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INFORMAL AND ILLEGAL MINING: SOCIAL, ECONOMIC AND ENVIRONMENTAL SCOPE IN PERU

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Abstract: This study was carried out with the purpose of analyzing the informal and illegal mining activity in Peru, through different recognized sources, focusing on the aspects that it reaches: social, environmental and economic scope, highlighting the importance of providing the most affected vulnerable populations with the tools that allow them to develop such activity within the national legislation and thus enhance their economic growth, also developing as a contribution, a unified commission that allows regulating and improving working conditions, This will provide protection for individuals, the environment, water, soil and air, with the commitment of state entities, private companies and citizens, to reverse the harmful effects of mining activity and leverage environmentally responsible productivity for the better future of the country.

Keywords: illegal mining, environmental contamination, sustainability.

INTRODUCTION

Peru is widely recognized for its geological wealth throughout the national territory, taking into consideration the great extension of gold, silver and bronze deposits it possesses, which is why it has become a promoter of extractivism (Glave, 2007). According to Mamani et al. (2022), it is also the fourth largest producer of lead in the world, which is why it is exposed to the environmental contamination produced by both formal and informal mining.

In this regard, Glave and Kuramoto (2002) noted that “Peruvian mining is mainly oriented to the foreign market and is the economic sector that contributes most to the trade balance, with about 45% of total exports”, however, the low availability of skilled labor at the local level, prevents the maximum economic use, reducing it to only 5% of national GDP and between 2 to 3%

of employment in the country. In addition to the above, Martínez (2013) confirmed that constant socio-environmental conflicts have arisen between the country’s mining companies and the community, due to the profound environmental impact derived from mining exploitation due to the high demand for these raw materials by industrialized societies.

In this sense, this study proposes an analysis of informal and illegal mining, highlighting its scope in the social, economic and environmental spheres in Peru and thus providing a perspective of the current reality, also highlighting the involvement of the Peruvian State in the resolution of such conflicts and the application of appropriate regulations to promote the expansion of this activity in a safe manner to ensure long-term sustainability, leveraged on foreign investment from countries such as China, mainly.

INFORMAL AND ILLEGAL MINING IN PERU FROM A SOCIAL, ECONOMIC AND ENVIRONMENTAL PERSPECTIVE

Informal and illegal mining is a consequence of the lack of effective laws and poor management by State entities to enforce such regulations (Gallardo et al. 2013). To the detriment of this, the manual exploitation of minerals, especially gold, has been a source of economic resources for certain sectors of the population, mainly where there are high rates of poverty and where there has been a lack of labor and professional alternatives for a long time. In line with the above, Glave (2007) stated the following:

“It is necessary to design and implement policies that promote economic diversification and generate incentives for investment in economic activities in mining areas. Likewise, it is necessary for the State to make complementary investments that increase the impact of the canon and

royalties, among other measures. But we also forget that in order to design and implement policies we must have a solid knowledge of the subject”.

Roma (2021) also argued that informal mining is a major problem in Peru and also in countries such as Ecuador, Bolivia and Colombia, with serious environmental impacts and repercussions in sensitive areas such as human trafficking and the financing of organized criminal groups. Another aspect to consider in this particular, according to Chavez (2022), is the significant number of producers, which in many cases can access highly damaging productive means in an economy of scale that cannot be neglected, capable of generating significant mineral production.

Manrique and Sanborn (2021) pointed out that the lack of specialized supervision and the correct use of equipment and resources has become a constant warning for workers and State entities, who could receive both national and international sanctions for damages to workers and the environment. Suárez (2014) also argued that it is important to create various legislations to formalize mining in the most remote villages in order to guarantee the health and safety of people, tax collection, conservation of the natural heritage and the development of sustainable economic activities.

Similarly, Brou (2019) noted that having a territory rich in minerals and a large number of borders make the country particularly vulnerable to illegal or informal mining and, in particular, to drug trafficking. Likewise, Acosta (2014) highlighted that illicit mining activities that gather large amounts of money are related through activities such as lobbying, campaign financing, and similar activities, in various state sectors, making it seem to be left aside when analyzing in depth the impact of money in politics. As a complement to this,

the World Bank report (2005) published the following:

Illicit mining is deeply rooted in Peru and is connected to other illicit activities such as drug trafficking and human trafficking. Therefore, it is of utmost importance to analyze the link it maintains with Peruvian politics, and thus unveil the ways in which these activities remain outside the law.

