ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 14, Issue, 04, pp. 65379-65384, April, 2024
https://doi.org/10.37118/ijdr.28155.04.2024

RESEARCH ARTICLE OPEN ACCESS

POTASSIUM PROJECT: EXTRACTION OF SYLVINITEON MURA INDIGENOUS LANDIN THE MUNICIPALITY OF AUTAZES – AMAZONAS

Antônio Ferreira do Norte Filho*[1], Luísa de Araújo Lima Comitti[2], Marcela Chaves Villela[3] and Anna Gabriela Soares Seabra[4]

[1]PhD Law Professor– Faculdade Santa Teresa (FST) – Manaus, Amazonas, Brazil; [2]Law Student – Faculdade Santa Teresa (FST) – Manaus, Amazonas, Brazil; [3]Law Student– Faculdade Santa Teresa (FST) – Manaus, Amazonas, Brazil; [4]Law Student – Faculdade Santa Teresa (FST) – Manaus, Amazonas, Brazil

ARTICLE INFO

Article History:
Received 18th January, 2024
Received in revised form
19th February, 2024
Accepted 27th March, 2024
Published online 30th April, 2024

Key Words:

Potassium; Mura Indigenous People; Autazes; Territory.

Corresponding author:
Antônio Ferreira do Norte Filho,

ABSTRACT

This research seeks to analyze the Potassium Amazonas Project - Autazes in the Municipality of Autazes, State of Amazonas, Brazil, on the Indigenous Land of the Mura Ethnicity, with the proposal for an enterprise focused on the extraction of potassium chloride from sylvinite with the objective of manufacturing of fertilizers to supply the Brazilian domestic market. Initially, the objective was to verify the entrepreneurial company's proposal with the negative impacts, the mitigating measures, as well as the positive impacts. Next, the Consultation and Consent Protocol of the Mura Indigenous People of the Municipalities of Autazes and Careiro da Várzea, Amazonas, Brazil, was discussed, as well as the distribution of the Mura Villages in that Amazonian territory. Finally, in the field of legality, it was observed the territorial interests and rights, cultural memory and ancestry of the Mura ethnic group in the dictates of the Convention of the International Labor Organization (ILO) 169/1989, figures in Process before the Federal Court in Amazonas.

Citation*: *Antônio Ferreira do Norte Filho, Luísa de Araújo Lima Comitti, Marcela Chaves Villela and Anna Gabriela Soares Seabra, 2024. *"Potassium Project: Extraction of sylviniteon mura indigenous landin the municipality of autazes – amazonas". International Journal of Development Research*, 14, (04), 65379-65384.

INTRODUCTION

The Potassium Project Amazonas – Autazes consists of carrying out an enterprise that aims to make use of mineral resources through underground mining and processing of sylvinite ore for the extraction of potassium chloride in the Municipality of Autazes, State of Amazonas, in the Indigenous Territory Wall. The proposed operation at the Autazes mine, Amazonas, will occur through the drilling of wells approximately 800 meters deep using the chamber and pillar method, in which the mineral sylvinite is extracted and separated from the potassium chloride – fertilizer that is extracted to the surface and sound chloride – table salt that will be returned to the pillars underground. The project consists of an underground mine from where the ore will be transported to the surface, separating the Potassium Chloride from other materials. A road of approximately twelve kilometers will be built to transport the product to the port where it will be transported on barges to the rest of the country. There will be 2.4 million tons per year from a market of something around 12 million tons. The Autazes mine will be responsible for around 20% (Espeschit, 2022). According to Potássio do Brasil, due to the need for energy to carry out the project, a transmission line will be implemented from the Tucuruí Line, with benefits for the entire Autazes region as its route passes close to cities that currently It obtains its energy by burning diesel. In accordance with the Environmental Impact Report, it is expected that the project will last for approximately 35 years and will generate around 8 thousand direct jobs and 17 thousand indirect jobs in the full operation phase. The Federal Attorney, in turn, acts in the present context, through a Public Civil Action filed in 2016, with a view to protecting the rights of the Mura People, seeking judicial protection to declare the illegality of mineral exploration on that land. indigenous people, as well as the incompetence of the state environmental agency in granting environmental licensing to carry out the project's activities.

