIII and titled on February 3, 1997 and consists of 7,875.20 hectares[96].

The Chacaconiza rural community is located in the district of Corani, province of Carabaya, in the Puno region, and covers an area of 8,247.52 hectares[97]. It was recognized on June 23, 1987 with R.D 0334-87-RA-XXI-P/DRAYAR and titled on June 11, 1997[98].

The rural community of Quelccaya, located in the district of Corani, province of Carabaya, was legally recognized on May 30, 1988 by R.D 0231-88-UAD-XXI-P, titled in 1987, and consists of 31,358.26 hectares[99]. Its name comes from the Quechua word k'elccay, which means to write; it is said that in ancient times, before there were rural communities there were already ayllus (the traditional form of a community in the Andes), to trace their lots and build their houses on them. In the middle of a meeting, the head of the family asked one of the attendants to write what was agreed upon, saying: k'elccaya, which means "write now"; thus, the word K'elccaya became part of the vocabulary of the locals, to the point of giving the name to this community[100].

The Chimboya community was recognized on February 2, 1977 by R.J. 005-77-AE-ORAMS-VIII and titled on November 13, 1998. It consists of a total of 15,601.00 hectares. The Pacaje Community was recognized on December 17, 1959 by R.S. 50, titled on December 28, 1993, and consists of a total of 11,289 hectares[101].

The province of Carabaya is made up of community organizations, alpaca producer organizations, mothers' clubs, "Milk Glass" committees (Known in Spanish as "Vaso de leche", a social food program created to fight and prevent malnutrition in the country), food support centers and rural community patrols (rondas campesinas). Of these, the rural community patrol is the most prominent organization in the districts and rural communities. They can be seen at the entrances to a community or district and at the checkpoint gates, where members of the Rondas Campesinas record the names of visitors, vehicle license plates, destinations and reasons for visiting. Thus, the rural community patrols play the role of maintaining citizen security, and confronting criminal actions such as cattle rustling, hi-

96 Ibíd.

97 Korsbaek, L. (2017). La ronda campesina en una comunidad quechua en Puno: El caso de Corani. Revista Peruana de Antropología.http://revistaperuanadeantropologia.com/la-ronda-campesina-en-una-comunidad-quechua-en-puno-el-caso-de-corani/

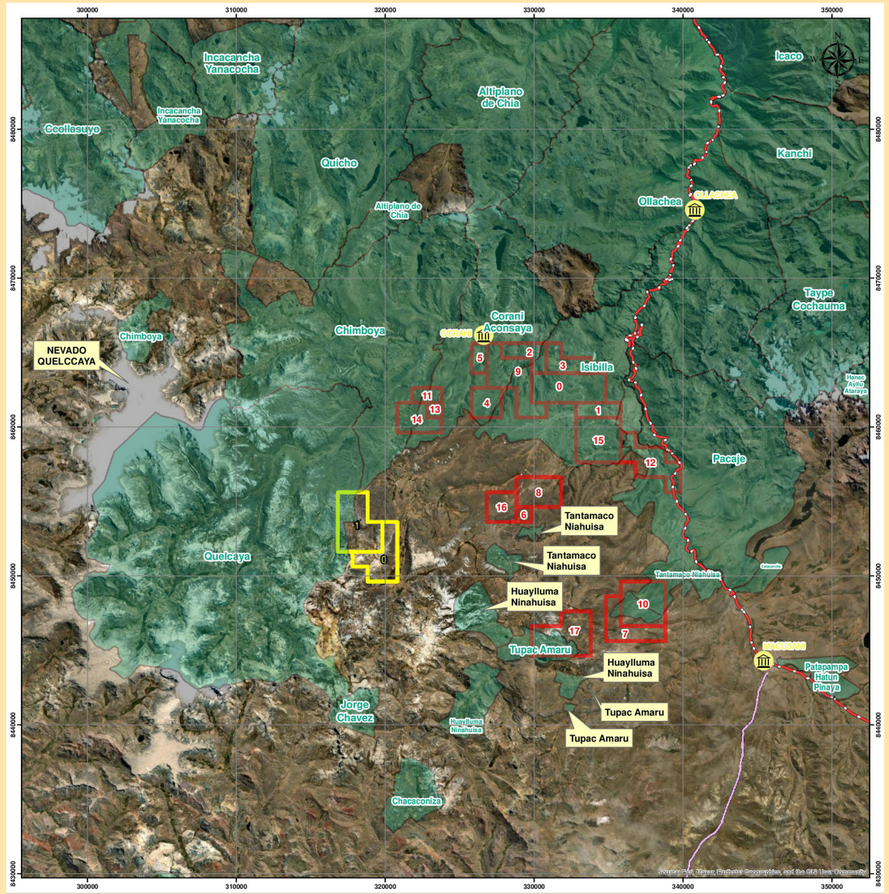
98 Instituto de Bien Común & Cepes. (2016). Directorio 2016 Comunidades Campesinas del Perú, Sistema de Información sobre comunidades campesinas del Perú. http://www.ibcperu.org/wp-content/uploads/2017/06/DIRECTORIO-DE-COMUNIDADES-CAMPESINAS-DEL-PERU-2016.pdf

99 Ibíd.

100 Korsbaek, L. (2017). La ronda campesina en una comunidad quechua en Puno: El caso de Corani. Revista Peruana de Antropología. http://revistaperuanadeantropologia.com/la-ronda-campesina-en-una-comunidad-quechua-en-puno-el-caso-de-corani/

101 Instituto de Bien Común & Cepes. (2016). Directorio 2016 Comunidades Campesinas del Perú, Sistema de Información sobre comunidades campesinas del Perú http://www.ibcperu.org/wp-content/uploads/2017/06/DIRECTORIO-DE-COMUNIDADES-CAMPESINAS-DEL-PERU

Map 3
Location of Falchani and Macusani Proyects in rural communities



CONCESIONES MINERAS DEL PROYECTO FALCHANI

FID	Código	Concesión	Titular de concesión	Leyenda	Ha	Sustancia	Provincia	Distrito
0	10320205	FALCHANI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	700	No metálica	Carabaya	Corani
1	10215005	OCACASA 4	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	No metálica	Carabaya	Corani

CONCESIONES MINERAS DEL PROYECTO MACUSANI

FID	Código	Concesión	Titular de concesión	Leyenda	Ha	Sustancia	Provincia	Distrito
0	10052905	LINCOLN XXVI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Corani/Ollachea
1	10077205	TANTAMACO 3	MACUSANI YELLOWCAKE S.A.C.	TITULADO	300	Metálica	Carabaya	Corani/Macusani
2	10071105	CALVARIO II	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani
3	10016505	TRIUNFADOR 1	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani/Ollachea
4	10069705	CALVARIO III	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani
5	10117805	LINCOLN XXX	MACUSANI YELLOWCAKE S.A.C.	TITULADO	200	Metálica	Carabaya	Corani
6	10121805	COLIBRI III	MACUSANI YELLOWCAKE S.A.C.	TITULADO	100	Metálica	Carabaya	Macusani
7	10086605	TRIUNFADOR 5	MACUSANI YELLOWCAKE S.A.C.	TITULADO	600	Metálica	Carabaya	Macusani
8	10088905	COLIBRI II	MACUSANI YELLOWCAKE S.A.C.	TITULADO	600	Metálica	Carabaya	Corani/Macusani
9	10053205	LINCOLN XXIX	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Corani
10	10069205	TRIUNFADOR 4	MACUSANI YELLOWCAKE S.A.C.	TITULADO	900	Metálica	Carabaya	Macusani
11	10007005	TAYPICORANI	GLOBAL GOLD S.A.C.	TITULADO	200	Metálica	Carabaya	Corani
12	10036705	KIHITIAN	MACUSANI YELLOWCAKE S.A.C.	TITULADO	800	Metálica	Carabaya	Macusani
13	10215204	TAITITIRA	GLOBAL GOLD S.A.C.	TITULADO	100	Metálica	Carabaya	Corani
14	10342897	CORACHAPI	GLOBAL GOLD S.A.C.	TITULADO	500	Metálica	Carabaya	Corani
15	10053005	LINCOLN XXVII	MACUSANI YELLOWCAKE S.A.C.	TITULADO	900	Metálica	Carabaya	Corani/Macusani
16	10069505	TUPURAMANI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani/Macusani
17	10111305	SAMILIO I	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Macusani

Ubicación de proyectos mineros Falchani y Macusani sobre comunidades campesinas

0 3 6 12 18 Km

Elaborado por:	Fecha:	Escala:
Bladimir C. Martínez O.	Junio, 2022	1:150,000

Fuentes:
Ministerio de Cultura (MINCUL) - Plano N° SDC DA-007 A
GEOCATMIN (Instituto Geológico, Minero y Metalúrgico - INGEMMET)
Instituto del Bien Común (IBC)
Autoridad Nacional del Agua (ANA)
Minsterio de Transportes y Comunicaciones (MTC)
Ministerio del Ambiente (MINAM)
Instituto Nacional de Cultura (INC)
Technical Report-Preliminary Economic Macusani y Falchani

02

ghway robberies, infidelity among couples, and even murder or rape[102].

2.4. Potential environmental, cultural, and health impacts, and infringement of collective rights

2.4.1. Culture at risk: archaeological sites

The province of Carabaya is known for being the alpaca capital of Peru, but it also stands out due to its archaeological sites and natural landscapes. In 2005 and thanks to the initiative of the agricultural engineer Rainer Hostnig, the archaeological remains of the Macusani and Corani districts were declared National Cultural Heritage by National Directorial Resolution No. 1658/INC[103] of the National Institute of Culture. In 2009 it had a total area of 36,978,6451 hectares, and was named the Corani-Macusani Archaeological Landscape of Rock Paintings (Paisaje Arqueológico Pinturas Rupestres Corani- Macusani). The heritage area, as well as the location of the Falchani and Macusani projects, can be seen in the map below.

The Macusani project is clearly within the heritage area and dozens of archaeological sites are located within the project concession area. Several others are located on the Falchani project boundaries. In addition, within the delimited area, there are more rupestrian sites yet to be identified and which have yet to be incorporated into the Cultural Heritage declaration. Given the advance of the lithium and uranium mining projects in areas with archaeological sites and rock paintings, Rainer Hostnig in collaboration with DHUMA requested in May 2021 that the Ministry of Culture take the necessary actions and provide resources to review and update the delimitation of the Corani-Macusani Archaeological Landscape of Rock Paintings. Likewise, they requested the placement of boundary markers in the updated perimeter, and requested that the Directorate of Cadastre and Legal Physical Recognition of the Ministry of Culture proceed with the registration of the perimeter plan with the respective registry offices of the National Superintendence of Public Registries. As of the date of publication of this report and after more than 15 months, no response to this request has been received. For its part, Plateau Energy has been conducting an archaeological survey since 2017 with the assistance of the Peruvian Ministry of Culture. While Plateau Energy does not deny that archaeological sites exist with respect to the Macusani project, it asserts that its archaeological survey to date has demonstrated that there are no sites of cultural or archaeological significance that would be affect the Falchani Lithium Project[104].

However, this information is not entirely accurate because, to date, the Ministry of Culture does not have updated information, nor has it responded to the request by DHUMA and the agricultural engineer Rainer Hostnig, who is the main person responsible for the archaeological findings.

Thus, the study being conducted by Plateau Energy and the Ministry of Culture may be based on outdated information that does not take into account the totality of the archaeological sites. In this regard, Hostnig, in communication with the Wayka journalistic platform, said: “I am worried that the corresponding ministries are not more concerned about finding a solution to respect and protect the archaeological rock sites, which are unique in Peru”[105]. In 2007, Hosting stated that mining in the communities of Tantamaco and Isivilla would seriously and irreversibly affect the cultural heritage of Carabaya[106]. It is worth mentioning that Plateau Energy itself recognizes that “approximately 100 ancient rock art sites, some unique in the region, are found within the districts of Macusani and Corani

102 Direct observation, field work August 2021.

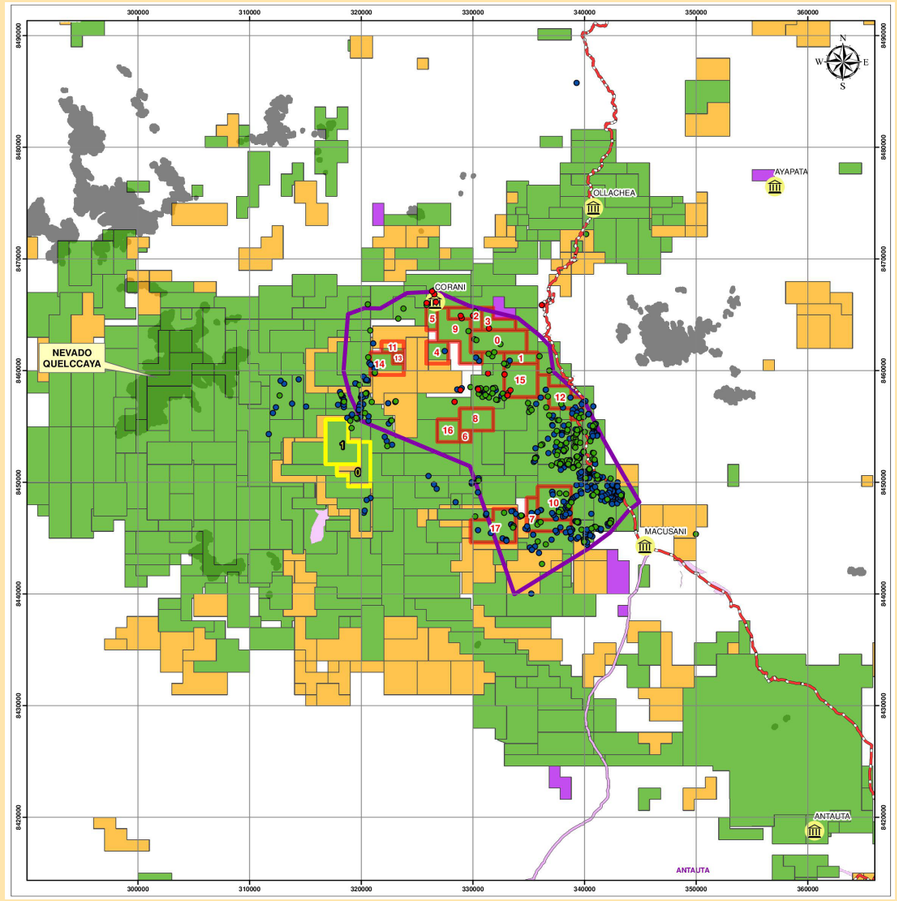
103 Resolución Directoral Nacional N.º 1658/INC. Declaran Patrimonio Cultural de la Nación a las Pinturas Rupestres de Corani y Macusani ubicadas en el departamento de Puno. 16 de diciembre del 2005. Available at: https://hostnig.files.wordpress.com/2008/08/resolucion-directoral-inc.pdf.