Meanwhile, in relation to environmental contamination, this report, together with the research of Gianoli et al. (2019), showed that the amount of microbial contamination present in the water is alarming, because they are closely related to ecosystems and human health, demonstrating that high concentrations of total coliforms and thermotolerants would be related to its proximity to urbanized areas of the city of Puerto Maldonado. According to Kambuta and Ulloa (2020), this situation could be reversed by considering the response capacity of the institutions in charge of preventing, monitoring and controlling irregularities within the national territory, guaranteeing sustainability.

Certainly, the national economy is based on mining activity; however, the expectations created by such development are interrupted by environmental damage, on the one hand, and by limitations in the use and distribution of mining revenues, on the other. Both facts are causing social conflicts, to the point that they could discourage investors and affect the initiation of new projects, thus causing what has been called “the curse of natural resources” (Acosta, 2011).

The above is reflected in detail in the World Bank’s Sustainability Report (2005), which mentions several aspects that truncate the country’s socioeconomic progress, evidencing the scope of mining activity in the social aspect, such as:

- Lack of knowledge and awareness on the part of the population on environmental issues related to mining operations;
- The absence of baseline information to measure the quality of the environment and the risks derived from environmental liabilities;
- The widely held view that environmental quality and economic growth are incompatible objectives;
- A weak institutional framework, including the absence of an independent central environmental authority with oversight capacity;
- Lack of financial and human resources in the sectoral environmental unit under the Ministry of Energy and Mines (MEM) to enable it to carry out its tasks efficiently.

Addressing the aforementioned points is a pending task for the National Government that, when solved, will benefit society by reaching the expected economic and social balance, achieving a successful and compatible approach between environmental quality and economic development, through the design of competitive strategies, thus minimizing negative indicators such as mining environmental liabilities, so that it is also possible to reduce the collective feeling of unease among the most vulnerable communities.

Another research to highlight is that of Luque (2021), who highlighted the environmental impact caused by illegal mining, in relation to deforestation in the southeastern Peruvian Amazon, Madre de Dios Region (Puerto Maldonado - Inambari), based on the following findings:

The advance of alluvial gold mining, influenced by the paving of the interoceanic highway and the rising price of gold, is the

main agent of deforestation, and to a lesser extent, the expansion of the agricultural frontier, cattle ranching, and forestry activities. This has resulted in a deforested area of 55,426 ha, which represents an annual rate of change in coverage of - 0.22% and an average annual deforestation rate of 3,246 ha/year.

The above coincides with Lozada (2017), highlighting that illegal and informal mining continues to increase over the years, causing damage to the environment and generating, in addition to deforestation, other criminal activities, which is why it currently represents the biggest environmental, economic and social problem in the country. Previous studies have shown that between 2006 and 2011, the deforestation rate grew 425%, so that when in 2006 deforestation was 2010 hectares per year, during 2011, it reached 8536 hectares per year at the national level (Luque, 2021).

Regarding this situation, Smits et al. (2020) stated that government and development entities have initiated efforts to formalize artisanal miners, as well as to stop miners from using mercury in mineral processing systems and to improve gold recovery methods. They also noted that even though there is clear recognition among communities and regulators as an illegal and informal operation, the sector is critical to rural livelihoods and therefore there are concerns related to its sustainability as a viable livelihood and the associated environmental and social impacts.

According to the aforementioned study, Peru created the Registro Integrado de Formalización Minera (REINFO) (2012), a database used to register miners for formalization. Since then, the registration process and database have gone through several updates, despite this, the national government confirmed the registration of approximately 50,000 miners by 2020 from southern Peru (Arequipa, Ayacucho, Puno, Apurimac and Madre de Dios).

In that order, it is important to regulate the obligations and procedures to be fulfilled by the holders of the mining activity for the development, presentation and implementation of mineral extraction, which ensure compliance with the investments it represents, subject to the principles of protection, preservation and recovery of the environment (Rodriguez and Julca, 2020), having as main purpose to mitigate its negative impacts to the health of the population, the surrounding ecosystem and property, taking into account that mining is one of the main sources of water, air, soil and landscape pollution, being at the same time the central activity of the country's economy, as pointed out by Menéndez and Muñoz (2021).