MATERIALS AND METHODS

The methodology relating to this research has as its fundamental objective the discovery of answers to problems, through the use of scientific procedures (Gil, 1994), presenting, in terms of nature, the objective of contributing new knowledge to science, translating as basic research. As for the objectives, it aims to provide greater familiarity with the problem, aiming to make it more explicit, classifying itself as exploratory and descriptive research. As for the approach, it consists of qualitative research seeking to deepen the

understanding of the relationship between the topic studied, that is, the primordial link between the objective universe and the subjectivity of the subject. Qualitative research answers very particular questions. In the social sciences, it is concerned with a level of reality that cannot be quantified, that is, it works with the universe of meanings, motives, aspirations, beliefs, values and attitudes, which corresponds to a deeper space of relationships , processes and phenomena that cannot be reduced to the operationalization of variables (Minayo, 2001), as well as quantitative research since it presents numerical representation based on information, classifications and analyzes using statistical resources and techniques. Quantitative research, which has its roots in logical positive thinking, tends to emphasize deductive reasoning, the rules of logic, and the measurable attributes of human experience (Gerhardt and Silveira, 2009). Regarding methodological procedures, this research was based on the method consisting of a Case Study, a unique type, which consists of one of the many ways of carrying out research in social sciences. Experiments, surveys, historical research and analysis of information in archives (such as in economic studies) are some examples of other ways of carrying out research. Each strategy has its own advantages and disadvantages, basically depending on three conditions: (a) the type of research question; (b) the control that the researcher has over actual behavioral events; and (c) the focus on historical phenomena, as opposed to contemporary phenomena (Yin, 2017). To carry out this study, bibliographical research on the topic covered was carried out using books, articles, magazines, theses and dissertations focused on the theme, using printed documents resulting from publications and scientific works as the primary source.

RESULTS AND DISCUSSIONS

The Potassium Project to be implemented by the company Potássio do Brasil in the Municipality of Autazes, Amazonas, aims to extract potassium chloride, which is currently imported around 95% from countries such as Russia, Germany, Canada and Israel. Currently, Brazil has a single potassium chloride extraction mine in operation in the Municipality of Rosário do Catete, Sergipe, which is expected to cease operations in five years, making the country 100% dependent on imports of the mineral. According to the Ministry of Mines and Energy, Brazil is the country with the highest level of potassium imports in the world and there is the extraction of at least another 80 minerals, thus making mining an excellent component of the national economy. Mining, like any exploratory activity, can affect ecosystems, causing the possibility of risks which must be analyzed, measured and controlled through a risk matrix that consists of a tool for measuring, evaluating and ordering predictions of events that may affect the objectives of the enterprise. In context, it is essential to point out the constant occurrence of accidents involving mining in Brazil, highlighting among the most obvious, Maceió, Brumadinho and Mariana, where irreparable losses occurred in all aspects, such as lives, environmental and property damage, including the significant level of risk of occupational accidents occurring during the construction and operation of the project.