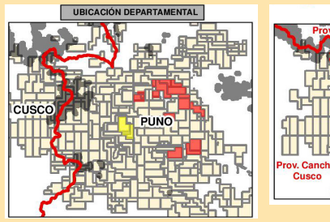
104 DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 162., https://minedocs.com/20/Falchani_PEA_03192020.pdf.

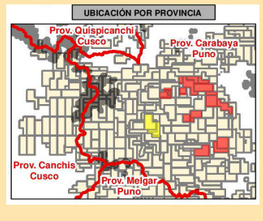
105 Translation by author. Meneses, A. (March 25, 2021) Pinturas rupestres de Puno en peligro por concesiones mineras. Wayka. https://wayka.pe/ pinturas-rupestres-de-puno-in-peril-por-concesiones-mineras/

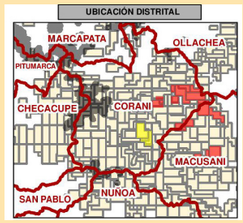
106 Hostnig, R. (2007). The rock art of Carabaya. A historical-cultural legacy of transcendental value in a landscape of rugged beauty. Empresa de Generación Eléctrica San Gabán S. A. pp. 31-33. https://issuu.com/rainerhostnig/docs/arte_rupestre_de_carabaya#:~:text=Los%20distritos%20%E2%80%9Crupestres%E2%80%9D%20de%20Macusani%20y%20Corani%20La%20capital%20distrital,la%20exploraci%C3%B3n%20de-%20la%20zona.

Map 4
Location of Falchani and Macusani mining projects and archaeological remains









CONCESIONES MINERAS DEL PROYECTO FALCHANI

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FID	Código	Concesión	Titular de concesión	Leyenda	Ha	Sustancia	Provincia	Distrito
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4	10069705	CALVARIO III	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani
5	10117805	LINCOLN XXX	MACUSANI YELLOWCAKE S.A.C.	TITULADO	200	Metálica	Carabaya	Corani
6	10121805	COLIBRI III	MACUSANI YELLOWCAKE S.A.C.	TITULADO	100	Metálica	Carabaya	Macusani
7	10086605	TRIUNFADOR 5	MACUSANI YELLOWCAKE S.A.C.	TITULADO	600	Metálica	Carabaya	Macusani
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13	10215204	TAITITIRA	GLOBAL GOLD S.A.C.	TITULADO	100	Metálica	Carabaya	Corani
14	10342897	CORACHAPI	GLOBAL GOLD S.A.C.	TITULADO	500	Metálica	Carabaya	Corani
15	10053005	LINCOLN XXVII	MACUSANI YELLOWCAKE S.A.C.	TITULADO	900	Metálica	Carabaya	Corani/Macusani
16	10069505	TUPURAMANI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani/Macusani
17	10111305	SAMILLO I	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Macusani

Ubicación de proyectos mineros Falchani y Macusani sobre restos arqueológicos

0 4 8 16 24 Km

Elaborado por: Bladimir C. Martínez O.
Fecha: Junio, 2022
Escala: 1:200,000

Fuentes:
Ministerio de Cultura (MINCUL) - Plano N° SDC DA-007 A
GEOCATMIN (Instituto Geológico, Minero y Metalúrgico - INGEMMET)
Instituto del Bien Común (IBC)
Autoridad Nacional del Agua (ANA)
Ministerio de Transportes y Comunicaciones (MTC)
Ministerio del Ambiente (MINAM)
Investigaciones Independientes
Technical Report:Preliminary Economic Macusani y Falchani

03

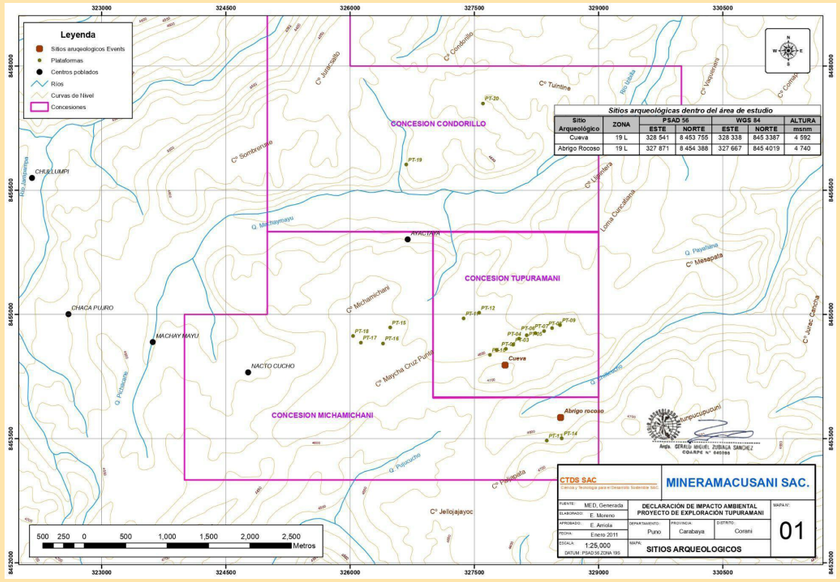
(...) Collectively these cave paintings constitute the largest concentration of art from the Archaic period in the Americas"[107].

Such is the case of the "Tupuramani" Exploration Project, approved with Directorial Resolution No. 356-2011-MEM/AAM on December 7, 2011, which comprises the "Condorillo", "Tupuramani", and "Micha Michani" mining concessions. As we noted above, the "Tupuramani" mining concession is part of the "Macusani Mining Project."

107 Plateau Uranium Inc. (12 de enero de 2016) Macusani Project NI 43-101 Report-Preliminary Economic Assessment. GBM. p. 271. https://www.miningnewsfeed.com/reports/Macusani_PEA_01122016.pdf.

According to the Archaeological Inspection Report submitted by the company, there are two archaeological sites consisting of rock paintings: one in a rock shelter and another in a cave, in the concessions of Micha Michani and Tupuramani, respectively. Given this information, the General Directorate of Mining Environmental Affairs of the Ministry of Energy and Mines decided that these findings were not superimposed on the proposed drilling platforms and that therefore the Environmental Impact Statement should be approved. This response by the State represents a danger to the archaeological sites in the area of the Macusani Mining Project and demonstrates the criteria used when approving environmental

Map 5
Location of archeological sites of the "Tupuramani" exploration project



Photographic record of the Archaeological Inspection Report of the "Tupuramani" exploration project, prepared by Minera Macusani S.A.C.

Detail view of the painting inside the cave.

Panoramic view of the paintings found in the rock shelter.

management instruments when the sole purpose is to make mining extraction viable.

2.4.2. Environmental and community health risks

The Falchani and Macusani projects do not yet have an Environmental Impact Statement[108]. Without a comprehensive study conducted by an independent and competent entity, and which includes the participation of the affected communities, there is no way to definitively determine the potential environmental and social impacts of the proposed projects. However, it is possible to identify potential risks based on preliminary technical-economic reports and other materials developed by the companies involved to date, as well as other sources relevant to the typical impacts of uranium and lithium exploitation.

The Macusani and Falchani projects are located in the Puna and High Andes ecoregion. According to the Preliminary Technical-Economic Report for the Macusani project, some "native fauna species found in the ecoregion and that may or may not be present in the Macusani project area are classified by the International Union for Conservation of Nature as 'vulnerable', including the Andean flamingo and the northern Andean deer; 'near threatened', including the Andean condor, Andean ostrich and Pampus cat; and 'critically endangered', including the Junin Grebe[109]. Additionally, the report notes that the Macusani project "may or may not be located within the restricted mining areas of the [Ministry of Energy and Mines]."[110] According to the preliminary technical-economic reports for both projects, water for the mine would be pumped from local water sources[111]. The technical report for the Macusani project also assumes that the open pits and waste rock dumps will remain as permanent features in its rehabilitation and closure plans, and has only allowed for limited re-grading to promote re-vegetation.[112]

With respect to human health, when lithium dust comes into contact with skin moisture it can cause burns similar to caustic soda, and its inhalation causes irritation in the respiratory system and exudation inside the bronchi, which causes pulmonary edemas[113]. However, at present, there are few studies that analyze the environmental and social impacts of lithium in hard rock[114], so this needs to be presented in detail in the Environmental Impact Statement.

108 Quinde, B. (February 8, 2022) Proyecto Falchani y segundo tajo de Las Bambas no verían la luz este año. Tiempo Minero https://camiper.com/tiempominero-noticias-en-mineria-para-el-peru-y-el-mundo/proyecto-falchani-y-segundo-tajo-de-las-bambas-no-verian-la-luz-este-ano/; Ulises Solis, general manager of Macusani Yellowcake, informed that by the second semester of 2023 or early 2024 they would have the Environmental Impact Study, see more at: https://www.dipromin.com/noticias/notiempresas/estudio-de-impacto-ambiental-del-proyecto-de-litio-peruano-falchani-se-iniciara-en-el-segundo-semestre/, https://www.youtube.com/watch?v=9jD8_954Wt4. In August 2022, American Lithium announced that it has commenced an Environmental Impact Assessment ("EIA") hydrological drilling program (designed by SRK Peru and EDASI SAC) at the Falchani lithium project. The Company also announced that it has engaged DRA Global and Stantec Inc. to jointly produce an updated Preliminary Economic Assessment for Falchani. See American Lithium, American Lithium Commences EIA Drilling at Falchani and Awards PEA Update Work to DRA Global and Stantec Inc, August 24, 2022, available at: https://americanlithiumcorp.com/american-lithium-commences-eia-drilling-at-falchani-and-awards-pea-update-work-to-dra-global-and-stantec-inc/

109 Plateau Uranium Inc (January 12, 2016) Macusani Project NI 43-101. Report-Preliminary Economic Assessment. GBM. p. 270. https://www.miningnewsfeed.com/reports/ Macusani_PEA_01122016.pdf.

110 Ibíd.

111 DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 140., https://mined-ocs.com/20/Falchani_PEA_03192020.pdf; Plateau Uranium Inc. (January 12, 2016) Macusani Project NI 43-101 Report-Preliminary Economic Assessment. GBM. p. 50. https://www.miningnewsfeed.com/reports/Macusani_PEA_01122016.pdf

112 Plateau Uranium Inc. (January 12, 2016) Macusani Project NI 43-101 Report-Preliminary Economic Assessment. GBM. p. 280. https://www.miningnewsfeed.com/reports/Macu- sani_PEA_01122016.pdf.
The Macusani technical report also notes that "the Macusani project is located near four inactive or abandoned mines. As well as reflecting recent cultural heritage in the area these mines have been identified as potential causes of local water contamination. A future study should locate the exact location and nature of these mines to determine whether they have any potential impact on the project". P 271

113 Enrriquez, A. (2020) Acciones y consecuencias de la explotación del litio en Jujuy. Un estudio desde la ecofilosofía. Tecnología & Sociedad, (8), p. 59-76.https://repositorio.uca.edu.ar/bitstream/123456789/9349/1/acciones-consecuencias-explotacion-litio.pdf

114 GeoComunes, REMA & MiningWatch Canadá. (2021). Informe El Litio: La nueva disputa comercial dinamizada por el falso mercado verde. Geocomunes. p. 9. https://geocomunes.org/Analisis_PDF/Litio_Informe_Final_Enero2021.pdf

While these preliminary indications of the impacts on animals, plant life, and local water sources are cause for concern, one of the most worrisome elements of the project is the presence of uranium. Uranium mining produces radioactive waste and can expose workers and the local population to very high levels of radiation, which seriously affects the environment and human health. Such radioactivity cannot be eliminated by engineering methods or techniques[115]. Uranium mining activities produce negative effects on air, soil, sediments, surface water and groundwater. Examples of these effects are found in places such as Koprubasi (Turkey) or New Mexico (United States), where levels above the world average of radioactive thorium, radium and potassium are detected in rocks and sediments in the vicinity of mining operations[116].

The main environmental impacts of uranium mining activity are excessive levels of radioactivity from the extracted rock piles and the tailings deposits; erosion of the tailings piles; surface and groundwater contamination from seepage or drainage; and atmospheric emissions of dust, sulfur oxides and radioactive material[117]. The Preliminary Technical-Economic Report for the Macusani project itself notes that uranium mining produces dust that emits radioactive radon gas at levels that can be a potential health hazard[118]. Given the presence of uranium throughout the Macusani plateau, both at the surface and in veins, it is possible that any lithium mining operation will generate it as a by-product[119].