In the meantime, it is estimated that the economic impact related to mining activities carried out outside the law leads to unfavorable situations for the country, as described by Roma (2021) as follows;

- Many of the areas where mining activities are carried out have little effective presence of state institutions and are sometimes located in areas with permeable borders that make it difficult to enforce mining legislation.
- The increase in the price of precious metals, together with improvements in transportation and communication, have favored the profitability of an activity traditionally limited to the subsistence of producers.
- Unlike other activities, mining makes it possible to obtain metals such as gold, which is legally tradable and more profitable than, for example, cocaine, based on the price per kilogram.
- The pre-existence of a population that practiced the activity is frequently located in areas of the territory with high poverty rates and a lack of labor and professional alternatives.

- The mining activity is consolidated as one of the main values of the gross domestic product of the different nations in which this activity is developed, which has not prevented the percentage of illegal mining from reaching very high proportions.

In a complementary manner, the need for clear and effective state regulatory norms is highlighted, allowing to establish the responsibilities of the participant in the mining activity and assign relevant sanctions. Based on this, the following is mentioned in the Peruvian Legislation; Law n ° 29815 of December 20, 2011, analyzing two relevant aspects:

- Punish the absence of authorization from the competent administrative entity. In this sense, it must be assessed in the specific cases the assumptions of overreach of the license according to the principle of proportionality, in which the license circumscribes the authorization. In this respect, it must be understood that the license must be written and adapted to the mining legislation, excluding informal or verbal authorizations.
- The effective or potential accusation of causing harm, alteration or damage to the environment or its components, environmental quality or environmental health. That is, the concept of potential damage, being able to punish with the same penalty those who pollute and those who carry out an activity that, in many cases, has an almost unnoticed polluting scope.

CONCLUSIONS

The research carried out allowed us to generate the following contributions in relation to informal and illegal mining: Scope from the social, economic and environmental point of view in Peru:

It is important to form a unified commission to ensure compliance with Peruvian legislation and, beyond this, to represent informal workers, allowing their formalization and thus the optimal development of mining activities in accordance with the requirements of the national government, with the support of the State and the community to resolve socioeconomic and environmental conflicts. To achieve the above, clear and consensual regulations must be consolidated at the national and regional levels, through which the rights and duties of informal workers are valued, which clearly segregate the intentionality of the mining activity, supporting the inhabitants and severely sanctioning outsiders and natives when they break the law, guaranteeing the protection of the environment, water and soils.

It is recommended that a national training program be implemented for miners, in order to optimize their precise metal extraction processes, providing them with tools and knowledge to make them self-managers of their productivity and safety, giving them a place in the production chain, providing sources of employment and sustainability to vulnerable populations, and promoting their economic development.

Work together with the State and the large mining companies to create information, research and economic assistance campaigns for the population most affected by the effects of pollution and deforestation, demonstrating with actions their commitment to provide future generations with a safe place to live, being socially and environmentally responsible, and thus recovering the trust of society towards the public and private institutions involved.

REFERENCES

- Acosta, A. (2011). Extractivismo y neoextractivismo: dos caras de la misma maldición. *Más allá del desarrollo*, 1, 83-118. <https://cronicon.net/paginas/Documentos/paq2/No.23.pdf>
- Acosta, L. (2016). Cuatro tesis sobre las economías ilícitas. *Urvio. Revista Latinoamericana de Estudios de Seguridad*, (18), 13-27. <https://revistas.flacsoandes.edu.ec/urvio/article/view/2227>
- Banco Mundial. (2005). *Riqueza y sostenibilidad: Dimensiones sociales y ambientales de la minería en el Perú*. Lima: Banco Mundial. <https://documents1.worldbank.org/curated/fr/410671468079729976/pdf/335450a1PE0studio0Mineria.pdf>
- Brou González, P. (2019). Minería ilícita en el Parlamento Peruano: Análisis sobre el impacto del financiamiento de la campaña de Fuerza Popular en las Elecciones Generales del 2016. *Politai: Revista de Ciencia Política*, N° 19: pp.77-97 DOI: <https://doi.org/10.18800/politai.201901.003> <https://dialnet.unirioja.es/servlet/articulo?codigo=7199357>
- Chávez, Z. (2021). La dificultad del Estado para formalizar la minería informal del oro en Madre de Dios. *Acta Jurídica Peruana*, 4(2), 70-82. <http://revistas.autonoma.edu.pe/index.php/AJP/article/view/285/249>
- Gallardo, D., Cabrera, I., Bruguera, N., y Madrazo, F. (2013). Evaluación de impactos ambientales provocados por la actividad minera en la localidad de Santa Lucía, Pinar del Río. *Rev. Av*, 15(1), 94-108. http://www.ciget.pinar.cu/Revista/No.2013-1/articulos/impactos_ambientales_mineria.pdf