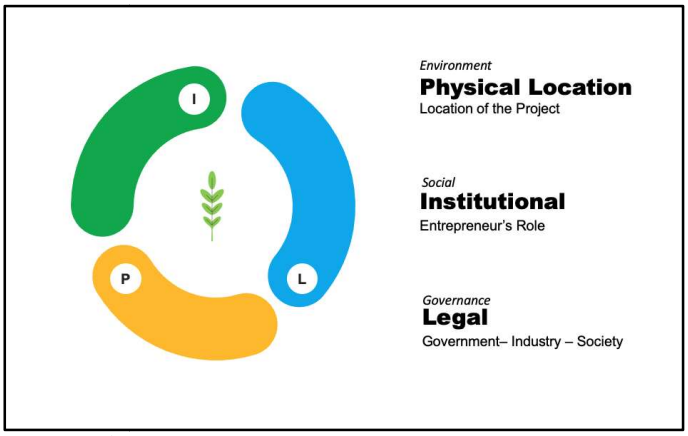
Hence the importance of specific studies, aiming to cover all possible possibilities of negative externalities for which solutions and mitigating measures must be foreseen as a way of eliminating, reducing or minimizing the predicted negative impacts. According to Technical Opinion No. 719/2022-SPPEA/PGR of the Attorney General's Office in Amazonas - Federal Attorney in Amazonas, the PotassiumAmazonas Project - Autazes envisages the construction of an industrial plant comprising a processing plant, pump house, access, area for disposal of waste piles, industrial drainage reservoir, landfills and construction site, occupying an area of 110 hectares. In addition to the ore processing plant, to be built at the headwaters of Lake Soares, the project envisages the implementation of a port to transport production in the village of Urucurituba, on the left bank of the Madeira River, and a road connecting the two locations. (Soares-Urucurituba). Sylvinite processing will be carried out using the hot leaching method, resulting in the estimated production of 2.16 million tons per year of potassium chloride and 1.1 million tons per year of sodium chloride. Over 3 decades of operation, gross ore production of around 227 million tons is expected, including around 62 million tons of sylvinite (potassium chloride) and 165 million tons of other substances, mainly halite (potassium chloride). sodium) and insoluble. Considering the possibility of converting approximately 30 million tons of sodium chloride into a secondary commercial product, approximately 135 million tons of production waste would remain. In the end, around 126.5 million tons of saline and clayey waste will have to be sent to fill cavities that have already been mined. During the first years of operation, it will not be possible to reintroduce waste underground and, for this reason, around 8 million tons of waste will be disposed of in a pile to be built close to the industrial plant. Any leftover solid waste generated throughout the mine's operation will also be disposed of in the same pile.

Saline effluents (brine) generated will be contained in reservoirs or septic tanks specially built for this purpose and subsequently injected into deep aquifers. The infrastructure of the river port in Urucurituba was planned to accommodate at least 20 barges of 2,000 tons each, also including a berth, four floating piers and a storage shed. The road to be built between Lago do Soares and Vila Urucurituba should promote the expansion and paving of an existing unpaved local access. It is planned to mobilize 4,700 workers in the mine's installation phase, and 1,310 workers in the operation phase, of which 580 in the mine and 730 distributed between the processing plant, the port and other support points. And according to the steps mentioned above, it is observed that the level of risk and consequent control of each event in the process must be methodically analyzed. It is observed that one route uses the flotation process and the other uses hot leaching/crystallization. The flotation method can be used as the only concentration process or as a final concentration stage to obtain high-content products. The separation process occurs using air bubbles that, through their electromagnetic characteristics (positive or negative affinity) and the hydrophobicity characteristics of the materials (some particles “prefer air to water”).

In this way, this small-grained material is adhered to the bubbles that then concentrate in the upper part of the tank, which remain on the surface in the form of foam. Thus, this foam is collected from the tanks forming the stereo ore isolation cycle. This process occurs in a sequence of tanks to increase the residence time of the ore in the system, and as a consequence greater success in recovering the material of interest. For flotation to happen, 3 events are necessary: collision, adhesion and transport. As for the hot leaching/crystallization method, it is carried out by injecting hot water that dissolves the potassium chloride in the rock. After this, the water is cooled, thus causing the salt to return to a solid state and subsequently separate from the water. This technique has the advantage of allowing the separation of ore with a large amount of clay and other water-insoluble materials. Laboratory tests were carried out by the German company Ercosplan and evaluated the two available technologies. Both methods are similar in terms of the level of environmental impact and differ in the level of utilization, which is greater in the leaching process. According to the Environmental Impact Report (RIMA), the Potássio Autazes Project involves the implementation of around thirty socioeconomic and environmental programs aimed at economic and social development, the rational use of natural resources, as well as environmental preservation. The Strategic Support Program for the Urban, Institutional and Legal Readjustment of Autazes aims to prepare the Municipality of Autazes, Amazonas, Brazil, for the positive and negative impacts that the Potássio Project brings with it. With the exploitation of ore, the explored regions and those close to them will suffer significant impacts in physical, biotic, social, cultural, legal and institutional forms. Mining causes serious ecological and social disturbances in the spaces where it is carried out, the effects of which are far-reaching. Therefore, there is an intense debate regarding the relationship between mining activity and socioeconomic development processes, particularly Sustainable Development processes (Enríquez, 2007). Aiming to reduce these impacts, the project foresees programs associated with risk and location that aim to reduce, support and encourage qualified public actions, preparing the municipality to meet