115 Lottermoser, B. (2010) Mine Wastes. Springer, pp. 263-312. https://link.springer.com/book/10.1007/978-3-642-12419-8.

116 Simsek, C. (2008) Assessment of natural radioactivity in aquifer medium bearing uranium ores in Koprubasi, Turkey. Environmental geology, (55),1637-1646. https://www.academia.edu/9637974/Assessment_of_natural_radioactivity_in_aquifer_medium_bearing_uranium_ores_in_Koprubasi_Turkey; Kaufmann, R., Eadie, G., & Russell, C. (1976) Effects of uranium mining and milling on ground water in the Grants Mineral Belt, New Mexico. Ground Water, 14(5), 296-308. https://www.uraniumwatch.org/NM_UraniumMining/Grants_UMining_GWEffects.7609.pdf

117 Investigadores Populares sobre la Problemática Minera (IPPM); Graziano, M; Rosin, P; Ramos, C.; Comelli, M.; Petz, I.; Szalai, A.; & Blaustein, M. (2016) Informe Técnico Socio-Ambiental: Caracterización socio-ambiental y evaluación del riesgo en relación al establecimiento de la megaminería de uranio en la cuenca del río Abaucán y alrededores de la ciudad de Tinogasta, Catamarca. Universidad de Buenos Aires, pp. 16-17.

118 Plateau Uranium Inc. (January 12, 2016) Macusani Project NI 43-101 Report-Preliminary Economic Assessment. GBM. p. 277. https://www.miningnewsfeed.com/reports/Macusani_PEA_01122016.pdf

119 Vilca, P. (marzo de 2020) El proyecto de explotación de litio en Puno. Ford Foundation, Ser.http://siar.minam.gob.pe/puno/documentos/proyecto-explotacion-litio-puno.

The World Health Organization recognizes that this mineral damages kidney function, and has for this reason established limits on the concentration of uranium in drinking water[120]. Other studies also indicate that the brain is affected, and exposure to uranium can lead to lower performance in cognitive tests[121]. It has also been found to be associated with cases of leukemia, due to the displacement of calcium in the blood. Workers who were exposed to radon gas, such as those found in populations near nuclear power plants in Spain, had an increased risk of developing lung cancer[122]. Furthermore, many studies reveal that uranium mining and processing areas have a higher release of this element into the environment than those under natural conditions, and that it continues after mine closure[123]. The local population that comes into contact with it is put at risk, through the consumption of water, food and inhalation of air[124]. The effects of uranium are a long-term problem.

120 Investigadores Populares sobre la Problemática Minera (IPPM); Graziano, M.; Rosin, P.; Ramos, C.; Comelli, M.; Petz, I.; Szalai, A.; & Blaustein, M. (2016) Informe Técnico Socio-Ambiental: Caracterización socio-ambiental y evaluación del riesgo en relación al establecimiento de la megaminería de uranio en la cuenca del río Abaucán y alrededores de la ciudad de Tinogasta, Catamarca. Universidad de Buenos Aires, pp. 17-18.

121 Lestaevel, P.; Houpert,; P., Bussy, C.; Dhieux, B.; Gourmelon, P.; & Paquet, F. (2005). The brain is a target organ after acute exposure to depleted uranium. Toxicology, 219-226. https://www.semanticscholar.org/paper/The-brain-is-a-target-organ-after-acute-exposure-to-Lestaevel-Houpert/e2435254c97ca82fd4f93ae674091a0383dce272. Winde, F. (2012). Challenges in Assessing Uranium-Related Health Risks: Two Case Studies for the Aquatic Exposure Pathway from South Africa – Part I: Guideline and Toxicity Issues and the Pofadder Case Study. In B. Merkel & M. Schipek (Eds.). (2012). The New Uranium Mining Boom. Springer Berlin Heidelberg pp. 529-538. https://www.semanticscholar.org/paper/Challenges-in-Assessing-Uranium-Related-Health-Two-Winde/f034a8556568f887c3fdf4ec40a34d938223be37

122 Brugge, D.;, Dasaraju, A.; Lu, Y.; & Dayer, B. (2015) The externalized costs of uranium mining in the United States. In B. J. Merkel & A. Arab (Eds.). (2015). Uranium - Past and Future Challenges. Springer International Publishing, pp. 305-310. https://link.springer.com/chapter/10.1007/978-3-319-11059-2_35. López-Abente, G., Aragonés, N., & Pollán, M. (2001). Solid-tumor mortality in the vicinity of uranium cycle facilities and nuclear power plants in Spain. Environmental Health Perspectives, 109(7), 721-729. https://ehp.niehs.nih.gov/doi/10.1289/ehp.109-1240377 .

123 Baborowski, M., & Bozau, E. (2006). Impact of former mining activities on the uranium distribution in the River Saale (Germany). Applied Geochemistry, 21(6), 1073-1082.http://dx.doi.org/10.1016/j.apgeochem.2006.02.017

124 Domingo, J. (2001). Reproductive and developmental toxicity of natural and depleted uranium: a review. Reproductive Toxicology, pp .603-609. https://www.researchgate.net/publication/11617139_Reproductive_and_developmental_toxicity_of_natural_and_depleted_uranium_A_review

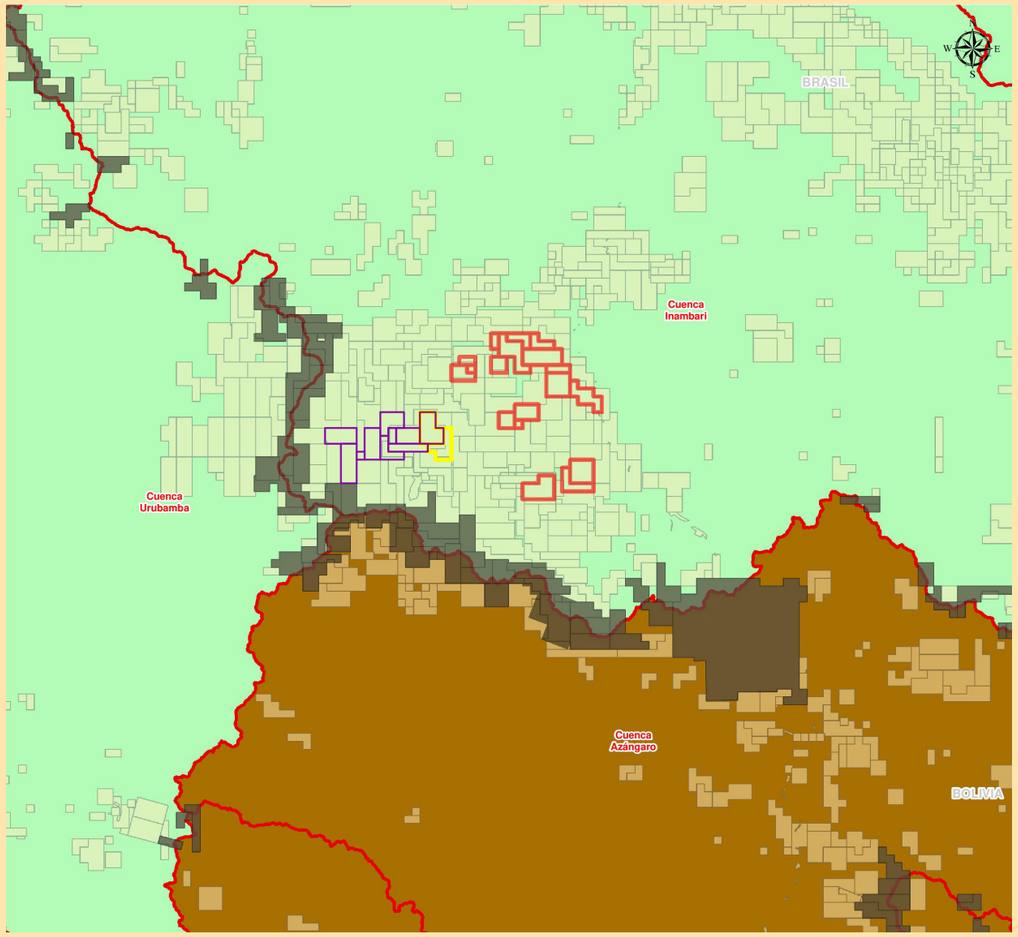
Despite the serious and clear risks involved in uranium mining, Macusani Yellowcake has used a very common fallacy in the mining sector: the argument that the natural presence of minerals in the earth has never caused harm to the population and, therefore, that the extracted mineral will not make them sick. In this regard, Ulises Solis, general manager of Macusani Yellowcake, has said that: "In Macusani there is radioactivity, but in a natural way. It is found in the huts and in the crops. The villagers have been living with it for centuries. The curious thing is that there is not a single cancer patient"[125]. On the contrary, uranium mining is a highly dangerous and risky activity that has caused serious damage, even in countries with strong environmental legislation and control. Its development in Peru could cause environmental and human harm, especially given the area's mining track record and lack of environmental governance, and the apparent indifference and misleading statements about such risks on the part of the Macusani Yellowcake company.

2.4.3. Headwaters at risk due to mining concessions

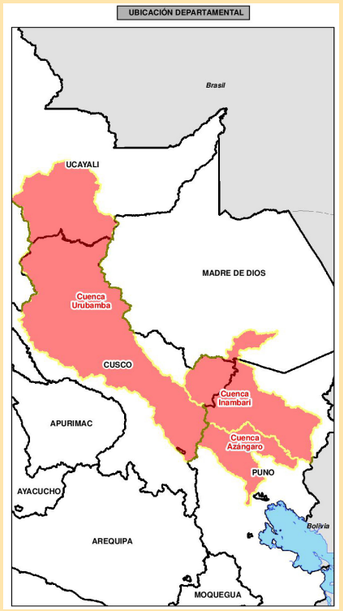
The Falchani and Macusani mining projects, additional mining concessions held by Macusani Yellowcake, as well as nearby concessions held by other companies in the area, are located very close to the junction of three watersheds: 1) the Inambari watershed, belonging to the Amazon Hydrographic Unit, 2) the Urubamba watershed, belonging to the Amazon Hydrographic Unit, and 3) the Azángaro watershed, belonging to the Titicaca Hydrographic Unit. Of the 420 mining concessions that directly overlap the watershed divides of these basins, 20 are held by Macusani Yellowcake S.A.C or its predecessor Global Gold[126]. Map 6 shows the watershed divides of basins in red

125 Translation by the author. Saldariaga, J. (October 2, 2019) Las comunidades aceptan nuestro proyecto de litio. El Comercio.,https://elcomercio. pe/economia/dia-1/las-comunidades-aceptan-nuestro-proyec- to-de-litio-noticia/? ref=ecr

126 Information processed by DHUMA from GEOCATMIN, April 2022. Mining concessions in zones 18 and 19.



Map 6
Location of the mining concessions on watershed divides



Legend

- Proyecto Quelcaya
- Proyecto Macusani
- Proyecto Falchani
- Concesiones mineras en la divisoria de aguas
- Concesiones mineras
- Cuencas con concesiones en divisoria de aguas
- Region Hidrografica del Amazonas
- Region Hidrografica del Pacifico
- Region Hidrografica del Titicaca

Ubicación de concesiones mineras en la divisoria de aguas

0 4 8 16 24 32 Km

Elaborado por:	Fecha:	Escala:
Bladimir C. Martinez O.	Junio, 2022	1:300,000

Fuentes:
GEOCATMIN (Instituto Geológico, Minero y Metalúrgico - INGEMMET)
Autoridad Nacional del Agua (ANA)
Ministerio del Ambiente (MINAM)
Instituto Geológico, Minero y Metalúrgico (INGEMMET)

04

and where the mining concessions directly overlap the divides in gray.

Of the overlapping concessions, 393 correspond to metallic substances and 27 to non-metallic substances. 91 are blocked, 14 are expired, 1 is in the category of others, 217 are titled and 97 are being processed. It is pertinent to note that this information only corresponds to mining concessions that directly overlap the watershed divides of the basins in question, which means that there are more concessions that overlap the larger surface area that constitutes the headwaters of these basins. As can be seen in the map, because of their proximity to the watershed divides and their high altitude, it is likely that the Falchani and Macusani projects overlap the headwaters of the Inambari watershed. To definitively determine which concessions overlap the headwaters, the methodological framework of technical criteria for the identification, delimitation and zoning of headwaters should be used[127].

In any case, it is evident from the data above that some of the mining concessions are located at the headwaters of watersheds classified as high priority by the National Water Authority (Inambari and Urubamba watersheds, belonging to the Amazon Hydrographic Unit and the Azángaro watershed, belonging to the Titicaca Hydrographic Unit)[128] due to their hydrological, social and economic impact.

This situation is worrisome. According to the United Nations Committee on Economic, Social, and Cultural Rights, "Water is a limited natural resource and a public good fundamental for life and health. The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights. The Committee has been confronted continually with the widespread denial of the right to water in developing as well as developed countries. Over one billion persons lack access to a basic water supply, while several billion do not have access to adequate sanitation, which is the primary cause of water contamination and diseases linked to water. The continuing contamination, depletion and unequal distribution of water is exacerbating existing poverty"[129]. The Committee has also stated that States must take effective measures to give effect to the right to water without any discrimination[130].

The recognition of the human right to water recognized by the Committee is linked to the protection and conservation of the areas where water originates - the headwaters of the basins and the watershed divides. Therefore, it is "essential to identify and adequately delimit the headwaters of the water basin to better plan their conservation and that of the natural resources existing therein"[131]. In this regard, "[a] watershed is divided into three parts: upper, middle and lower zones. Part of the upper zone is called the 'headwaters'. The headwaters are geographic spaces that best perform the main functions of a basin (hydrological function, ecological function, environmental function and socioeconomic function). These processes in the upper parts invariably have repercussions in the middle and lower parts of the basin. In this sense, it is important to preserve the headwaters, since they play a regulatory role in the hydrological cycle, control the quantity and timing of water flow, contribute to the maintenance of hydrological connectivity, to the integrity of ecosystems, and to the good ecological status of the basin"[132].