- Gianoli, A., Hung, A., y Shiva, C. (2019). Relación entre coliformes totales y termotolerantes con factores fisicoquímicos del agua en seis playas de la bahía de Sechura-Piura 2016-2017. *Salud Y Tecnología Veterinaria*, 6(2), 62. <https://doi.org/10.20453/stv.v6i2.3460>
- Glave, M. (2007). *La minería peruana: lo que sabemos y lo que aún nos falta por saber*. 52053, 135-181. https://www.ssoar.info/ssoar/bitstream/handle/document/51537/ssoar-2007-glave-La_mineria_Peruana_Lo_que.pdf?sequence=1
- Glave, M., y Kuramoto, J. (2002). Minería, minerales y desarrollo sustentable en Perú. *International Institute for Environment and development*, minería, minerales y desarrollo sustentable en américa del sur. <https://goo.su/SQM4>
- Kambuta, C. y Ulloa, M. (2020). Criterios de sustentabilidad para la explotación de granito en la provincia de Huila, Angola. *Minería y Geología*, 36(3), 351-365. <https://goo.su/0id3llp>
- Lozada, J. (2017). Opciones para una minería de oro que cumpla con las normas ambientales, en la Guayana venezolana. *Revista Geográfica Venezolana*, 58(2), 464-483. ISSN: 1012-1617. <https://goo.su/izgn9P7>
- Luque, L. (2021). Análisis de la deforestación de la Amazonia peruana: Madre de Dios. *Revista Innova Educación*, 3(3), 198-112. <https://doi.org/10.35622/j.rie.2021.03.013>
- Mamani, E., Chura, F., Ávila, D. y Quispe, G. (2022). Imaginario social de actores locales sobre la contaminación ambiental minera en el altiplano peruano. *Revista de ciencias sociales*, 28(1), 303-321. <https://dialnet.unirioja.es/servlet/articulo?codigo=8297226>
- Manrique, H., y Sanborn, C. (2021). *La minería en el Perú: balance y perspectivas de cinco décadas de investigación*. Universidad del Pacífico. <https://repositorio.up.edu.pe/bitstream/handle/11354/2898/DI16.pdf?sequence=1&isAllowed=y>
- Martínez, Z. (2013). *Guías prácticas para situaciones específicas: manejo de riesgos y preparación para respuestas a emergencias mineras*. CEPAL. <https://goo.su/PBrzfSQ>
- Menéndez, J., y Muñoz, S. (2021). Contaminación del agua y suelo por los relaves mineros. *Paideia XXI*, 11(1), 141-154. <http://revistas.urp.edu.pe/index.php/Paideia/article/view/3622/4588>
- Rodríguez, C., y Julca, D. (2020). *Gestión del cierre de minas en el Perú: estudio técnico- legal sobre el alcance de la legislación peruana en el cierre de operaciones mineras*. <https://goo.su/LY9Gwm>
- Roma, A. (2021). La protección penal frente a la minería ilegal: los modelos de Colombia, Perú, Bolivia y Ecuador. *Gladius Et Scientia. Revista De Seguridad Del CESEG*, (2). <https://doi.org/10.15304/ges.2.6469> <https://revistas.usc.es/index.php/gladius/article/view/6469>
- Smits, K., McDonald, L., Smith, N., Gonzalez, F., Lucena, J., Martinez, G. y Rosas, S. (2020). Voces Mineras: Clarifying the future of artisanal and small-scale mining collaborations. *The Extractive Industries and Society*, 7(1), 68-72 <https://doi.org/10.1016/j.exis.2020.05.001>
- Suárez, L. (2014). La minería manual en Colombia: Una comparación con América Latina. *Boletín de Ciencias de la Tierra*, (35), 37-44. <https://revistas.unal.edu.co/index.php/rbct/article/view/37056>