the demands that will be harmed. The Potássio Project, represented by Potássio do Brasil, in addition to the Municipality of Autazes, also developed programs aimed at the indigenous lands (TI) that will be affected, which will be based on the booklet filed by the Mura people, which contains the criteria for defining the aspects that may or may not affect these people. Such programs must be previously discussed with the Mura Indigenous People. Meetings have been held between the company Potássio do Brasil and the Mura ethnic group with the aim of including these people in the various stages of the project and, also with a view to avoiding or minimizing the negative impacts causing possible losses to those people. The Programs are subdivided into three structural needs which need to be fully met so that economic activities and population growth do not generate negative pressure on the region to be explored. These needs are physical, institutional and legal. The effects generated by mining activities are not watertight, that is, they do not affect just one dimension, but rather all socioeconomic, environmental, political-institutional, techno-global, territorial-social dimensions, etc., therefore. One dimension is closely associated with the others, generating chain effects, often unexpected, synergistic, cumulative and, rarely, belonging to the field of so-called "critical uncertainties". Hence the need for a systemic view to be effectively incorporated into public and corporate policies (Enriquez, Fernandes and Alamino, 2011). Regarding the prediction of negative impacts, there are subdivisions, such as impacts on the physical environment, biotic environment and socioeconomic environment, with programs provided for mitigating actions for each negative impact envisaged, as observed:

Programs aimed at mitigating negative impacts must be presented to the Mura People to be discussed and eventually readjusted according to the observations and participation of that ethnic group as a way of mitigating territorial pressure and the consequent interference in cultural heritage. About positive impacts, these are accompanied by projects to strengthen and enhance the proposed environmental, social and economic benefits aimed at community well-being and socioeconomic development in the region covered by the project. In effect, it is possible to observe the possibility of mutual benefits occurring for society, for the Public Power and for the entrepreneur, to simultaneously achieve the objectives of economic development with socio-environmental development for the benefit of present and future generations. After the end of the project, and the consequent dismantling of the equipment, it is planned to release the entire area used in the project so that recovery can occur through environmental readjustment, through a drainage system, surface recovery, recomposition and enrichment of the coverage. vegetable. The strengthening of the local economy will be maintained, with a focus on rebalancing, readjusting, and qualifying project workers, as well as the continuity and maintenance of public and NGO partnerships established before or during the process. In verified practical cases, according to Sánchez (1994), several mines continue to present residual impacts many years after their closure, he states that acid mine drainage is one of the most serious cases of environmental impacts whose long-term management is not restricted to management programs. revegetation, which may include, in many cases: a) maintaining the stability of tailings retention structures; b)



Source: Authors, (2024)

Figure 1. Structural needs of the region to beexplored

FÍSICO

RISKS	PROGRAMS
Risk of changing air quality	Air Quality Monitoring Program
Risk of changing noise levels	Noise Control Program
Risk of erosion	Erosion Prevention Program
Risk of changing the quality of surface and underground water	Surface water and groundwater quality control program
	Soil Change Monitoring Program
	Waste and garbage management program