Despite this, in Peru many of the mining activities are carried out in the headwaters of river basins. State institutions, after granting concession permits

127 National Water Authority & Ministry of Agrarian Development and Irrigation (2021). Marco metodológico de criterios técnicos para la identificación, delimitación y zonificación de cabecera de cuenca. https://repositorio.ana.gob.pe/handle/20.500.12543/4893

128 National Water Authority. (2016). Prioritization of watersheds for water resources management. Ministerio de Agri- cultura y Riego, pp. 118, 128 and 133.https://www.ana.gob.pe/publications/priorizacion-de-cuencas-para-la-gestion-de-los-recursos-hidricos.

129 United Nations (2002). Substantive issues arising in the implementation of the international covenant on economic, social and cultural rights, p. 1.

130 Ibíd.

131 Gutiérrez, N. (2013). Delimitación de la cabecera de cuenca del río Piura. [Master's thesis in Design, Management and Project Management]. University of Piura. Faculty of Engineering. https://pirhua.udep.edu.pe/handle/11042/1857.

132 Translation by the author. Gutiérrez, N. (2013). Delimitación de la cabecera de cuenca del río Piura. [Master's thesis in Design, Management and Project Management]. University of Piura. Faculty of Engineering. https:// pirhua.udep.edu.pe/handle/11042/1857.

to undertake mining activities, do not exert their control and oversight function, leaving national and transnational companies free to use the territory, including the headwaters of river basins. This seriously affects the life and health of the population, as well as that of the plants and animals that depend on water[133]. The presence of mining concessions in important headwaters in the region represents a risk that this dynamic will continue.

2.4.4. Glaciers at risk: concessions in the Quelccaya mountain glaciers

Quelccaya, the largest tropical glacier in the world, is located in southeastern Peru, in the Vilcanota mountain range. It rises 5,680 meters above sea level, with a surface area of approximately 50 km² and an ice cap 170 m thick[134]. Since 1974, the North American glaciologist Lonnie Thompson[135] has traversed the glacier to investigate climate change and considers it as a world thermometer[136]. As the Ministry of Foreign Trade and Tourism has explained, "[f]or the inhabitants of this area, the snow-capped mountain is considered one of the main Apus of this range because of its size"[137]. There are also "glacial lakes, rock formations, rivers, waterfalls and above all a beautiful landscape expressed in the majestic mountain range of the Peruvian Andes"[138].

Furthermore, "it is possible to appreciate a great variety of wild fauna endemic to the highlands, such as deer, the condor, vicuñas, Andean foxes, viscachas, wild cats and a great variety of birds" and it holds "flora common to this area such as ichu, maychas, iru ichu, urtica and others"[139].

The waters of the Quelccaya glacier contribute to the formation of lagoons, streams and rivers that supply fresh water to the people who live around the snow-capped mountain and to all the biodiversity of the area. It is an important source of water for the Vilcanota River, which provides more than 50% of the drinking water for the Cusco region and electricity for Puno, Cusco and Apurimac during the dry season[140]. It is also a source of water for the Amazon River[141] because Quelccaya is located at the headwaters of the Urubamba and Inambari basins, both of which belong to the Amazon River Hydrographic Unit.

In 2019, after 10 years of struggle, the Regional Government of Cusco, through Supreme Decree No. 012-2019-MINAM, formalized the existence of the Ausangate Regional Conservation Area, which includes part of the Quelccaya snow-capped mountain. Its objective was to conserve a representative sample of the Puna ecoregion of the Central Andes of Cusco, with a high biological, landscape, and water regulation value. The total area covers 66,514.17 ha[142]. However, Article 4 of the Supreme Decree states that property rights and other rights acquired prior to the establishment of the Ausangate Regional Conservation Area are not affected by the decree, leaving the way clear for mining concessions such as Macusani Yellowcake's on the snow-capped mountain Quelccaya. In addition, the delimited area

133 Gutiérrez, E. (2019). Las concesiones mineras y su afecta- ción a los bienes naturales asociados al agua, en la cabecera de cuenca del Ccarhuarazo, región Ayacucho. [Thesis for the professional title of lawyer]. Universidad de Huánuco. http://repositorio.udh.edu.pe/bitstream/handle/123456789/2085/T_047_09092718_T.pdf?sequence=1&isAllowed=y

134 Yarleque, C., Vuille, M., Hardy, D.R. et al. (2018) Projections of the future disappearance of the Quelccaya Ice Cap in the Central Andes. Scientific Reports 8. https://doi.org/10.1038/s41598-018-33698-z.

135 The Ohio State University, Lonie Thompson. https://earth-sciences.osu.edu/people/thompson.3.

136 Gillis, J. (February 26, 2014) Study Links Temperature to a Peruvian Glacier's Growth and Retreat. The New York Times. https://www.nytimes.com/2014/02/26/science/study-links-melting-peruvian-ice-cap-to-higher-temperatures.html.

137 Translation by the author. Georeferential Information System of the Ministry of Foreign Trade and Tourism (s.f.). Nevado Quelccaya https:// consultasenlinea.mincetur.gob.pe/fichaInventario/index.aspx-? cod_Fiche=6135.

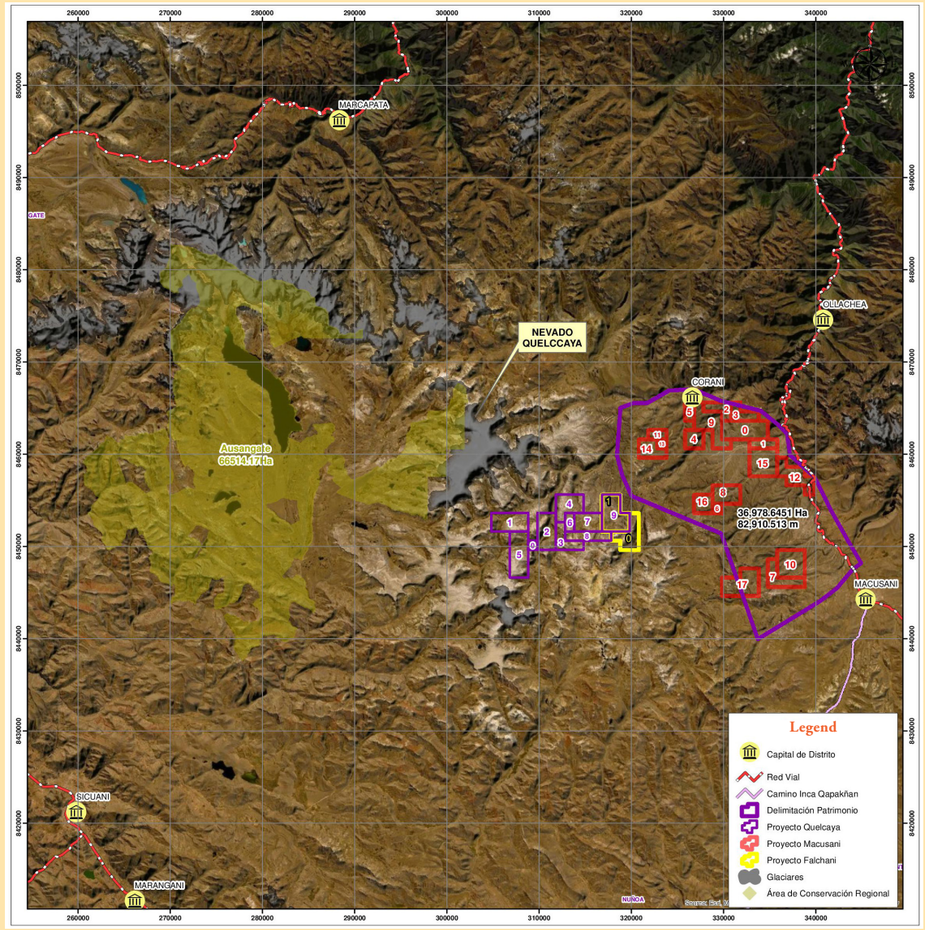
138 Ibíd.

139 Ibíd.

140 Servicio Nacional de Áreas Naturales Protegidas por el Estado, Ministerio del Ambiente. (December 12, 2019)) Peruvian government establishes Ausangate Regional Conservation Area to conserve glaciers in the Vilcanota River basins https://www.gob.pe/institucion/sernanp/noticias/78438-gobierno-peruano-establece-el-area-de-conservacion-regional-ausangate-para-conservar-los-glaciares-de-las-cuencas-del-rio- vilcanota.

141 Ministry of Environment (November 21, 2014). Mother mountain: the one that gives much more than water to the population. Read about it in MINAM Magazine! https://www.minam.gob.pe/ glaciers/2014/11/21/mother-montana-which-gives-much-more-than-water-to-the-population-read-about-it-in-minam-magazine.

142 National Service for Natural Areas Protected by the State - Ministry of Environment. (December 12, 2019). Peruvian government establishes the Ausangate Regional Conservation Area to conserve the glaciers of the Vilcanota River basins. https://www.gob.pe/institucion/sernanp/noticias/78438-gobierno-peruano-establece-el-area-de-conservacion-regional-ausangate-para-conservar-los-glaciares-de-las-cuencas-del-rio-vilcanota.



Map 7
Location of Falchani, Macusani and Quelccaya mining projects and the Ausangate Regional Conservation Area

CONCESIONES MINERAS DEL PROYECTO FALCHANI

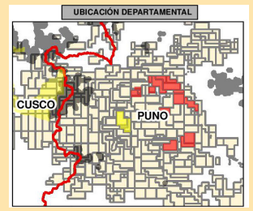
FID	Código	Concesión	Titular de concesión	Leyenda	Ha	Sustancia	Provincia	Distrito
0	10320205	FALCHANI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	700	No metálica	Carabaya	Corani
1	10215005	OCACASA 4	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	No metálica	Carabaya	Corani

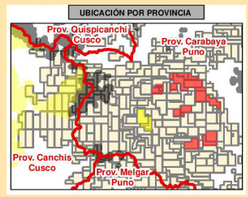
CONCESIONES MINERAS DEL PROYECTO MACUSANI

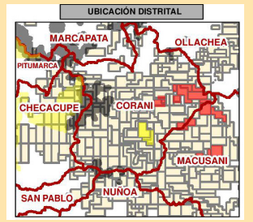
FID	Código	Concesión	Titular de concesión	Leyenda	Ha	Sustancia	Provincia	Distrito
0	10052905	LINCOLN XXVI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Corani/Ollachea
1	10077205	TANTAMACO 3	MACUSANI YELLOWCAKE S.A.C.	TITULADO	300	Metálica	Carabaya	Corani/Macusani
2	10071105	CALVARIO II	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani
3	10016505	TRIUNFADOR 1	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani/Ollachea
4	10069705	CALVARIO III	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani
5	10117805	LINCOLN XXX	MACUSANI YELLOWCAKE S.A.C.	TITULADO	200	Metálica	Carabaya	Corani
6	10121805	COLIBRI III	MACUSANI YELLOWCAKE S.A.C.	TITULADO	100	Metálica	Carabaya	Macusani
7	10086605	TRIUNFADOR 5	MACUSANI YELLOWCAKE S.A.C.	TITULADO	600	Metálica	Carabaya	Macusani
8	10088905	COLIBRI II	MACUSANI YELLOWCAKE S.A.C.	TITULADO	600	Metálica	Carabaya	Corani/Macusani
9	10053205	LINCOLN XXIX	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Corani
10	10069205	TRIUNFADOR 4	MACUSANI YELLOWCAKE S.A.C.	TITULADO	900	Metálica	Carabaya	Macusani
11	10007005	TAYPICORANI	GLOBAL GOLD S.A.C.	TITULADO	200	Metálica	Carabaya	Corani
12	10036705	KIHITIAN	MACUSANI YELLOWCAKE S.A.C.	TITULADO	800	Metálica	Carabaya	Macusani
13	10215204	TAITITIRA	GLOBAL GOLD S.A.C.	TITULADO	100	Metálica	Carabaya	Corani
14	10342897	CORACHAPI	GLOBAL GOLD S.A.C.	TITULADO	500	Metálica	Carabaya	Corani
15	10053005	LINCOLN XVII	MACUSANI YELLOWCAKE S.A.C.	TITULADO	900	Metálica	Carabaya	Corani/Macusani
16	10069505	TUPURAMANI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani/Macusani
17	10111305	SAMILIO I	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Macusani

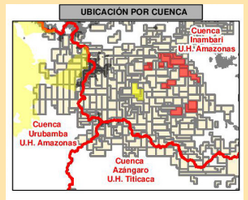
CONCESIONES MINERAS DEL PROYECTO QUELCAYA

FID	Código	Concesión	Titular de concesión	Leyenda	Ha	Sustancia	Provincia	Distrito
0	10452606	COLIBRI XXIV	MACUSANI YELLOWCAKE S.A.C.	TITULADO	100	No metálica	Carabaya	Corani
1	10211606	SAPANUTA 5	MACUSANI YELLOWCAKE S.A.C.	TITULADO	800	No metálica	Carabaya	Corani
2	10353206	QUISHCO 2	MACUSANI YELLOWCAKE S.A.C.	TITULADO	800	No metálica	Carabaya	Corani
3	10086805	HUARITUÑA 4	MACUSANI YELLOWCAKE S.A.C.	TITULADO	500	No metálica	Carabaya	Corani
4	10322605	CCOPALOMA 1	MACUSANI YELLOWCAKE S.A.C.	TITULADO	700	No metálica	Carabaya	Corani
5	10209806	SAPANUTA 3	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	No metálica	Carabaya	Corani
6	10053105	LINCOLN XXVIII	MACUSANI YELLOWCAKE S.A.C.	TITULADO	200	No metálica	Carabaya	Corani
7	10071005	HUARITUÑA II	MACUSANI YELLOWCAKE S.A.C.	TITULADO	600	Metálica	Carabaya	Corani
8	10076505	HUARITUÑA 3	MACUSANI YELLOWCAKE S.A.C.	TITULADO	500	Metálica	Carabaya	Corani
9	10215005	OCACASA 4	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	No metálica	Carabaya	Corani









Ubicación de proyectos mineros Falchani, Macusani y Quelcaya junto a ACR

0 5 10 20 30 Km

Elaborado por:	Fecha:	Escala:
Bladimir C. Martínez O.	Junio, 2022	1:250,000

Fuentes:
Ministerio de Cultura (MINCUL) - Plano N° SDC DA-007 A
GEOCATMIN (Instituto Geológico, Minero y Metalúrgico - INGEMMET)
Instituto del Bien Común (IBC)
Autoridad Nacional del Agua (ANA)
Minsterio de Transportes y Comunicaciones (MTC)
Ministerio del Ambiente (MINAM)
Investigaciones independientes
Technical Report-Preliminary Economic Macusani y Falchani

05

does not consider a large part of the Quelccaya ice cap, as shown in Map 7.

On July 5, 2021, Macusani Yellowcake submitted to the Ministry of Energy and Mines the Environmental Impact Statement (EIS) of the Quelccaya exploration project, with the objective of enabling 18 drilling platforms with a total of 89 drilling rigs, and an average depth of 300 meters[143]. This exploration project is located 6 km west of the Falchani lithium deposit area, and its objective is to search for more lithium mineralized areas[144]. According to the plans submitted by Macusani Yellowcake in its EIS, the area of indirect influence of the Quelccaya exploration project includes part of the Quelccaya ice cap, located in the northwest of Plan 1 below, representing a significant threat to this extremely important area.

143 Environmental Impact Statement for the "Quelccaya" exploration project, prepared by Asesores y Consultores Mineros S.A. (ACOMISA).

144 Takeshi Chacon (July 7, 2021) Macusani Yellowcake would seek lithium areas in Quelccaya project, Rumbo Minero. Macusani Yellowcake would seek lithium areas in Quelccaya project, Rumbo Minero; Eva Cruz, (October 11, 2021) American Lithium alista programa de perforation en Falchani y Macusani, Rumbo Minero. https://www.rumbominero.com/peru/ noticias/mineria/american-lithium-alista-programa-de-perfora- cion-en-falchani-y-macusani/.

In March 2022, the Environmental Impact Statement was not approved, according to Directorial Resolution No. 078-2022-MEM-DGAAM.[145]
Both the National Water Authority (ANA)[146] and the General Directorate of Mining Environmental Affairs (DGAAM)[147] presented "Unfavorable Opinions" to the "Quelccaya" EIS due to Macusani Yellowcake's failure to address all observations. According to ANA, the company did not conduct an adequate inventory and analysis of water sources, water availability, and related impacts and management measures.

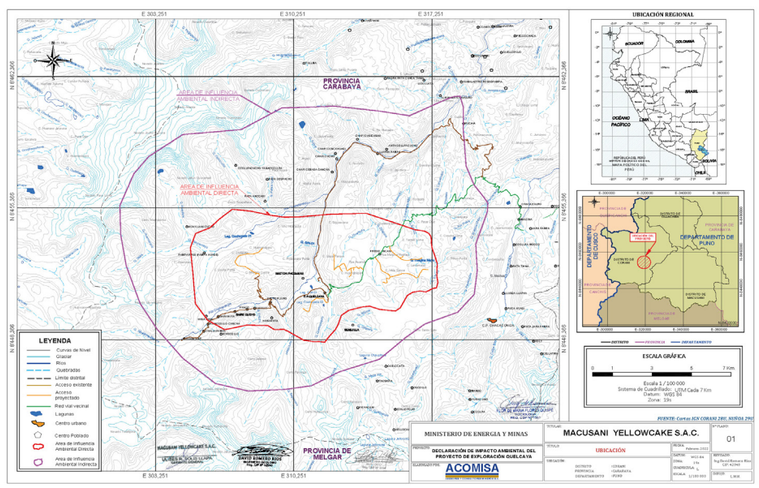
DGAAM stated in its Report No. 115-2022/MINEM-DGAAM-DEAM-DGAM dated March

145 Directorial Resolution No. 078-2022-MEM-DGAAM [Ministry of Energy and Mines]. Final evaluation of the Environmental Impact Statement of the "Quelccaya" mining exploration project, submitted by Macusani Yellowcake S.A.C. March 15, 2022. https://www.gob.pe/institucion/minem/normas-legales/2898980-078-2022-mem-dgaam

146 ANA sent Technical Report No. 0023-2022-ANA- DCERH/WQQ containing the Unfavorable Opinion on the Quelccaya Environmental Impact Statement, available at: https://www.gob.pe/institucion/minem/normas-legales/2898980-078-2022-mem-dgaam

147 Report No. 115-2022/MINEM-DGAAM-DEAM-DGAM [Dirección General de Asuntos Ambientales Mineros del Ministerio de Energía y Minas]. Final evaluation of the Environmental Impact Statement of the mining exploration project "Quelccaya", submitted by Macusani Yellowcake S.A.C. March 15, 2022. https://www.gob.pe/institucion/minem/normas-lega- les/2898980-078-2022-mem-dgaam

Plan 1
Environmental Impact Statement for the Quelccaya exploration project




Vito Calderón / DHUMA

15, 2022 that Yellowcake did not specify the indirect environmental impacts in the delimitation of the Area of Indirect Environmental Influence; it did not incorporate the socioeconomic and cultural characterization that identifies the way of life of the Quelccaya campesino community, and it did not specify the length of sections of the access roads that will require maintenance. Therefore, DGAAM concluded that the project is unviable.

Although the Environmental Impact Statement for the Quelccaya exploration project was not approved, the mining concessions related to the Quelccaya Exploration Project remain in force. In addition, on September 19, 2022, Macusani Yellowcake submitted a new Environmental Impact Statement which is under review by MINEM[148].

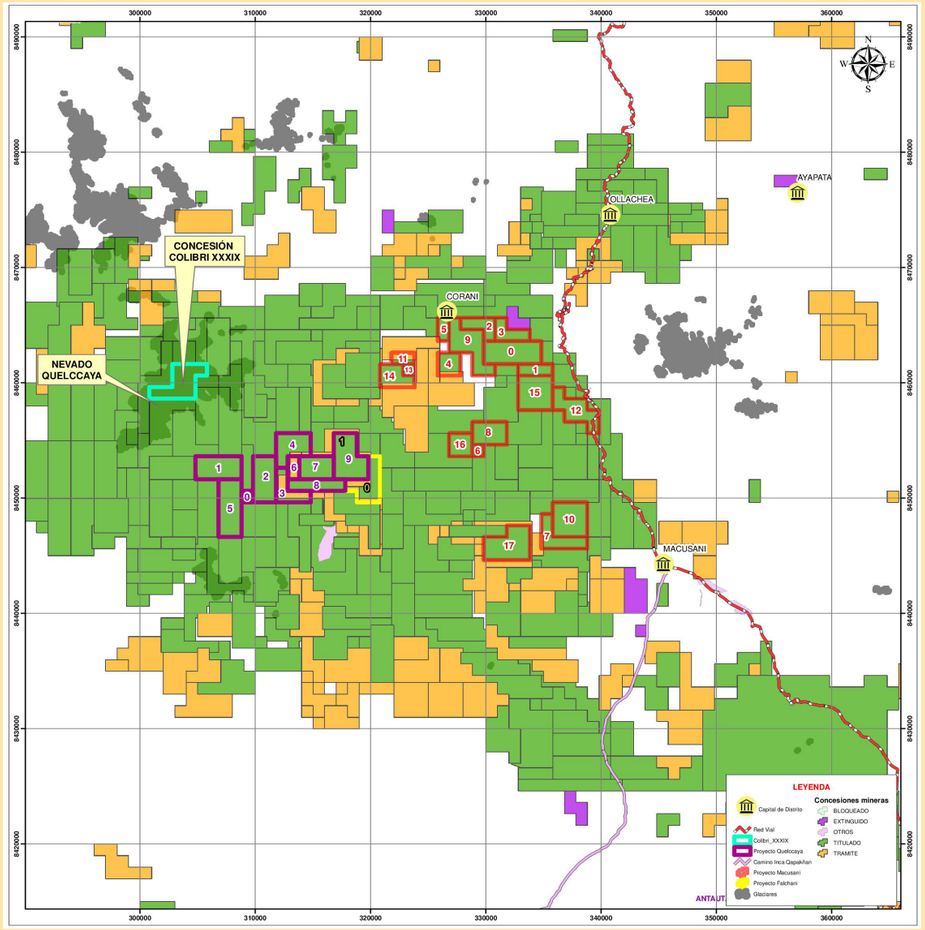
148 Macusani Yellowcake, Environmental Impact Statement Quelccaya" Exploration Project, filed on September 19, 2022, available at: Sistema de Evaluación Ambiental en Línea (SEAL) - Extranet MEM (minem.gob.pe).

This situation constitutes a latent risk for the snow-capped mountain and the community of Quelccaya due to the possibility of future exploration and exploitation activities, and due to the risks identified in each of the observations made by ANA and MINEM that were not addressed by Macusani Yellowcake.

Furthermore, there are additional concessions located on and around the Quelccaya snow- capped mountain that could eventually be explored and exploited. A particularly worrisome example is the mining concession code N° 010148007 with the name COLIBRÍ XXXIX with 900 hectares, whose holder is Global Gold, currently Macusani Yellowcake[149],

149 Ingemmet. (s/f). Sistema de Información Geológico y Ca-

Map 8
Location of the Falchani, Macusani, Quelccaya mining projects and the Colibrí concession



CONCESIONES MINERAS DEL PROYECTO FALCHANI

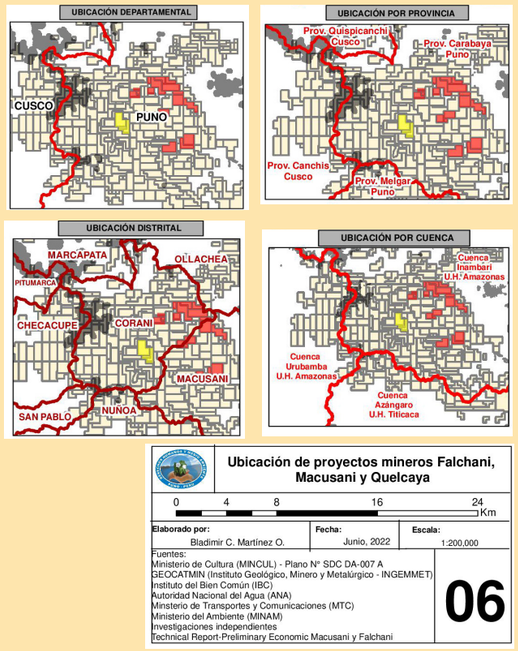
FID	Código	Concesión	Titular de concesión	Leyenda	Ha	Sustancia	Provincia	Distrito
0	10320205	FALCHANI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	700	No metálica	Carabaya	Corani
1	10215005	OCACASA 4	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	No metálica	Carabaya	Corani

CONCESIONES MINERAS DEL PROYECTO MACUSANI

FID	Código	Concesión	Titular de concesión	Leyenda	Ha	Sustancia	Provincia	Distrito
0	10052905	LINCOLN XXVI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Corani/Ollachea
1	10077205	TANTAMACO 3	MACUSANI YELLOWCAKE S.A.C.	TITULADO	300	Metálica	Carabaya	Corani/Macusani
2	10071105	CALVARIO II	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani
3	10016505	TRIUNFADOR 1	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani/Ollachea
4	10069705	CALVARIO III	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani
5	10117805	LINCOLN XXX	MACUSANI YELLOWCAKE S.A.C.	TITULADO	200	Metálica	Carabaya	Corani
6	10121805	COLIBRI III	MACUSANI YELLOWCAKE S.A.C.	TITULADO	100	Metálica	Carabaya	Macusani
7	10086605	TRIUNFADOR 5	MACUSANI YELLOWCAKE S.A.C.	TITULADO	600	Metálica	Carabaya	Macusani
8	10088905	COLIBRI II	MACUSANI YELLOWCAKE S.A.C.	TITULADO	600	Metálica	Carabaya	Corani/Macusani
9	10053205	LINCOLN XXIX	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Corani
10	10069205	TRIUNFADOR 4	MACUSANI YELLOWCAKE S.A.C.	TITULADO	900	Metálica	Carabaya	Macusani
11	10007005	TAYPICORANI	GLOBAL GOLD S.A.C.	TITULADO	200	Metálica	Carabaya	Corani
12	10036705	KIHITIAN	MACUSANI YELLOWCAKE S.A.C.	TITULADO	800	Metálica	Carabaya	Macusani
13	10215204	TAITITIRA	GLOBAL GOLD S.A.C.	TITULADO	100	Metálica	Carabaya	Corani
14	10342897	CORACHAPI	GLOBAL GOLD S.A.C.	TITULADO	500	Metálica	Carabaya	Corani
15	10053005	LINCOLN XXVII	MACUSANI YELLOWCAKE S.A.C.	TITULADO	900	Metálica	Carabaya	Corani/Macusani
16	10069505	TUPURAMANI	MACUSANI YELLOWCAKE S.A.C.	TITULADO	400	Metálica	Carabaya	Corani/Macusani
17	10111305	SAMILLO I	MACUSANI YELLOWCAKE S.A.C.	TITULADO	1000	Metálica	Carabaya	Macusani

CONCESIONES MINERAS DEL PROYECTO QUELCAYA

FID	Código	Concesión	Titular de concesión	Leyenda	Ha	Sustancia	Provincia	Distrito
0	10452606	COLIBRI XXIV	MACUSANI YELLOWCAKE S.	TITULADO	100	No metálica	Carabaya	Corani
1	10211606	SAPANUTA 5	MACUSANI YELLOWCAKE S.	TITULADO	800	No metálica	Carabaya	Corani
2	10353206	QUISHCO 2	MACUSANI YELLOWCAKE S.	TITULADO	800	No metálica	Carabaya	Corani
3	10086805	HUARITUÑA 4	MACUSANI YELLOWCAKE S.	TITULADO	500	No metálica	Carabaya	Corani
4	10322605	CCOPALOMA 1	MACUSANI YELLOWCAKE S.	TITULADO	700	No metálica	Carabaya	Corani
5	10209806	SAPANUTA 3	MACUSANI YELLOWCAKE S.	TITULADO	1000	No metálica	Carabaya	Corani
6	10053105	LINCOLN XXVIII	MACUSANI YELLOWCAKE S.	TITULADO	200	No metálica	Carabaya	Corani
7	10071005	HUARITUÑA II	MACUSANI YELLOWCAKE S.	TITULADO	600	Metálica	Carabaya	Corani
8	10076505	HUARITUÑA 3	MACUSANI YELLOWCAKE S.	TITULADO	500	Metálica	Carabaya	Corani
9	10215005	OCACASA 4	MACUSANI YELLOWCAKE S.	TITULADO	1000	No metálica	Carabaya	Corani



and which is directly overlapping the center of the snow-capped mountain (Map 8).