Figure 2. Negative impacts and mitigating actions on the physical environment

RISKS	PROGRAMS
Risk of reduction of native plants	Program to support sustainable fishing in Lake Soares
Risk of increased deforestation and the formation of forest islands	Fauna and flora rescue program and reforestation of an area 10 times larger than the project
	Degraded areas recovery program
	Forest fire prevention and combat program in the region
	Operational program for the suppression and use of forest resources
Risk of reduction of wild animals due to isolation, fragmentation, chasing away, trampling and increase in unauthorized hunting	Animal and plant monitoring program
Risk of reduction of aquatic species due to changes in the environment, potential water contamination and increased fishing	Environmental compensation program
Risk of increased incidence of disease-transmitting insects	Disease-transmitting insect control program
	Environmental education program
	Project closure plan

Source: Environmental Impact Report, (2015)

mechanisms that prevent the remobilization of chemical elements and compounds and the pollution of aquifers or surface water sources; c) monitoring these conditions; and d) insertion of the mine site in the regional socioeconomic context, which, once the project is deactivated, measures can be inserted to minimize the social impacts resulting from the closure of the mines.

to any projects carried out within the scope of their territory or their legitimate interests. As prescribed in the protocol, non-indigenous people must consult the Mura People, through a document addressed to organizations representing the ethnic group, with a view to scheduling official public meetings, attended by the entire Mura indigenous community, for joint feasibility discussions.

EIO FÍSICO

RISKS	PROGRAMS
Risk of population increase, increasing pressure on already scarce public services	Commitment to hire at least 80% of workers from the project region, including indigenous people
	Plan to support strategic planning and public services in Autazes
Risk of generating expectations and frustrations	Socioeconomic indicators monitoring program
Risk of nuisance to the population, especially in cities and towns, due to the increase in population	Communication and community participation program
	Noise Control Program
	Air quality control plan
Risk of increase in vehicles	Traffic education program
Risk of damage to archaeological sites	Archaeological rescue and valorization program
	Recovery plan for degraded areas
Risk of increased social problems (drugs, prostitution and violence, unwanted pregnancies and infectious diseases)	Disease Prevention Program

Source: Environmental Impact Report, (2015)

Figure 3. Negative impacts and mitigating actions in the biotic environment - fauna and flora

IMPACTS	PROGRAMS
Job generation	Workforce Training Program
Increase in tax collection	Incentive program for local merchants and suppliers
Increase in population income	Program to encourage economic diversification and support sustainable initiatives
	Environmental education program
	Endemic disease prevention program
	Support program for extractive, agroecological and sustainable fishing activities
	Program for reforestation and conservation of flora and fauna, springs, air, soil and water
	Archaeological rescue and preservation program with support for Museum
	Implementation of agroforestry systems in degraded areas

Source: Environmental Impact Report, (2015)

Figure 4. Negative impacts and mitigating actions on the socioeconomic environment

EIO FÍSICO

RISKS	PROGRAMS
Risk of population increase, increasing pressure on already scarce public services	Commitment to hire at least 80% of workers from the project region, including indigenous people
	Plan to support strategic planning and public services in Autazes
Risk of generating expectations and frustrations	Socioeconomic indicators monitoring program
Risk of nuisance to the population, especially in cities and towns, due to the increase in population	Communication and community participation program
	Noise Control Program
	Air quality control plan
Risk of increase in vehicles	Traffic education program
Risk of damage to archaeological sites	Archaeological rescue and valorization program
	Recovery plan for degraded areas
Risk of increased social problems (drugs, prostitution and violence, unwanted pregnancies and infectious diseases)	Disease Prevention Program

Source: Environmental Impact Report, (2015)

Figure 5. Positive impacts of the enterprise

The Mura Indigenous People have a population of approximately 15,000 indigenous people distributed in 46 villages located in the Municipalities of Autazes and Careiro da Várzea. Despite belonging to the same ethnic group, the Mura people do not have a general chief, each village has its own leadership exercised by Tuxauas. Although each village has its own composition, indigenous organizations were created so that decisions about ethnicity are taken in accordance with the wishes of the community, thus, there is the Mura indigenous council (CIM) and the Mura do Careiro da Várzea Indigenous Leadership Organization (OLIMCV) whose role is to hold assemblies, meetings and meetings in which decisions are taken in a democratic manner, observing the customs and culture of that people. In the process of mineral extraction of potassium on their lands, the Mura rely on the Consultation and Consent Protocol of the Mura Indigenous People of Autazes and Careiro da Várzea, Amazonas, which consists of an instrument with the objective of safeguarding their rights, standardizing actions of non-indigenous people in relation