2.4.5. Penalties for non-compliance with environmental regulations

Macusani Yellowcake's initial exploration activities in the Falchani Project concessions violated Peruvian environmental regulations, reflecting a lack of respect for the rule of law and current regulations protecting the environment. This is evident from Report No. 183- 2018/MEM-DGAAM-DEAM-DGAM, which states that Macusani Yellowcake S.A.C. had carried out mining activities in the "Falchani" and "Ocacasa 4" mining concessions without having previously obtained the proper environmental certification from the competent authority. As a result, the Directorate of Mining Environmental Assessment recommended that the company's request for EIS approval be denied.

In addition, in 2020, the Environmental Evaluation and Oversight Agency (OEFA) through the Environmental Oversight Directorate, issued the Resolutions: "013-2020-OEFA/TFA-SE"[150] and "90-2020-OEFA/TFA-SE", and issued an administrative sanction to Macusani Yellowcake of 399.28 UIT and 136.06 UIT (tax units), respectively, for an equivalent of 2,301,962 soles (more than $550,000 USD) for said activities. Specifically, the sanctions were issued for: carrying out uranium and lithium exploration activities without accrediting an environmental impact study duly approved by the National Environmental Certification Service for Sustainable Investments (SENACE), not accrediting the absence of archaeological remains in the exploration area, not having an authorization for the use of water issued by the National Water Authority, failing to comply with the preventive measures imposed by OEFA, and failing to stop diamond drilling activities, among other reasons[151].

2.4.6. Omission of free, prior and informed consultation and consent of the rural communities, who are identified as part of the Quechua indigenous people

The Peruvian State is failing to guarantee the right to consultation and consent of the rural communities potentially affected by lithium and uranium mining in Puno. In the database of Indigenous Peoples of the Ministry of Culture, the rural communities of Tantamaco, Chacaconiza, Isivilla, Quelccaya, Corani, Chimboya and Pacaje are identified as part of the Quechua Indigenous People[152].

Free, prior and informed consultation is a fundamental right of indigenous peoples with respect to administrative or legislative measures that may directly affect them, and which guarantees the protection of their cultural, social, and economic integrity and the right to participation[153], as well as other rights that could be affected, such as life, health, territory, and the environment[154].

Indigenous peoples have the right to "participate in the formulation, implementation, and evaluation of national and regional development plans and programs likely to affect them directly"[155]. In addition, the Inter-American Court has pointed out that, in the case of large-scale development or investment plans that will have a major impact on the territories

tastral Minero del Instituto Geológico, Minero y Metalúrgico. https://geocatmin.ingemmet.gob.pe/geocatmin/.

150 Resolution No. 013-2020-OEFA/TFA-SE [Organismo de Evaluación y Fiscalización Ambiental]. To confirm the Directorial Resolution No. 1701-2019-OEFA/DFAI of October 29, 2019, which declared the existence of administrative liability of Macusani Yellowcake S.A.C. for the commission of the infringing conducts described in Table No. 3 of the present resolution (...). February 10, 2020. https://www.gob.pe/institucion/oefa/informes-publica-ciones/1237251-resolucion-n-013-2020-oefa-tfa-se

151 Human Rights and Environment - DHUMA. (December 29, 2020). OEFA fined the mining company Macusani Yellowcake. https://derechoshumanospuno.org. pe/noticias/oefa-m1u3lt6o -0a6-lau-neimdapdress -ai-mmpionseirtaiv-mas-aicmupsaonsit-iy-vealsl-otwri-buctariea-sc.on-399-28-y

152 Ministry of Culture (n/d). Database of Indigenous Peoples. https://bdpi.cultura.gob.pe/buscador-de-localidades-de-pueblos-indigenas

153 International Labour Organization ILO. Convention 169, 1989, Art. 6 and 7. 2014. https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_ILO_CODE:C169

154 Inter-American Commission on Human Rights IACHR. Indigenous peoples, Afro-descendant communities and natural resources: protection of human rights in the context of extraction, exploitation and development activities. OEA/Ser.L/V/

155 International Labour Organization ILO. Convention 169, 1989, Art. 6 and 7. 2014. https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/documents/publication/wcms_345065.pdf.

of ethnic groups, States have the obligation not only to consult with communities, but also to obtain their free, prior, and informed consent, in accordance with their customs and traditions[156].

The international obligation of States to guarantee the right to consultation and consent of indigenous peoples is supported by various international instruments. Within the framework of the Universal System for the Protection of Human Rights, we highlight ILO Convention 169 and the United Nations Declaration on the Rights of Indigenous Peoples. Likewise, the United Nations Committees have affirmed on various occasions that human rights treaties guarantee the right of indigenous peoples to be consulted and that this right is the corollary of a large number of universally recognized human rights[157].

Given the relevance of this right, the Inter-American jurisprudence has adopted a standard of protection that determines certain characteristics or essential elements for the fulfillment of the State's international obligation, considering that the "failure to comply with this obligation, or engaging in consultations without observing their essential characteristics, entails the State's international responsibility."[158]. The essential elements identified by the Inter-American Court are:

a) The prior nature of the consultation; b) Good faith and the objective of reaching an agreement;

c) Adequate and accessible consultation; d) Carrying out environmental impact studies; and e) The informed nature of the consultation[159]. In addition, the Inter-American Court, in the Saramaka case, also established that, "in relation to any development, investment, exploration or extraction plan, the State must ensure that members of indigenous communities reasonably benefit from the plan to be carried out within their territory"[160].

156 I/A Court H.R., Case of the Saramaka People. Case of the Saramaka People. Vs. Suriname.

157 Among these treaties are: (i) the International Convention on the Elimination of All Forms of Racial Discrimination, (ii) the International Covenant on Civil and Political Rights and (iii) the International Covenant on Economic, Social and Cultural Rights.

158 I/A Court H.R., Case of Sarayaku People v. Ecuador, Judgment of June 27, 2012 (Merits and Reparations), para. 177. https://corteidh.or.cr/docs/casos/articulos/seriec_245_ing.pdf

159 Ibid,

160 I/A Court H.R., Case of the Saramaka People v. Suriname. Preliminary Objections, Merits, Reparations and Costs. From Judgment on November 28, 2007, para.129.

The rural communities of Tantamaco, Chacaconiza, Isivilla, Quelccaya, Corani, Chimboya, Pacaje are identified as part of the indigenous Quechua people[161] and the preliminary technical-economic report of the companies states that the affected areas belong to these communities. Given this, these communities, and potentially additional ones, have the right to consultation and informed consent of all administrative and/or legislative measures that the Peruvian State is approving for the viability of lithium and uranium exploitation in their territory[162].

At the national level, the Constitutional Court has recognized that international human rights treaties, to which Peru is a party, have constitutional status (judgments on file 0025-2005-PI/TC and 0026-2005-PI/TC) and, specifically, that prior consultation is a fundamental right with the characteristics of the ILO Convention 169. Likewise, the Constitutional Court has identified, in reiterated jurisprudence, fundamental positions that constitute the right to consultation, among which are: a) the collective right to be consulted before state measures that directly affect their rights and group interests, b) the right that consultation be conducted prior to such measures, c) and the right that the agreements reached in the consultation process are followed (judgment on file No. 00022-2009-AI/TC; No. 00024-2009-AI/TC and No. 00025-2009-AI/TC).

Regarding the right to be consulted before state measures that directly affect their rights and group interests, the Constitutional Court, in the judgment on file as No. 01717-2014-PC/TC[163], urged the national Executive Branch to guarantee the prior

161 Ministry of Culture (n/d). Database of Indigenous Peoples. https://bdpi.cultura.gob.pe/buscador-de-localidades-de-pueblos-indigenas.

162 Ministry of Culture. Prior consultation process. According to the review of the Ministry of Culture's website, in its list of measures of prior consultation processes that the Peruvian State has consulted with the indigenous peoples of Puno, it only identifies the prior consultation of the Declaration of Cuyocuyo Cultural Landscape as Cultural Heritage of the Nation, the Anto Ruiz III and IV Hydroelectric Power Plant Project, the Antaña mining exploration project, the Corani mining exploitation project, and the Pinaya mining exploration project. Retrieved November 3, 2022, from: https://consultaprevia.cultura.gob.pe/proceso?title=&netapa=All&departamento=76&entidadespromotoras=All&tema=All

163 Constitutional Court, Plenary Ruling 652/2021, Exp. No. 01717-2014-PC/TC. https://tc.gob.pe/jurisprudencia/2021/01717-2014-AC.pdf


Valeria Cajia / DHUMA

consultation process in its sector, reiterating that the opportunity to carry out the consultation process must be prior and appropriate, before the approval, adoption, or authorization of the legislative or administrative measure that directly affects the indigenous and native communities. This means that any administrative act of the Ministry of Energy and Mines, referring to the mining concession phase, search (cateo), exploration, exploitation, mine closure and others to be identified, and which directly affect the communities, must be subject to a process of prior consultation within the framework of the principles of good faith, interculturalism, opportunity, flexibility, reasonable time, absence of coercion or conditioning and timely information, stipulated in ILO Convention 169. In this regard, the Ombudsman's Office in its Report No. 003-2016-DP/AMASPPII-PPII[164], stated that prior consultation should take place during the environmental assessment process, so that indigenous peoples can be involved and be certain of the aspects of special interest or concern to them.

164 Office of the Ombudsman of Peru (2016). Report N° 003-2016-DP/AMASPPII-PPII. About the prior consultation process of the La Merced mining exploration project. https://www.defensoria.gob.pe/wp-content/uploads/2018/05/05/Informe-N-003-2016-DP-AMASPPI-PPI-La-Merced.pdf

In accordance with international and national obligations, it is clear that the right to consultation and consent is enforceable in this context. Law No. 31283, a law declaring the exploration, exploitation and industrialization of lithium and its derivatives to be of public necessity, national interest and a strategic resource, was approved without the participation of the peoples involved. It is thus ignoring the provisions of ILO Convention 169, which in its Art. 6 indicates that an administrative and legislative measure that could directly affect indigenous peoples must be subject to prior, free and informed consultation[165].

And while the law is national in scope, the legislative history of the bill clearly demonstrates that it was motivated primarily by a political desire to exploit a large lithium deposit in Puno that is located on indigenous land and that will directly affect the indigenous communities living there. For example, the rationale before the Energy and Mines Commission of the Congress of the Republic related to the law's pre-determinations that resulted in Law 31238, included the following main consideration:

165 International Labor Organization ILO. Convention 169, 1989, Art. 6 and& 7. https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/documents/publication/wcms_345065.pdf

"In Peru, deposits containing lithium carbonate (rock) were reported to have been found, located mostly in the department of Puno, where exploration and exploitation are stagnated due to the lack of a special legislation that will promote investment for their development"[166].

Secondly, international law also requires that mining projects themselves be subject to a formal consultation process, involving affected communities at all stages of the project, including the preparation of an environmental impact assessment. To date, there is no indication that either the State or the companies involved have initiated any formal consultation process, despite the fact that the company has been preparing for mining in the area for years. Furthermore, given the enormous scale of the projects, as well as the potential for generating radioactive waste through uranium mining, these projects pose the threat of significant impacts and therefore require not only consultation, but the consent of the affected indigenous communities. This requirement is not mentioned anywhere in the technical-economic reports of the projects, nor in the impact assessments of the related explorations to date.

In this regard, it is important to point out that, although the State demands minimum participation requirements, which have been mentioned in the companies' technical-economic reports, they do not constitute a process of free, prior, and informed consultation and consent, nor do they comply with the standards of international law. For example, in their technical-economic reports, the companies allude to the requirement to hold a single public hearing to present an EIA, and to a public consultation process "with the participation of all interested and affected parties and communities"[167]. Nowhere in the technical-economic reports for the projects is it recognized that the Quechua indigenous communities that will be affected have the right to prior consultation and consent in this context, with all the safeguards developed in binding judgments by the Inter-American Court and under the framework of national and international law. It is also important to distinguish between the simple transfer of surface rights or obtaining agreements to access concessions, which will be discussed in a later section, and the right to consultation and free, prior and informed consent. Simple commercial transactions of surface and access rights conducted outside the framework of prior consultation established by international law threaten to undermine the ability of communities to adequately assess the project and its risks, as well as to secure reasonable benefits. In addition, there are indications that communities are not fully informed, as will be explained in the next section, suggesting that participation to date has failed to provide the information needed to make informed decisions.

American Lithium states in its human rights policy that "it respects the rights, interests, perspectives and traditions of Indigenous Peoples in accordance with the International Council on Mining and Metal's Position Statement on Indigenous Peoples and Mining, the International Labor Organization's Convention 169 and other applicable international best practice."[168]. It further states that American Lithium "seeks to collaborate with indigenous communities to protect cultural and spiritual heritage as well as the environment. The Corporation will adopt and implement engagement and consultation processes that ensure meaningful participation of indigenous communities in decision-making and planning processes."[169] However, the company also states that it "recognizes that the State usually plays the primary role in defining the processes related to seeking Free, Prior and Informed Consent. We are committed to meeting all legal requirements for any new operations or changes to existing projects which may have significant adverse impacts on Indigenous Peoples."[170] This suggests that the company would accept a deficient or absent consultation process by the State of Peru, and that consultation is only necessary if there are "adverse impacts". However, in order to comply with ILO Convention 169 and its international obligation to respect human rights, a consultation process that complies with international law must be carried out.

All of the above demonstrates that, to date, the implementation of the projects has not guaranteed the right to consultation and consent of the communities, and there is a considerable risk that the violation of these rights will not be resolved, to the detriment of the international obligations acquired by the Peruvian State.

2.5. Plateau Energy's legal problems with Canadian authorities

While Macusani Yellowcake has been subject to environmental sanctions in Peru, its Canadian owner Plateau Energy has had legal problems in Canada in relation to the Falchani project.

According to the Plateau Energy company itself, in February and June 2019, several of the Macusani Yellowcake concessions, including those related to the Falchani Lithium Project (Ocacasa 4), were declared invalid by Peruvian mining authorities (INGEMMET and MINEM) due to late receipt of the annual concession payments[171]. In November 2021, the Company reinstated its rights to the concessions in a Lima Court, but the judgment has been appealed.[172] If the Company does not obtain a successful resolution of the proceedings, Macusani Yellowcake S.A.C.'s title to a major concession related to the Falchani Project (Ocacasa 4) could be revoked[173]. The Ontario Securities Commission, Canada (OSC), responsible for enforcing Ontario's securities laws, initiated proceedings against Plateau Energy and its officers, alleging that they violated Canadian law by misleading investors regarding the initial decision by INGEMMET and MINEM, and the threat it posed to their mining rights in Peru. Specifically, the Commission alleged that the Company issued misleading press releases about the court proceeding and failed to disclose information about it in its filings with the financial authority. On November 2, 2022, a Canadian court approved a settlement agreement between Plateau Energy, the implicated officers and the Ontario Securities Commission, under which, among other actions, Plateau Energy and the officers were reprimanded, the implicated officers were prohibited from being directors of certain types of companies for one to two years, and Plateau Energy and the implicated officers were required to pay administrative penalties totaling US$750,000[174].

2.6. Duties of American Lithium and its subsidiaries

The acquisition of Plateau Energy and, in turn, the Falchani and Macusani projects in Puno, creates important human rights obligations for American Lithium and its subsidiaries. As both the Inter-American Commission on Human Rights and the Office of the United Nations High Commissioner for Human Rights have recognized, "it is widely accepted that the respect of human rights is a global norm of conduct applicable to all businesses in all situations, regardless of the existence of national laws that formalize it and of States' international obligations on the subject."[175]

166 Translation by the author. Bills Nos. 6195 and 7039. Opinion on Bills No. 6195/2020-CR and 7039/2020-CR, with substitute text, which proposes to declare the exploration, exploitation and commercialization of lithium as a public necessity, national interest and strategic resource. May 12, 2021, p. 12. https://leyes.congreso.gob.pe/Documentos/2016_2021/Dictamenes/Proyectos_de_Ley/06195DC11MAY20210512.pdf.

167 DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 30, 162-163. https://minedocs.com/20/Falchani_PEA_03192020.pdf.

168 American Lithium Corp. (June 10, 2021). Human Rights and Diversity Policy. p.2. https://americanlithiumcorp.com/wp-content/uploads/2021/06/American-Lithium-Corp.-Human-Rights-and-Diversity-Policy.pdf

169 Ibid. p. 3

170 Ibid. p.2

171 Plateau Energy Circular: Arrangement Involving Plateau Energy Metals Inc. and American Lithium Corp. (2021). Notice and Management Information for the Special meeting of Security holders of Plateau energy Metal Inc. Appendix G Information Concerning The Combined Company. Plateau-Energy- Metals-SM-Circular.pdf (plateauenergymetals.com)

172 Ibid. Global Newswire (November 25, 2021). American Lithium, Peruvian Court Confirms Appeals Filed Against Its Ruling. Globe Newswire. https://www.globenewswire.com/news-release/2021/11/25/2341283/0/en/Peruvian-Court-Confirms-Appeals-Filed-Against-Its-Ruling-Granting-the-Company- Ownership-Over-Disputed-Concessions t m l .

173 Plateau Energy Circular: Arrangement Involving Plateau Energy Metals Inc. and American Lithium Corp. (2021). Notice

174 Ontario Securities Commission (May 3, 2021). In the Matter of Plateau Energy Metals Inc., Alexander Francis Cuthbert Holmes and Phillip Neville Gibbs, Statement of Allegations. https://www.osc.ca/sites/default/files/2021-05/soa_20210503_plateau_energy.p d f .
Capital Markets Tribunal. (November 2, 2022). In the Matter of Plateau Energy Metals Inc. Alexander Cuthbert Holmes, and Phillip Neville Gibbs, Order, available at: https:// www.capitalmarketstribunal.ca/sites/default/files/2022-11/ rad_20221102_plateau_energy-2.pdf.

175 Inter-American Commission on Human Rights (2019). Office of the Special Rapporteur on Economic, Social, Cultural and Environmental Rights, Report Business and Human Rights: Inter-American Standards, paras. 177 and 196. Business HumanRights PDF (oas.org); OHCHR (2012). The Corporate Responsibility for Human Rights. Guidance for Interpretation. 1242258_HR_PUB_12_02_SPA.pdf (ohchr.org).

Nevado Quelccaya
Valeria Cajia / DHUMA

At a minimum, according to the Guiding Principles on Business and Human Rights, companies must refrain from infringing on the human rights of third parties and address adverse human rights impacts in which they have participated[176]. In addition, companies must "identify, prevent, mitigate and provide accountability for damages they cause, to which they contribute, or with which they are associated."[177] These obligations apply regardless of the structure through which companies do business[178]. American Lithium itself states that it "expects that each of its wholly owned subsidiaries that conduct mining and exploration operations will establish procedures to ensure compliance with [the human rights obligations] policy."[179] Such subsidiaries include Plateau Energy and Macusani Yellowcake.

At the national level, the companies involved are responsible for compliance with all Peruvian laws. In addition, under Canadian law, the Canadian companies, American Lithium and Plateau Energy, may also be held liable for potential violations of the human rights of local communities and other negative impacts they cause, directly or through their subsidiaries.

The Supreme Court of Canada has recognized that customary international law, including various human rights obligations, establishes standards of conduct that may apply to companies such as American Lithium, and that corporate liability for a breach of customary international law may arise as the primary perpetrator of the breach, or through complicity in the violation.[180]

176 See The Guiding Principles on Business and Human Rights, Numbers 11-24, available at: https://www.ohchr.org/sites/default/files/documents/publications/guidingprinciplesbusinesshr_en.pdf

177 Inter-American Commission on Human Rights (2019). Office of the Special Rapporteur on Economic, Social, Cultural and Environmental Rights, Report on Business and Human Rights: Inter-American Standards para. 150,98 (Citing Report of the Inter-American Court of Human Rights). Special Rapporteur of the Secretary-General on the issue of human rights and transnational corporations and other business enterprises, UN Doc A/HRC/17/31/21. March 2011, principle 15(b) and 17.

178 See Principle 13 and 14 of the Guiding Principles on Business and Human Rights.

179 American Lithium Corp. (June 10, 2021). Human Rights and Diversity Policy. https://americanlithiumcorp.com/wp-content/uploads/2021/06/American-Lithium-Corp.-Human-Rights-and-Diversity-Policy.pdf

180 Nevsun Resources, Ltd. v. Araya, February 28, 2020, paras. 105-14. https://decisions.scc-csc.ca/scc-csc/scc-csc/en/item/18169/index.do; see also Tamara Morgenthau, T. & Yap, J. (December 3, 2020).Nestlé & Cargill v. Doe Series: A Canadian Perspective - Takeaways from Nevsun Resources Ltd. v. Araya. Just Security.

In addition, other Canadian courts have recognized jurisdiction and venue over cases in which negligence tort claims have been brought against Canadian-based parent companies for damages suffered by local inhabitants in foreign countries where the companies' projects are located.[181]
Since American Lithium is headquartered in Canada (British Columbia) and is registered on the stock exchanges in the province of Ontario, it may be subject to the jurisdiction of Canadian courts in connection with its own operations and those of its subsidiaries in Peru[182].

In short, companies must respect human rights and remedy the harm they cause, and can be held liable in both Canadian and Peruvian courts if they fail to do so.

2.7. Mining strategies in the territory

We cannot make a general statement about the position of the rural communities with respect to the Falchani and Macusani projects without more extensive fieldwork. However, we can note that the companies involved and their representatives are confident in their ability to obtain surface rights and access to the mining areas from the communities, and claim that the communities "where we are working are pro-mining".[183] To provide context, in this section we will present the strategies that American Lithium and its subsidiaries have carried out to achieve the acceptance of their projects by the rural communities that inhabit the territories that would be directly and indirectly impacted by the lithium and uranium exploitation activities. The lack of information, the conditions of state abandonment of the communities, as well as the company's "social responsibility" activities that can generate divisions in the communities, together constitute a group of strategies and factors that allow and facilitate the establishment of extractive activities.

2.7.1. Lack of information on projects in the communities

The research carried out for this report indicates that limited information is shared with communities in the area of the projects' influence. Community members (*comuneros*) indicated that they were unaware of the process and the impacts that the exploitation of lithium and uranium could cause in their territories[184].

"We still do not have clear information, but we demand in advance the industrialization of lithium with clean technology, though not through a traditional exploitation of raw material, as this would not be beneficial for the population and the environment."

There is also a lack of clarity about the acquisition of Plateau Energy by American Lithium and its consequences. According to a local authority in the Macusani district, Macusani Yellowcake informed that Plateau Energy Metals merged with American Lithium to further the mining process.[185] However, such an explanation may obscure the fact that, as a result of it being in fact an acquisition, American Lithium owns 100% of Plateau Energy and has ultimate responsibility for mining operations in the area.

As these are rural communities that keep themselves permanently informed regarding developments in their ancestral territories, it was necessary to have explained the positive or negative consequences of this agreement and the implications of which company has the ultimate responsibility for decisions, company policy and operations.

181 Foreign lawyers', Amicus brief presented at Nestlé v. Doe I / Cargill v. Doe I, pp. 15-21 (explaining cases) https://www.supremecourt.gov/DocketPDF/19/19-416/158368/20201021124552826_Nestle%20Amicus%20Brief.Final.October.20.2020.pdf.

182 See, e.g., Choc v. Hudbay Minerals Inc, [2013] ONSC 1414, 50 (Can.); Caal v. Hudbay Minerals Inc, [2020] ONSC 415 (Can.) 2020-01-22-Decision-re-motion-to-amend- pleadings.pdf (chocversushudbay.com) (affirmed on appeal, Case No. CV-11-423077, Sept. 30, 2020) (Can.)).

183 DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 30. https://minedocs.com/20/Falchani_PEA_03192020.pdf; Revista Rumbo Minero. (December 2018). Interview, Ulises Solis, General Manager of Macusani Yellowcake: "Depósitos de Litio de Macusani Garantizan 40 Años de Explotación". Rumbo_Minero, (115), 28-29. https://www.rumbominero.com/ED115/Rumbo_Minero_Ed.115-Movil.pdf

184 Interview with DHUMA, August 2021, Carabaya, Puno.

185 Interview with DHUMA, August 2021, Carabaya, Puno.

It is important that this information is understood by a community that could be directly affected by the mining project.

The lack of information identified in the interviews is consistent with previous research. According to a report published in March 2020, "in general, the sources of information of the interviewees in relation to the lithium project are the media and social media. For example, in Macusani none of the interviewees had information from official sources or from the company, resulting in extremely vague knowledge about the progress and characteristics of the project, and their opinions had a lot of speculation."[186]

The flow of information between communities in the area presents difficulties, including restrictions associated with the Covid-19 pandemic[187] and long distances[188]. However, both the companies and the State must adapt and overcome these obstacles to guarantee the community's right to access information and participation. This means disseminating and circulating information in a transparent manner with a culturally sensitive approach and engaging all affected communities.

2.7.2. Agreements with communities, state neglect, and business strategies

Decisions made by communities are often conditioned by State neglect and corporate strategies. To exploit the mine, the company has to buy surface rights or secure access through agreements with local communities and landowners[189].

The Preliminary Technical-Economic Report for the Falchani Project reported that Macusani Yellowcake had agreements either in effect or to be renewed with the communities of Chaccaconiza, Isivilla, and Quelccaya, as well as an Independent Cooperative (Imagina) and several independent small landowners[190].

As a result, to date, the companies have used a model of short-term agreements and subsequent renewals[191]. Some have been economic agreements. A report in the magazine Hildebrandt en sus Trece, reported that the agreement signed with the community of Chacaconiza included the delivery of 100,000 soles, part of which was destined to the purchase of a vehicle. Similarly, the agreement with the community of Quelccaya to commence exploration work included the delivery of 165 thousand soles, even though Macusani Yellowcake did not have authorization to operate[192].

Although the making of agreements is part of the right to self-determination, it is important to note that the rural communities of the Corani and Macusani districts in the province of Carabaya, Puno region (Peru), have historically faced a context of neglect and exclusion by the Peruvian State in the implementation of public policies consistent with

186 Translation by the author. Vilca, P. (March 2020) The lithium exploitation project in Puno. Ford Foundation, Ser, p. 48. http://siar.minam.gob.pe/ puno/documentos/proyecto-explotacion-litio-puno.