Monitoring the sustainability of the sector's activities can contribute to the reduction of social conflicts and, therefore, represent contributions to the process called social license to operate at its three levels: acceptance, approval and identification of the community with the enterprise, which is reflected in the culture and history of the territory (Mota et al., 2017). Strict observance of the consultation and consent protocol is fundamental to the territoriality where 46 Villages of the Mura Indigenous People are in the Municipalities of Autazes and Careiro da Várzea in Amazonas. The legal requirement to carry out the consultation whenever there is any work, policy, action or program that directly or indirectly affects the original peoples is established in the International Labor Organization (ILO) 169, promulgated by Brazil through Decree No. 10,088 of December 5, 2019, protecting the right to consultation through appropriate procedures, also safeguarding the right to self-determination and self-government, in which the Mura people themselves will decide the best way to be consulted.

EIO FÍSICO

Figure 6. Division of Mura Indigenous Villages in the Municipalities of Autazes and Careiro da Várzea

REGION	VILLAGE
BOCA DA ESTRADA	Moyray
	São Félix
	Cuia
	Natal
	Poranga
	Ponta das Pedras
	Guapenu
	Muratuba
	Capivara
	Igarapé-Açu
	Paurú
	Pantaleão
Total Of Villages	12
REGION	VILLAGE
CAREIRO	Santo Antonio
	Jutaí
	Bom Futuro
	Boa Vista
	Jacaré
	Jabuti
	Sessaíma
	Gavião
	Mutuquinha
	Mura Tucumã
	Ponciano
Total Of Villages	11
REGION	VILLAGE
MADEIRA	Josefa
	Miguel
	Terra Preta
	Sampaio
	Ferro Quente
	Tukuxi
	Remanso
Total Aldeias	7
REGION	VILLAGE
RIO PRETO	Aldeias
	Trincheira
	Vida Nova
	São Pedro
	Padre
	Taquara
Total Of Villages	6
REGION	VILLAGE
MURUTINGA	Murutinga
	Tauari
	Caranai
	Jauari
	Pataua
	Terra Preta
	Vista Alegre
Total Of Villages	7
REGION	VILLAGE
PARANÁ DO AUTAZ-AÇU	Soares
	Paracuhuba
	Urucurituba
Total Of Villages	3
TOTAL REGIONS	TOTAL OF VILLAGES
6	46

Source: Mura Consultation and Consent Protocol, (2019)

In the judicial context, in 2016, the Federal Public Ministry in Amazonas, with a view to protecting the rights of the Mura People, filed a Public Civil Action before the 1st Federal Court of Amazonas, to seek judicial protection for the declaration of illegality of the exploitation of ore on that indigenous land, which resulted in Judicial Process No. 0019192-92.2016.4.01.3200. In August 2023, in an Interlocutory Decision, the Court of the 1st Federal Court of Amazonas suspended potassium exploration activities in the Municipality of Autazes, as it understood the incompetence of IPAAM, the state environmental agency to grant licensing, rendering all administrative acts relating to the enterprise licensing process. The Amazonas Environmental Protection Institute (IPAAM) filed an Appeal against the aforementioned Judicial Decision and in October 2023, the Federal Court of Appeals of the 1st Region, outright revoked the 1st Degree Interlocutory Decision, under the understanding that it is not up to the Judicial power interferes in the administrative sphere to the point of preventing the legitimate action of another power, therefore deciding that IPAAM is competent to grant a license to the potash exploration enterprise in Autazes Amazonas. In April 2024, the company Potássio do Brasil received the Installation License (LI) for the Amazonas Autazes Project, granted by the Amazonas Environmental Protection Institute (IPAAM), in order to allow the start of work on the mine for the exploration of chloride of potassium in the Municipality of Autazes.