187 The dynamics of the rural communities include meetings every 15 days, at the end of each month, or sometimes constantly, to discuss different topics and agendas related to reports, agreements or coordination within the framework of their uses and customs. Ancestral practices to discuss issues of communal interest were affected with the suspension of the exercise of the right to freedom of assembly in the context of Covid-19. On March 15, 2020, the daily activities of the inhabitants of urban and rural areas of Peru were interrupted by Supreme Decree No. 044-2020-PCM, which declared a State of National Emergency in the country. This measure forced Peruvian families to remain in mandatory social isolation (quarantine) as a consequence of the Covid-19 outbreak. During the emergency period in Peru, which lasted until 2021, certain constitutional rights related to personal freedom and security, inviolability of the home, and freedom of assembly and transit in the territory were suspended. The agglomeration of people was restricted, including community meetings, neighborhood meetings, and fairs, among others; it was also prohibited to move from one region to another, from one district to another, and from one campesino community to another.

188 Another aspect that limits people's ability to participate in meetings is the distance between rural communities, particularly in the districts of Corani and Macusani, which are very distant from the meeting points (community centers). Community members have to walk kilometers and travel rough roads to get to a meeting center.

189 Peruvian law does not vest surface rights with mineral rights and any proposed development requires the developer to purchase the surface rights or negotiate an appropriate access agreement with the owners of the surface rights in order to gain access to the property. See Texto Único Ordenado de la Ley General de Minería, Article 9.

190 DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 30, https://minedocs.com/20/Falchani_PEA_03192020.pdf.

191 Ibid

192 Hildebrandt en sus Trece No. 451(June 28, 2019) Cuidado con el uranio quoted in Vilca, P. (March 2020) El proyecto de explotación de litio en Puno. Ford Foundation, p.47, http://siar.minam.gob.pe/puno/sites/default/files/archivos/public/docs/informe_litio_en_puno_online.pdf

their reality and needs. The government's presence in the territories of the rural communities close to the lithium and uranium mining project is through the Tambo Aymaña,[193] located in the town of Aymaña in the district of Corani. From there, the Peruvian Government provides state services, such as medical attention, banking orientation, social programs, and trainings, among other services, covering the districts of Ajoyani, Corani, Macusani, Usicayos and Ituata in the province of Carabaya[194]. Despite this, the presence of the government is insufficient for the rural communities of Carabaya, due to its remote geographic location.

In the aforementioned two districts of Carabaya, community members live in precarious conditions, including a lack of accessible roads, lack of media to promote reliable information and education, poor internet service, inaccessible educational institutions, and low prioritization of camelid (alpaca) production, despite being declared the alpaca-breeding capital of Peru. Some experts point out that the government appears in the area only when mining projects arise, thereby generating resistance from the communities[195].

Such situations allowed the mining companies located in the territory of the Quechua rural communities to obtain social licenses in exchange for attending to some of the needs of their inhabitants, who subsist on their own means of production in light of the complete abandonment by the national government. An obvious example of this are the actions undertaken by the Macusani Yellowcake company in the rural communities of Isivilla, Chacaconiza and Quelccaya; the company constructed the main square, a school, and a small medical center, among other works, thus replacing the responsibility of the State towards its inhabitants[196].

According to American Lithium's website, the social responsibility programs promoted by the companies provide the following: employment for members of the Isivilla, Tantamaco, Chacaconiza, Quelccaya, Chimboya, Pacaje and Corani rural communities; assistance in the establishment of a drinking water treatment plant; road construction equipment loans for the community to improve its infrastructure; biannual health campaigns; sponsorship of educational programs; support for full-time teachers; sponsorship of festivals and local events; the Isivilla soccer field; and sponsorship of the monthly school milk program, among others.[197]

However, it is worth noting that certain benefits do not reach all affected communities. For example, according to the Preliminary Technical-Economic Report for the Falchani project, the annual comprehensive medical and nutritional campaign is only available to the five communities in the district of Corani.[198] And, as noted above, the Preliminary Technical-Economic Report for the Falchani project does not consider Quelccaya as one of the potentially affected communities[199]. A Macusani district official made the claim that foreign mining companies are dedicated to dividing the local populations, winning over community leaders and leaving the majority of the population aside. The official added that the companies "do not accept questioning from the people who are against mining activities; what the mining company says is law in the indigenous communities".[200]

193 Tambo is a center of attention of the Peruvian State towards the peasant communities, sectors, ayllus and others, located in areas far away from the city, such as a district, province or region.

194 .Ministry of Development and Social Inclusion (s/f) Welcome to Aymaña! https://www.pais.gob.pe/tambook/tambo/perfiltambo/index/id_tambo/10830#.

195 Mayer, S. & Vásquez C. (August 2018) Challenges and opportunities of lithium found in Puno. The Chamber. https://apps.camaralima.org.pe/repositorioaps/0/0/0/par/r7839_2/informe%20

196 Rumbo Minero Magazine (December 2018). Interview, Ulises Solis, General Manager of Macusani Yellowcake: "Depósitos de Litio de Macusani Garantizan 40 Años de Explotación". Rumbo_Minero, (115), 28-29. https://www.rumbominero.com/ED115/Rumbo_Minero_Ed.115-Movil.pdf

197 American Lithium (n.d.). Community Engagement. https://americanlithiumcorp.com/community-engagement-peru/.

198 DRA PACIFIC & PLATEAU ENERGY METALS INC. (2020). Falchani Lithium Project NI 43-101 Technical Report-Preliminary Economic Assessment, p. 162-163. https:// minedocs.com/20/Falchani_PEA_03192020.pdf.

199 Ibid. p. 172

200 Interview with DHUMA, August 2021.

Quelccaya snow-capped mountain
Vito Calderón/Dhuma

3. Conclusions

- Global efforts to transition from fossil fuels to renewable energy to reduce the greenhouse gases at the root of the climate crisis are driving an exponential increase in demand for “green minerals”, such as lithium, which is key to producing the batteries used for electric vehicles. This global rush for “green minerals” threatens to become yet another chapter in the long and damaging history of mining.

- The recent discovery of large quantities of lithium could include Peru in the “lithium triangle” initially formed by Argentina, Bolivia and Chile, with the main difference being that, in the case of Peru, the indicated lithium resources are found in hard rock and together with uranium.

- In light of the global demand for “green minerals,” the Peruvian government has rushed to promote lithium mining in Puno, declaring that the extraction and industrialization of lithium is of national interest. It has done so without establishing appropriate regulatory safeguards to protect the rights and health of local communities, local cultural heritage, and the environment, let alone addressing the presence of uranium, a radioactive substance that poses additional health and environmental risks.

- A deficient system of environmental oversight and protection at both regional and national levels has led to a lack of mitigation and remediation of damages caused by small and large-scale mining in Puno, as well as a lack of attention to people exposed to the heavy metals generated by these activities. This scenario could worsen if lithium and uranium mining are allowed while lacking an adequate regulatory framework and oversight by the local and national governments.

- The proposed Falchani (lithium) and Macusani (uranium) mining projects in Puno are owned by the Canadian company American Lithium through two subsidiaries: Plateau Energy (Canada) and Macusani Yellowcake S.A.C. (Peru). The projects, both open pit, are enormous and have a current net value of US$1,550 million and US$603 million, respectively. Mining activities are planned for the next three decades.

- The Falchani and Macusani projects are located on the Macusani plateau in the province of Carabaya, department of Puno, a geographic area difficult to access, at more than 4,500 meters above sea level. Although the number of affected communities could increase as more information becomes available, to date the following communities have been identified as potentially affected: Isivilla, Tantamaco, Corani, Chimboya, Paquaje, Chacaconiza and Quelccaya. These rural communities speak Quechua and are mainly involved in alpaca-raising and the production of alpaca fiber and meat processing activities, as well as agricultural activities.

- The Falchani and Macusani mining projects threaten the archaeological remains delimited in an Archaeological Landscape by the National Institute of Culture: rock paintings from the Archaic period in America that are declared National Cultural Heritage by the Peruvian government. Experts have pointed out that mining activity in the area would irreversibly damage this cultural heritage. However, the Ministry of Culture and the Ministry of Energy and Mines have not responded to requests for updates regarding these paintings, with the risk that the impact assessment of future mining activity on this cultural heritage is inadequate.

- Based on the preliminary technical-economic studies prepared for the companies involved, and the typical impacts of uranium and lithium mining, it is clear that the Falchani and Macusani projects could generate significant environmental and health impacts. These include impacts on the biodiversity of the high Andean eco-region and local water sources, as well as on human health. One of the most troubling elements of the project is the presence of uranium, which causes excessive levels of radioactivity when mined and may expose workers and the local population to high levels of radiation. Given the presence of uranium throughout the Macusani plateau, it is possible that any lithium mining operation will generate uranium as a byproduct.

- The overlapping mining concessions near the watershed divides of the Inambari, Urubamba and Azángaro basins, including concessions belonging to the companies involved, pose risks to the headwaters of these basins, representing a threat to the right to water and the continuation of a worrying pattern of headwater mining in Peru.

- The mining concessions belonging to the companies involved generate a potential threat to the largest tropical glacier in the world; this is an important Apu for the communities in the area and a source of water for the lagoons, streams, and rivers that supply fresh water to the population of the entire region. An example of this is the Quelccaya exploration project that included in its Environmental Impact Statement a portion of the Quelccaya ice cap in the area of indirect influence. Nearby concessions, owned by American Lithium, overlap directly with the center of the snow-capped mountain.

- One of the companies involved in the projects has already violated environmental regulations in connection with the development of these projects. Macusani Yellowcake was sanctioned for carrying out exploration without obtaining an environmental certification.

- In Canada, the Ontario Securities Commission, responsible for enforcing Ontario’s securities laws, initiated proceedings against Plateau Energy and its officers, alleging that they violated the law by misleading investors about their mining rights in Peru. A Canadian court approved a settlement agreement between Plateau Energy, the implicated officials and the Ontario Securities Commission, requiring Plateau Energy and the implicated officials to pay administrative penalties totaling USD$750,000

- The Peruvian State is not guaranteeing the right to Free, Prior, and Informed Consultation and Consent of the indigenous communities that could be directly affected by the lithium

and uranium mining projects in Puno and related legislation. The minimum participation requirements established by the State and mentioned in the companies' technical-economic reports, and the ongoing efforts to obtain access to land, do not comply with international law, nor do they appear to comply with American Lithium's own human rights policies.

- All companies involved, according to international standards, must respect human rights and address potential negative impacts that may result from their activities. The companies involved are not only responsible for compliance with Peruvian law; Canadian companies may also be held liable before Canadian courts for damages they cause, directly or through their subsidiaries.

- The companies involved are confident in their ability to obtain surface rights and access to mining areas from the communities and claim that the communities "where we are working are pro-mining". At the same time, there are several factors that seem to contribute to this apparent acceptance by the communities: the general lack of detailed information about the projects in the region; the scarce presence of the State and its services in the affected communities; the companies' social responsibility projects that make up for the absence of the State, but also create divisions; and the signing of agreements for the delivery of money to some communities.


Rainer Hosting

4. Recommendations

To the Peruvian State

- The Peruvian State must establish an adequate system of environmental oversight and protection at regional and national levels capable of mitigating and remediating the damage caused by mining activity, as well as providing care for people exposed to heavy metals generated by mining. This legal framework should directly address uranium mining, in addition to lithium.

- The Peruvian State should evaluate the potential impact that the Falchani and Macusani projects could have on the rock paintings. The State must provide the pertinent actions and resources to review and update the delimitation of the Corani-Macusani Archaeological Landscape of Cave Paintings, to place boundary markers in the updated perimeter, and to proceed with the registration of the perimetric plan with the respective registry offices of the National Superintendence of Public Registries.

- The Peruvian State should ensure that a capable and independent technical entity conducts an Environmental Impact Assessment of the projects in consultation with the affected communities, and that the environmental, health, and social impacts of the proposed projects are fully and transparently analyzed. This should include a comprehensive analysis of the impacts of the projects on the Quelccaya ice cap, regional water sources, biodiversity, rock paintings, and local communities, including the effects of excessive levels of radioactivity caused by uranium mining. The results of this study should be communicated to the affected communities, civil society, public authorities, and investors.

- The Peruvian State should conduct a fully informed and culturally appropriate consultation process in good faith with all communities that could be directly affected by the projects, consistent with its obligations under international law. The objective of the consultation should be to reach an agreement on the projects, including the establishment of reasonable benefits for the communities. The consent of the communities must be obtained. If the communities do not give their consent, the projects should not go ahead. Companies, as well as the State, must ensure the community's right to access information and participation. This means disseminating and circulating information in a transparent manner with a culturally sensitive approach to all affected communities.

- The Peruvian State must supervise these projects and ensure that the companies involved comply with their legal obligations. It should guarantee access to reparations for those who suffer damages caused by the companies' actions.

To Civil Society

- Civil Society should continue to monitor and investigate the Falchani and Macusani projects, and disseminate this information to the affected communities, the Peruvian, Canadian and international authorities, and the public.

- Civil Society must work to ensure that the Peruvian State and the companies involved comply with their legal obligations, respect the human rights of the affected communities, and remedy any damage caused.

To the Canadian authorities, and the Regional and International Organizations, including those of the Inter-American and UN systems

- Canadian and international authorities must monitor these projects and ensure that the companies involved comply with their legal obligations. They should also guarantee access to remedies for those who suffer damages caused by the companies' actions.

To Companies

- The companies involved must respect the human rights of the local communities, expressly recognizing that the affected communities have the right to free, prior, and informed consent, and must actively work with the Peruvian State to guarantee this right.

- Companies should ensure that affected communities are fully informed of the potential impacts of the project and avoid creating divisions within or between local communities.

- The companies involved must comply with all applicable legislation and remedy any possible negative impacts that may result from their activities.

LITHIUM AND URANIUM RESEARCH IN PUNO

Prepared by

With the collaboration of