CONCLUSION

In the present study topic, it is of utmost importance to strictly observe and comply with what is prescribed in the Consultation and Consent Protocol regarding projects in the context of the territory and indigenous interests, as well as taking preventive actions in a social, institutional and legal to avoid possible irreparable socio-environmental damage. The good news is that no mine is installed overnight; its impacts and consequences, highlighting local specificities, are well known, which allows preventive action as long as there is an institutional political environment that favors prospective vision and proactivity. This has to do with the context in which the project is inserted, and that is why projects need to adhere to the location and territory, as it includes, and is the result of, all dimensions whose relative weights depend on the specific conditions that have been established over the years (Enríquez, Fernandes and Alamino, 2011). In another turn, the entrepreneur must comply with the dictates of the norms and conventions provided for in specific legislation and administrative rules, to practice an activity that, although economic in nature, does not forget the importance of human dignity and environmental components in favor of collective interests based on the principles of balance, prevention and precaution, among others, according to the needs identified in each case. In accordance with the Brazilian Federal Constitution, sustainability, under the mantle of protecting environmental principles, is consolidated in the conciliation of the right to socioeconomic development with the protection of the Environment as a common good for all, with a view to the rational use of natural resources and to the well-being of the community to whom, together with the Public Power, bears the legal responsibility of preserving (conserving) and defending this relevant heritage for present and future generations.

REFERENCES

Constituição da República Federativa do Brasil. 1988. Brasília: Senado Federal.

Convention nº 169, 1989. International Labor Organization on indigenous and tribal peoples. Geneva: International Labor Conference – 76th Session

Decreto nº 10.088, 2019. Consolida atos normativos editados pelo Poder Executivo Federal que dispõem sobre a promulgação de convenções e recomendações da Organização Internacional do Trabalho - OIT ratificadas pela República Federativa do Brasil.Brasília: Diário Oficial da União.

Enríquez, M. A. R. S. 2007. Maldição ou Dádiva? Os dilemas do desenvolvimento sustentável a partir de uma base mineira. Brasília: Tese de Doutorado. Centro de Desenvolvimento Sustentável, Universidade de Brasília..

Enríquez, M. A. R. S.; Fernandes, F. R. C; Alamino, R. C. J. 2011. A mineração das grandes minas e as dimensões da sustentabilidade. Recursos Minerais & Sustentabilidade Territorial: grandes minas. Rio de Janeiro: CETEM/MCTI.

Espeschit, A. 2022. A produção nacional de fertilizantes e seus impactos econômicos, ambientais e sociais. Brasília: Ministério Público Federal (MPF) - Procuradoria-Geral da República (PGR).

Gerhardt, T. E.; Silveira, D. T. 2009. Métodos de Pesquisa. Porto Alegre: Editora da UFRGS.

Gil, A. C. 1994. Administração de Recursos Humanos. São Paulo: Atlas.

Golder Associates. 2015. Relatório de Impacto Ambiental. Autazes: Projeto Potássio Amazonas Autazes.

Minayo, M. C. S. 2001. Pesquisa social: Teoria, método e criatividade. Petrópolis: Vozes.

Mota, J. A; Maneschy, M. C; Souza-Filho, P. W. M; Torres, V. F. N; Siqueira, J. O; Santos, J. F. dos; Matlaba, V. 2017. Uma proposta de indicadores de sustentabilidade na mineração. Brasília: Sustentabilidade em Debate

Parecer Técnico nº 719/2022-SPPEA/PGR. 2022. Procuradoria da República no Amazonas. Brasília: Ministério Público Federal.

Sánchez, L. E. 1994. Gerenciamento ambiental e a indústria de mineração. São Paulo: Revista de Administração.

Seção Judiciária do Amazonas. 2016. Processo Judicial nº 0019192-92.2016.4.01.3200. Manaus: 1ª Vara Federal do Amazonas.

Trincheiras Yandé Peara Mura, 2019. Protocolo de Consulta e Consentimento do Povo Indígena Mura de Autazes e Careiro da Várzea, Amazonas. Manaus: Instituto Pacto Amazônico.

****